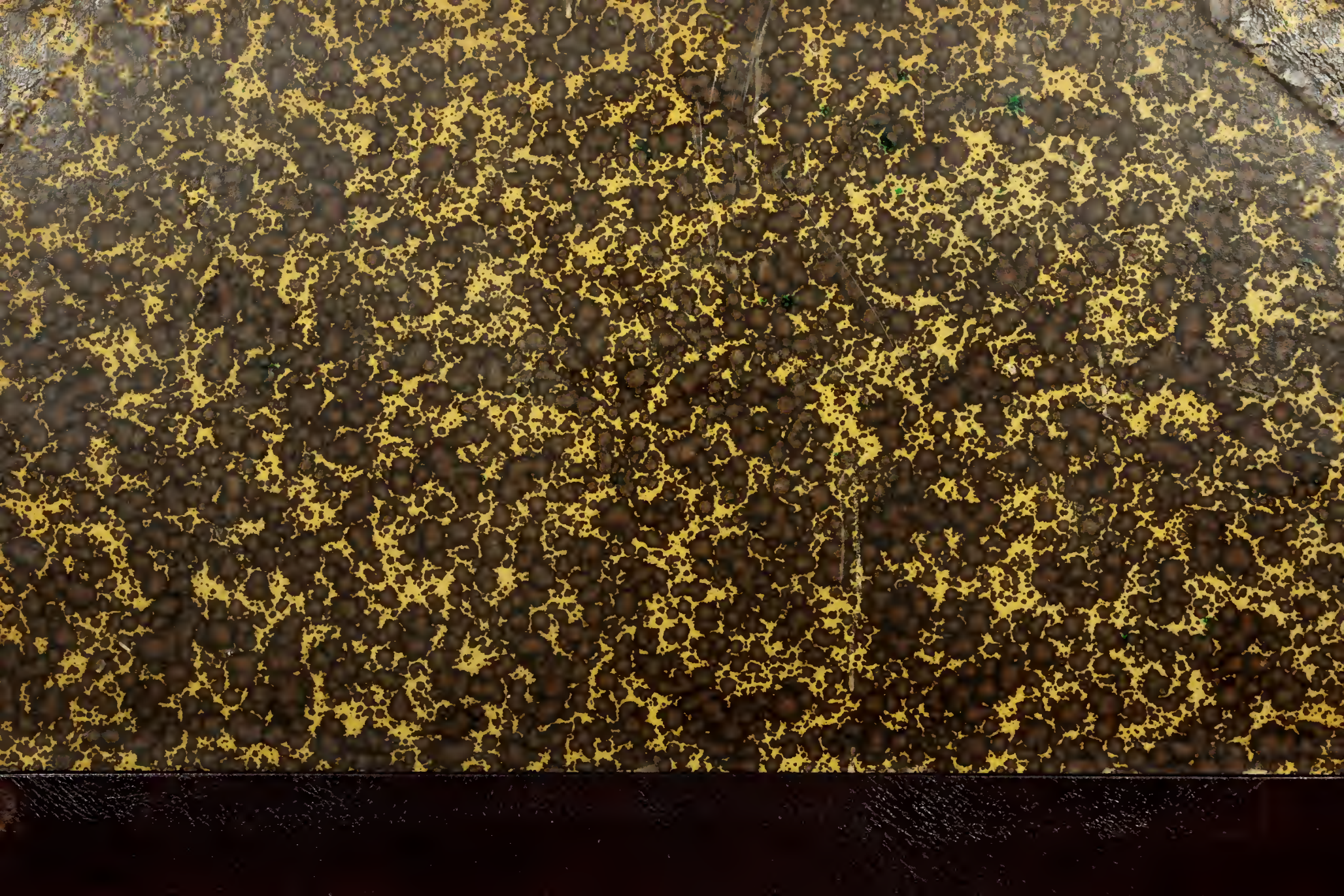

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MCMX.

The Oliver-Sharpey Lectures
ON
THE CEREBRO-SPINAL FLUID.

Delivered before the Royal College of Physicians of London on April 22nd and 29th, 1910,

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LECTURE I.

Delivered on April 22nd.

THE PHYSIOLOGY OF THE CEREBRO-SPINAL FLUID.

MR. PRESIDENT,—Allow me to thank you and the Fellows of the College for the great honour you have conferred upon me in asking me to give these lectures, which have been delivered in past years by distinguished English physiologists upon subjects having an important bearing upon medical science.

In the selection of a subject for these lectures I felt how desirable it was to follow in the footsteps of my distinguished predecessors in choosing a subject upon which I had spent research and one which at the same time would be of general interest to our profession. I therefore selected the subject of the cerebro-spinal fluid, the physiology of which is barely mentioned in the text-books of physiology, yet as events have shown during the past ten years the investigation of the cerebro-spinal fluid has proved of the greatest value in the differential diagnosis of diseases of the nervous system. I may mention that in the *Revue Neurologique* for the last ten years there are abstracts of 187 papers. I shall deal with the subject under two headings: (1) the physiology, and (2) the pathology of the cerebro-spinal fluid.

A consideration of the physiology of the cerebro-spinal fluid will naturally lead to an inquiry as to its physical and chemical properties, its source, its destination, and its functions. Before, however, proceeding to discuss these subjects in detail I must devote a little time to a brief historical introduction.

HISTORICAL REMARKS.

In 1769 Cotugnuo affirmed the presence in human bodies of a limpid and transparent fluid, like spring-water, that bathed the nervous centres. Contugnuo also found this fluid in fish and turtles, but his researches failed in the dog, why one does not know. A good but short description was made in 1766 by Haller in his researches upon the physiology of the human body. But Majendie first made a complete study of the nature of the pressure, of the movements, and of the rôle of the cerebro-spinal fluid (1825). He thus describes the existence of the fluid:—

Entre la pie-mère et l'arachnoide se trouve un liquide que je propose d'appeler cérébro-spinale; il existe chez l'homme et chez tous mammifères. Il sert à combler le vide qui existerait entre le cerveau et le crâne osseux; il se régénère avec rapidité, peut circuler à travers les ventricules cérébraux et les espaces sous-arachnoldiens du cerveau et de la moelle. Au moment de l'expiration le cerveau se gonfle; le liquide cérébro-spinale passe du crâne dans le canal vértébral. Quand on augmente la pression du liquide, on produit des phénomènes de paralysie et, d'autre part, quand par une ouverture on provoquo l'issu de ce liquide, le cerveau et la moelle n'étant plus protégés, il survient une débilité et une faiblesse générale de l'animal.

In 1858 Claude Bernard showed a notable quantity of a substance which reduced Fehling's solution. He affirmed that this reducing substance was glucose.

In 1891 Quincke introduced lumbar puncture as a means of treatment for intracranial pressure; it was tried in meningitis and general paralysis but with no beneficial therapeutical results. The simple and safe nature of the operation, however, led to a number of investigations relating to the cytology of the fluid in pathological conditions by French scientists—viz., Widal, Sicard, Ravaut, Abadie; and the successful results obtained in the diagnosis of the various forms of meningitis led to its universal adoption as a valuable means of clinical diagnosis; moreover, it was found that anæsthesia of the lower extremities could be obtained by injection of cocaine, stovaine, &c., into the spinal subarachnoid space by lumbar puncture; this added a new and surgical interest to the cerebro-spinal fluid.

The discovery by Castellani of the *Trypanosoma gambiense* in the cerebro-spinal fluid of cases of sleeping sickness led to lumbar puncture and examination of the cerebro-spinal fluid for trypanosomes becoming a recognised mode of diagnosis of sleeping sickness. But perhaps the greatest interest has been aroused by the application to the cerebro-spinal fluid of the Wassermann-Neisser serum reaction for syphilis by Plaut and others, with the most satisfactory results from a diagnostic point of view of general paralysis of the insane and, to a less degree, of tabes dorsalis. With this brief introduction to my subject I will pass on to discuss in detail the physiology of the fluid, and I will commence with

THE PHYSICAL AND CHEMICAL PROPERTIES.

The cerebro-spinal fluid is a fluid *sui generis*, for its physical and chemical properties are different from those of any other fluid in the organism; it approaches in its composition most nearly the sweat and the tears. The normal fluid is clear, like water. The specific gravity is 1·006 to 1·008. The cryoscopic point of the fluid is from -0·51° to -0·56° C.—that is to say, the temperature of congelation is very near that of blood (-0·56°C.). It is, practically speaking, devoid of all corpuscular elements and it contains only traces of protein matter, becoming only very slightly turbid on heating. It is alkaline in reaction, the alkalinity being only one-half that of the blood (Cavazzani). Calculated in percentages of sodium hydrate it varies slightly in different animals, and in man in different pathological conditions, but it will be observed from the subjoined figures that the variation is within very narrow limits. On an average it corresponds to 0·1 per cent. sodium hydrate.

Alkalinity of Cerebro-spinal Fluid.

		Per cent.	
Male.	Dementia (general paralysis ?) ...	0·1076	calculated as NaOH.
,,	,, (general paralysis ?) ...	0·1056	,, ,,
,,	General paralysis	0·1104	,, ,,
,,	,, ,, ...	0·1168	,, ,,
,,	,, ,, ...	0·1249	,, ,,
,,	,, ,, ...	0·1132	,, ,,
,,	Delusional insanity	0·1120	,, ,,

(Fluids obtained by lumbar puncture during life, all about noon.)

There is no correspondence between the alkalinity and the rate of flow of the cerebro-spinal fluid; but inasmuch as an acid substance is probably formed as a result of activity of the nervous centres it is possible that after normal sleep the alkalinity may be slightly greater than at the end of a day's work. Although nature generally provides some automatic mechanism whereby any excess of products of metabolism are either removed or neutralised by corresponding activity of secretory processes, in this case an increased cerebro-spinal fluid may be expected to flow if my premisses regarding its mode of origin and functions are correct.

Various analyses show that the principal constituent is sodium chloride, but it also contains traces of carbonates, bicarbonates, phosphates, urea, and dextrose. It is probable that the phosphates, bicarbonates, and carbonates contain relatively more potassium than the salts of the blood, for Geohegan has shown that the ash of the brain in contradistinction to the ashes of all other tissues contained from 20 to 30 per cent. of potassium against 15 per cent. sodium salts.

I have already mentioned that Claude Bernard proved the existence of sugar in the fluid, but examination of fluid obtained from meningoceles led Halliburton to the conclusion that the reducing substance was not sugar but pyrocatechin. He has, however, abandoned that idea and, in my judgment, it would be well if it were no longer mentioned in text-books, as a very able teacher of physiology expressed surprise when I said that glucose was always present in the cerebro-spinal fluid withdrawn during life; this teacher still thought the reducing substance was pyrocatechin. Since I hope to demonstrate the fact that glucose in the cerebro-spinal fluid is very possibly of great importance in the functions of the central nervous system, I wish to emphasise the fact that Professor Halliburton himself has adopted the view that glucose is the reducing substance and is always present in the cerebro-spinal fluid in normal conditions.

Cavazzani describes the presence of glucose in all cerebro-spinal fluids; he asserts that in human cerebro-spinal fluid a diastatic ferment

is present but in smaller quantity than in the lymph. I may mention that we have incubated six specimens of sterile cerebro-spinal fluid for two days without the reducing action being materially affected. Sterile cerebro-spinal fluid has been kept for weeks at the room temperature without the reducing action disappearing. Cavazzani drew off 205 c.c. of cerebro-spinal fluid from a hydrocephalic child; this had a specific gravity of 1·008, and contained 0·98 urea and 0·185 glucose-reducing substance. In another case the specific gravity was 1·006; it contained 0·44 urea and 0·185 reducing substance, with 4·479 chloride of sodium per 1000. Cavazzani was able to confirm in these cases his previous results that the alkalinity of the fluid is greater in the morning than in the evening.

Results of examination of the cerebro-spinal fluid in reference to the quantity of sugar in various conditions.—Mr. Sydney Mann has made for me quantitative analyses of the sugar (by the Fehling gravimetric method) in the cerebro-spinal fluid withdrawn by lumbar puncture during life. The amount of glucose varies from 1·2 to 2·5 per 1000; it will be observed that in dementia præcox the quantity is invariably lower than in any other condition.

Reducing Substance in Cerebro-spinal Fluid.

		Per cent.	
Male.	Old hemiplegia syphilitica	0·212	calculated in terms of glucose.
,,	General paralysis	0·186	,, ,,
,,	Neurasthenia	0·171	,, ,,
Female.	Dementia præcox	0·147	,, ,,
,,	,, ,, ...	0·146	,, ,,
,,	,, ,, ...	0·133	,, ,,
,,	,, ,, ...	0·127	,, ,,
,,	,, ,, ...	0·126	,, ,,

(Fluids obtained by lumbar puncture during life.)

That this substance which reduces copper salts is glucose is proved by the facts that it gives with phenylhydrazin the crystals of osazone which melt at from 205° to 206°; it is dextro-rotatory, and by the yeast fermentation test it yields carbon dioxide. We shall consider later its origin in the fluid and its functions.

The gases of the cerebro-spinal fluid.—As far as I have been able to ascertain there is no account of observations on the gases of the cerebro-spinal fluid. I have been long impressed with the importance of investigating this subject. Dr. John Haldane advised me to use Krogh's micro-tonometer for this purpose; the principle underlying the apparatus, simply stated, is the relative increase or decrease in size of a bubble of air after it has been freely exposed to the fluid, the gas tensions of which in relation to the component gases of the air we desire to ascertain. We found that the bubble after exposure to fluid which had been drawn off during life in such a way that it did not come into contact with the air, did not diminish in size; it showed rather a tendency to increase at atmospheric pressure, demonstrating that gas had escaped from the fluid to the bubble of air, and this gas was found to be carbon dioxide.

Before continuing these tension experiments it was deemed advisable to analyse the gases present in the cerebro-spinal fluid, and, with the assistance of Mr. Mann, I have been able to do this by employing a very convenient form of mercury pump invented by Professor T. G. Brodie and Dr. Winifred Cullis for determining the percentages of gases in salt solutions. The preliminary results that we have obtained are shown in the accompanying table:—

Analysis of Gases of Cerebro-spinal Fluid: Preliminary Results.

1. Gases obtained by boiling *in vacuo*.

	CO_2.	O_2.	N_2.	
	Per cent.	Per cent.	Per cent.	
1. Dementia præcox ...	8·488	0·356	2·25	by volume.
2. General paralysis... ...	11·067	0·237	1·42	,,
3. ,, ,, ...	11·89	0·157	1·02	,,
4. ,, ,, ...	9·18	0·316	1·97	,,
5. ,, ,, ...	11·19	0·079	0·99	,,

2. Carbon dioxide obtained by boiling *in vacuo* with dilute acid.

	Per cent.	
1. Dementia præcox...	53·21	by volume.
2. Dementia, general paralysis?...	54·90	,,
3. General paralysis...	56·38	,,
4. ,, ,, ...	61·13	,,
5. ,, ,, ...	56·19	,,
6. ,, ,, ...	54·41	,,
7. ,, ,, ...	54·8	,,
8. ,, ,, ...	54·41	,,
9. Dementia, general paralysis?...	54·73	,,
10. ,, ,, ,, ...	58·36	,,

It will be observed that varying small amounts of oxygen and nitrogen are obtained, but the amount of carbon dioxide which can be obtained by boiling the fluid *in vacuo*, on an average, is 10 per cent. by volume; this 10 per cent., I may remark, is obtained by five or six successive operations of boiling *in vacuo*, so that it may be presumed this 10 per cent. by volume of carbon dioxide is in loose dissociable combination. If, however, we take 1 c.c. of the fluid and treat with a weak acid in the same way, we then obtain about 50 per cent. by volume of carbon dioxide. Comparing these results with the gases obtainable from lymph or serum we find that:—

	Cerebro-spinal fluid yield. Per cent.	Lymph and serum yield. Per cent.
By vacuum and heating	10	46 by volume.
By acid and heating *in vacuo* ...	50	50 ,,
Difference representing CO_2 in stable combination	40	4 ,,

It would therefore appear that the carbon dioxide is in a more stable combination in the cerebro-spinal fluid than in the blood. The oxygen and nitrogen in the fluid in all probability did not come from the atmosphere, for the fluid was drawn off into tubes filled with mercury.

As I observed previously, the investigation of the gas tensions of the cerebro-spinal fluid has been deferred, awaiting the results of the experiments just quoted, and at present I am unable to give any figures.

The object of these researches is to see if the cerebro-spinal fluid can, by virtue of its chemical composition and gas tensions, function as the lymph of the brain. It must, however, always be borne in mind that the fluid which we withdraw by lumbar puncture may be the fluid coming from the perivascular lymphatics of the brain diluted by the secretion of the choroid plexus. This fluid does not, however, correspond to ordinary tissue lymph, even if it were diluted, for the following reasons.

The composition of the fluid is against it being a transudation from the blood or a lymphatic secretion, and the following facts prove this conclusion: (1) It contains 0·02 per cent. of proteins against 7 per cent. in blood plasma; (2) it contains 0·02 per cent. of proteins against 4·5 per cent. in body lymph; (3) there is an absence of lipochrome; (4) there are no leucocytes in the normal fluid; (5) in enteric fever there is absence of agglutinins; (6) it has no hæmolytic action on the blood corpuscles of other animals; (7) it contains no alexins.

Moreover, Cavazzani studied the effect of injection of lymphagogues of Heidenhain—e.g., peptone, extract of eel's blood, glucose, chloride and iodide of sodium—and although in some instances the rate of flow was increased, the amount of ash was not increased. Capelletti has shown that in dogs ether and pilocarpine increase the rate of outflow, atropine and hyoscyamin diminish it, and amyl nitrite produces no effect.

In general with a few exceptions experimental observations on men and animals have shown that drugs administered by the mouth or subcutaneously do not pass into the cerebro-spinal fluid; this rule also applies for bacterial toxins; neither Blumenthal nor Jacob could find tetanus toxin in the cerebro-spinal fluid when injected subcutaneously into goats. Ransom confirmed this in dogs and rabbits, and only in two of many cases recorded have the results of examination shown the tetanus poison in the cerebro-spinal fluid. In has long been known that in the great majority of cases of jaundice the brain is not stained with bile, nor is the cerebro-spinal fluid coloured by the bile. I only remember seeing it on one or two occasions in a large post-mortem experience. Later on I shall consider the effects of injection of toxic and other substances into the subarachnoid space. The facts I have mentioned all speak against the fluid being either a transudation or lymph secretion, although it is generally admitted that the perivascular lymphatics open into the subarachnoid space. Where does it come from?

SOURCE OF THE CEREBRO-SPINAL FLUID.

Willis in 1664 called attention to the glandular nature of certain reddish granulations (the choroid plexus). The cerebro-spinal fluid is found in all vertebrates, and Pettit and Girard in 1902 published a monograph on the secretory function and morphology of the choroid plexus of the central nervous system, which embraced the systematic study of the plexuses in different animals belonging to different classes of

vertebrates. They state that Faivre in 1854 affirmed the intimate relation of the choroid plexus with the cerebro-spinal fluid. The works of Luschka, and the more recent work of Kingsburgh, Findlay, Galeotti, Studnicka, together with the physiological researches of Cavazzani and Capelletti, have progressively tended to support this view of the source of the cerebro-spinal fluid.

Pettit and Girard have been able to establish a generalised secretory function of the choroid plexus in the different

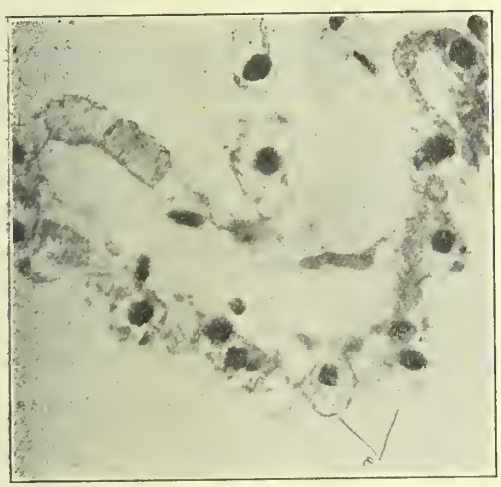
FIG. 1.

Small choroidal granulation obtained from a sheep's brain immediately after death stained by the vital methylene-blue method of Dogiel. The vacuolated appearance of the cells on their surface is well shown. Magnification 80.

classes of vertebrates; moreover, by the administration of substances endowed with a hyper-secreting action they were able to cause variations in the activity of these structures and corresponding histological changes in the cells covering the plexus.

I have examined the choroid plexus in the human subject obtained in some instances soon enough after death to stain well with the vital methylene blue method. I throw on the screen

FIG. 2.



Photomicrograph of a section of the choroid plexus of the human subject stained by Giemsa fluid. The cells are all vacuolated: at (*a*) the section has divided a cell, showing a vacuole, quite superficial; above this there is a cup as if a vacuole in an adjoining cell had discharged the fluid content. Magnification 650.

lantern slides illustrating the structure of the human choroid obtained from the lateral ventricles. The first is a drawing by Dr. Edgar Schuster of a small piece of the choroid stained by vital methylene blue fixed with molybdate and mounted in Canada balsam; the specimen is not a section but a piece of about the size of the point of a large pin; it is one of the granulations just visible to the naked eye, and this again we see is made up of numbers of microscopic granulations clothed with spheroidal epithelial cells (Fig. 1). The appearance is just such as we would expect if the cells secreted the cerebro-spinal fluid.

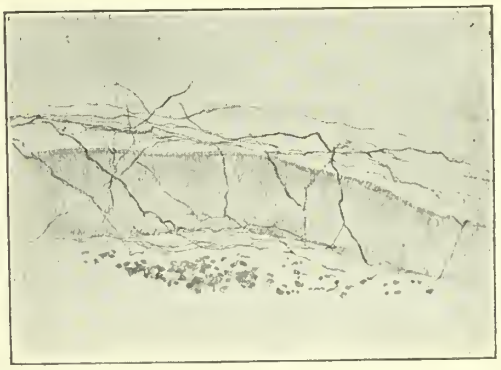
In sections under a higher power we are able to make out more definitely the structure of the plexus. Tufts of vessels are seen surrounded by a loose connective tissue covered by a single layer of cubical, spheroidal, or polyhedral cells lying on a basement membrane (Figs. 2 and 3). Around the

FIG. 3.

The same section as Fig. 2; the polyhedral cells, supported by a delicate connective stroma, are seen to cover vascular finger-like tufts. Magnification 200.

arteries and arterioles and lying in the loose connective tissue numerous nerve fibres are seen in the form of a plexus, but I have not been able to follow the terminal fibrils between the cells. This plexus of nerve fibrils from the choroid plexus of the sheep is well shown in this drawing by Dr. Schuster (Fig. 4).

FIG. 4.



A section from the same preparation as Fig. 1 showing a plexus of nerves around an artery; some fibres may be seen entering into the connective tissue stroma of the gland. Magnification 50.

I will now project on the screen a photomicrograph of the human choroid plexus under a magnification of 650 diameters. In one there are many more vacuoles in the cells than in the other. In one cell of this specimen you see a clear vacuole quite near the surface; in the border of the adjoining cell you observe a cup-like cavity, just such as one would expect if fluid had escaped from one of the vacuoles (Fig. 2). Comparison with the lacrymal gland shows that the epithelial cells of the choroid plexus present a very similar appearance. The histological evidence is all in favour

of the choroid plexus being a gland with an external secretion, but with an internal destination; it would thus constitute a mixed type of gland intermediate between a gland with a duct and a ductless gland. The mode of formation of this gland is effected in an inverse manner, epithelial invagination for the gland with an excretory duct, ependymal invagination for the choroid plexus. In the former case the vascularisation is peripheral, in the latter it is central.

If we can accept these observations as conclusive proof that the choroid plexus is the source of the cerebro-spinal fluid and that it is continually secreting this fluid, then we can understand its unique chemical composition and its freedom under normal conditions from all corpuscular elements. There is abundant evidence that this fluid is continually being secreted, for Matthieu has collected a number of cases in which large quantities of cerebro-spinal fluid have drained away daily in consequence of injuries of the subarachnoid space by which a communication was established with the exterior. Surgeons have often recorded observations on patients who, after fractures of the base of the skull or extirpation of sub-basilar polypi, have lost large quantities of fluid amounting in the 24 hours, in some cases, to between one and two litres (Billroth, Verneuil, Routier, Tillaux). Halliburton, Hill, and StClair Thomson have also recorded observations of a case of dripping of large quantities of cerebro-spinal fluid from the nose.

An argument in favour of the cerebro-spinal fluid being in the main secreted by the choroid plexus in the lateral ventricles is afforded by the effects of increased intracranial pressure arising from interference with the escape of the fluid from its principal source in the lateral ventricles. I do not intend to discuss fully the subject of hydrocephalus,[1] but certain interesting cases which have occurred in my practice or have come under my notice at necropsies are instructive. They are cases of internal hydrocephalus caused by non-malignant slow-growing tumours of the third ventricle, and one case of chronic basic meningitis caused by caries of the petrous bone. All four cases had well-marked signs of increased intracranial pressure, vomiting, headache, optic neuritis, tremors, fits, and drowsy stupor, with progressive mental enfeeblement, so that the diagnosis of general paresis was made in all cases except one, which was under my care in Charing Cross Hospital.

The patient was a married man aged 32 years; the first symptom noticed was that while out walking he was attacked with drowsiness and headache followed by a fit; after this he was subject to frequent attacks of a similar nature from which he recovered. Eventually he died, and at the necropsy a small tumour was discovered loosely attached to the choroid, which from time to time could easily have taken up such a position as to block the iter, and thus lead to distension of the third and lateral ventricles of the brain. Seeing that the symptoms came on with drowsiness and headache—this condition ushering in a fit—we may conclude that at this time the tumour had attained such a size that if by chance it fell into such a position as to block up the iter of the third ventricle the fluid secreted by the choroid plexus accumulated in the lateral ventricles, which would, of course, necessitate the prone position and possible dislodgement of the tumour, thereby the escape of the fluid into the subarachnoid space, and sooner or later the return of the patient to his normal state of consciousness, at least this was so in the earlier stages of the illness.

Here we have a condition of cortical anæmia produced followed by the effects like those of an experiment—namely, drowsiness, loss of consciousness, followed by epileptiform convulsions, and towards the end a persistent dulness of comprehension, failing memory, and slowness of ideation, the result of changes in the cortical cells. Doubtless the drowsy stupor and lethargy which come and go in syphilitic basic meningitis are largely due to internal hydrocephalus, produced by the obstruction to the outflow of cerebro-spinal fluid secreted in the lateral ventricles by the choroid plexus. As soon as the pressure rises to a certain degree the obstruction is overcome, and an escape takes place into the subarachnoid space, whence it can flow from the cranial cavity in the manner previously indicated.

These symptoms of internal hydrocephalus, moreover, support the view that the cerebro-spinal fluid is, for the most part, secreted by the choroid plexus contained in the lateral ventricles.

In support of the statement that the choroid plexus secretes the cerebro-spinal fluid, I may mention that at the last meeting of the Physiological Society Halliburton and Dixon stated that an intravenous injection of the saline extract of the choroid plexus produces in dogs a marked increase in the rate of flow of the fluid from the cannula placed in the subcerebellar cisterna. Extract of the brain produces the same result but not so marked.

DESTINATION OF THE FLUID.

The fluid secreted in the ventricles escapes from the fourth ventricle into the subarachnoid space by the foramen of Majendie and the foramina of Luschka.

The foramen of Majendie.—When the cerebellum is raised posteriorly so as to expose the tela choroidea one sees at the level of the point of the calamus scriptorius a round or oval opening with irregular borders as if torn. This orifice connecting the fourth ventricle with the subarachnoid space was first pointed out by Majendie, and has since been called after its discoverer. It is situated in the mid line and measures 7–8 mm. in length by 5–6 mm. in breadth.

Foramina of Luschka.—These are a pair of lateral orifices connecting the fourth ventricle with the subarachnoid space. They occupy the external extremity of the lateral recess which the cavity of the fourth ventricle forms and from which emerge the origin of the mixed nerves. Through the foramina of Luschka the choroid plexus of the fourth ventricle passes.

The existence of the foramen of Majendie has been doubted by Cruveilhier, Reichert, and Kölliker who regarded it as an artifact. The foramina of Luschka have been described by Marc Sée and Hess. The last-named anatomist met with them 51 times out of 54 subjects examined; they are, therefore, nearly constant.

The fluid having escaped into the subarachnoid space fills up all the spaces, cracks, and crevices; at the base of the brain, therefore, it is more abundant than on the convexity; it forms what are termed lakes, rivers, and rivulets (cisterna and flumina). The quantity of fluid contained in the subarachnoid space, ventricles of the brain, and central canal of the spinal cord is about 100 c.c. to 130 c.c., and there is every reason to believe that this fluid is continually being secreted, for experiments on animals and observations on man show that a large quantity of cerebro-spinal fluid can be drawn off by lumbar puncture and soon be replaced. But the fluid cannot be continually secreted and not flow away. According to one view, it escapes along the lymphatics of all the cranial and spinal nerves, thus reaching the receptaculum chyli and thoracic duct, passing through the paravertebral lymphatic glands in its passage, and eventually, therefore, arriving in the venous circulation.

Flatau's experiments by injection in the rabbit (*viâ* the olfactory nerve in particular) demonstrate that the fluid follows the course of the perineural sheath; then passes directly into the lymphatic networks of the nasal mucosa; thence it arrives at the glands of the neck and the naso-pharyngeal cavity; but, according to Flatau, the injection never runs to the surface of the mucosa, as Retzius asserted. Some of the cerebro-spinal fluid probably does escape along these perineural lymphatics, and it is probable that these are the avenues of infection in the production of tuberculous, syphilitic, epidemic, and pneumococcic meningitis.

However, the observations of Leonard Hill and Cushing favour the view that the fluid contained in the cerebral subarachnoid space and perivascular canalicular systems finds its exit from the cranium by means of the veins opening into the longitudinal sinus. Hill found that

> Saline injected at any pressure above the cerebral venous pressure disappears from the cranio-vertebral cavity; the higher the pressure, the more rapid its disappearance. As a result of injecting saline coloured with methylene blue, fluid can be traced passing straight into the venous sinuses. In so short a time as 10 to 20 minutes, the blue colour may be found secreted in the stomach and in the bladder. On the other hand, the lymphatics in the neck in so short a time are not coloured. After an hour's steady injection the deep cervical and lymphatic glands are seen to be only partly tinged with the blue colour.

Cushing, after producing intracranial pressure by injection of normal saline solution, states that the fluid does not escape readily from the subarachnoid cavity; even under pressure not more than from 60 c.c. to 100 c.c. escape in half an hour perhaps. He agrees with Adamkiewicz that there exists a free communication between the subarachnoid space and the longitudinal sinus. He questions the correctness of Key and Retzius's hypothesis that the Pacchionian glands act as a filter, for, as he remarks, they do not exist in very young children or in some of the lower animals. The nature of these openings of the subarachnoid space is not known, but

[1] The subject is very fully treated by Sir T. Barlow and Dr. Lees in their article, Simple Meningitis in Children, System of Medicine, Allbutt, vol. vii.

probably they run obliquely forwards, like the veins, into the sinus, and have, like them, a valvular action, so that the fluid can flow into the sinus, but blood cannot flow back. Mercury injected into the subarachnoid cavity found its way into the sinuses, jugular veins, and right heart. A non-absorbable gas introduced into the subarachnoid space produced death by cardiac air-embolism, and, if the jugulars were exposed, bubbles of it could be seen pouring down towards the heart. Exposure of the cervical lymphatics and of the thoracic duct, on the other hand, showed in all instances a complete freedom from gas.

Reiner and Schnitzler injected a saline solution of potassium ferrocyanide into the cranium. This salt very rapidly appeared in the jugular vein. The venous flow was quickened by the injection. On the other hand, injection of olive oil caused compression of the cerebral vessels, and slowed the venous outflow. This rather supposes another way of escape, and I venture to suggest the cerebro-spinal fluid may get into the venous blood by the capillaries.

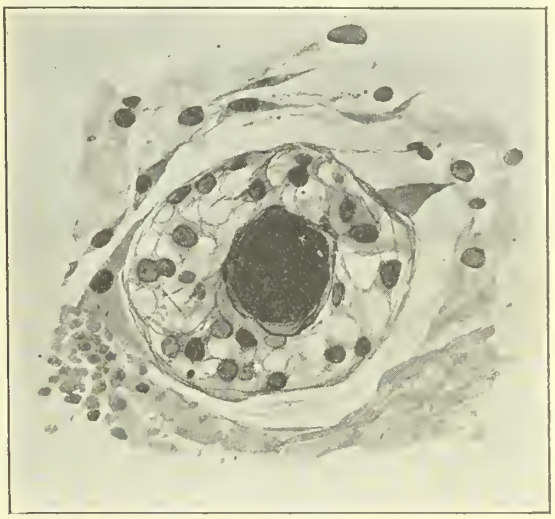
Before giving my reasons for this hypothesis it will be necessary to give a description of the lymphatic sheaths of the vessels of the brain. Testut thus describes the perivascular lymphatics. Robin in 1858 proved the existence of a membrane surrounding the vessels of the central nervous system in the form of a sleeve, leaving an interval between it and the vessels; it is a membranous tube in which the blood-vessel is, as it were, suspended. This is the lymphatic sheath.

The wall of this sheath is very delicate and is continuous with the tunica adventitia. It is constituted, at least for the larger vessels, of extremely fine and delicate bundles of connective tissue which are the branches of flattened plate-like cells of a fusiform or polyhedral shape. The external surface of the sheath is formed by the nervous substance. Its internal surface is towards the vessel from which it is separated by a space which surrounds immediately the vessel. This space which separates the vessel from the pial sheath is traversed by very fine trabeculæ which extend from its external to its internal wall. It is filled by a *clear and transparent fluid* which from the point of view of its morphological significance should be considered as lymph. It contains in variable amount lymph corpuscles, fatty granules, and sometimes even drops of oil. The lymphatic sheaths are observed in the venules and the arterioles, but they are always better developed on the latter than on the former. At the place where the arteriole divides into capillaries, the lymph space terminates in a cul-de-sac; it is not only that the sheath ceases to exist but at this situation it is applied against the wall of the capillary, leaving no recognisable space between them.

The lymphatic sheaths open into the subarachnoid space, which thus become their common rendezvous; *vice versâ* it may be asserted that the lymphatic sheaths of the vessels of the central nervous system are intracerebral and intraspinal prolongations of the subarachnoid space. Eberth has pointed out the existence of a continuous endothelial covering on one or other of the walls. This endothelial covering also occurs on the trabeculæ which traverse the lymphatic space. His by successful injection experiments has proved the existence of two sheaths, the adventitial sheath of Robin, and another periadventitial which surrounds it like a sleeve. His affirms that the two sheaths are entirely independent of one another; that is to say, there is no intercommunication. On the central side the periadventitial sheaths are connected with the pericellular spaces. On the peripheral side they end in a series of lacunæ which occur between the external surface of the central nervous system and the pia mater which covers them; according to the region these are termed epispinal, epicerebral, and epicerebellar spaces of His. Testut remarks that the periadventitial sheaths are considered by some anatomists to be artifacts and have not the same significance as the pericellular spaces. They are simply interstices nearly virtual in ordinary conditions, but, in consequence of injection or of pathological conditions, capable of enlarging and acquiring a real capacity. As in the adventitial sheaths, the lymph circulates from within out and very probably passes by simple filtration into the subarachnoid space by at present little understood communications.

A study of the histological conditions met with in the perivascular sheaths in chronic meningo-encephalitis of syphilis, general paralysis, and sleeping sickness throws some light upon the structure of the perivascular lymphatics; in the normal state the structures are too delicate to permit of clear observation, but when owing to chronic irritation the morphological elements actively proliferate, it may then be seen that the appearances coincide with those of chronic inflammation of lymphatic structures elsewhere in the body. Sleeping sickness offers the best material for the study of the perivascular sheath; in this disease the connective tissue cells of the pial sheath proliferate and form a dense network, in the meshes of which are abundant lymphocytes and plasma cells. I came to the conclusion that the plasma cells and the lymphocytes were the result of the proliferation of the endothelial cells. This chronic perivascular lymphatic cell proliferation is the same as, and continuous with, the cell proliferation of the lepto-meninges. It is associated with a proliferation of the special connective tissue elements of the nervous system—the neuroglia (Fig. 5). The normal

FIG. 5.



Inflamed lymphatic sheath of a small spinal artery in a case of punctate syphilitic myelitis. The proliferation of the branched connective tissue cells of the pial sheath is well seen. Drawing by Dr. Edgar Schuster. Magnification 650.

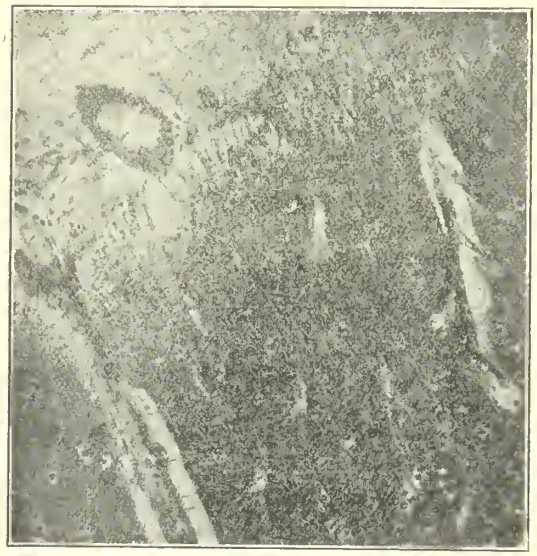
cerebro-spinal fluid contains no cell elements, but in all affections causing a chronic meningo-encephalitis the fluid contains lymphocytes, generally speaking, in proportion to the severity and widespread extension of the meningo-encephalitis, whether it be due to syphilis, parasyphilis, sleeping sickness, or tuberculosis.

I have studied the histology of the perivascular lymphatics in the brains of animals in which Dr. Leonard Hill had produced experimental anæmia by ligature of three or more of the cerebral arteries—e.g., two carotids and one vertebral in monkeys, the animals dying or being killed at various periods of time after the operation. The vessels, especially the arteries, arterioles, and capillaries, are in consequence of the ligation of the trunk arteries empty and collapsed, yet the brains on exposure were not shrunken; they were quite pale and watery, and microscopic examination indicated that the reason that the brains had not shrunken was the fact that the cerebro-spinal fluid had filled up the spaces which would otherwise have existed from the blood-supply having been cut off. Small portions of the brains were generally hardened in alcohol, but specimens were prepared from one monkey's brain in which experiment two carotids and one vertebral were ligatured, the animal dying 23 hours after. The brain of this monkey was removed and placed in Mann's picric and perchloride of mercury solution (Figs. 6 and 7).

Most of the experimental anæmic brains of the monkeys that died as a result of the ligature of the vessels showed a perivascular canalicular system continuous on the one hand with the perineuronal spaces, and, on the other hand, with the subarachnoid space. The perivascular spaces are clear and transparent, therefore they cannot contain ordinary

lymph because an amorphous deposit of coagulated albumin would have been precipitated by the perchloride and picric fluid. It cannot, however, be an empty space, and seeing that it is continuous with the subarachnoid space it is reasonable to presume that it is filled with cerebro-spinal

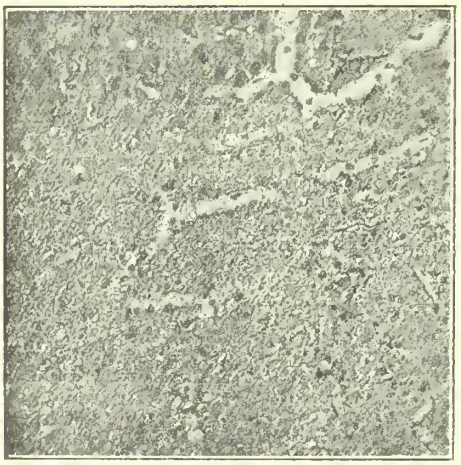
FIG. 6.



Photomicrograph of the brain of a monkey—experimental anæmia—showing two vessels with the dilated perivascular lymph sheaths continuous with the subarachnoid space; both are distended with a clear fluid; fine trabeculæ can be seen stretching across from the wall of the vessel to the nervous substance, therefore the dilatation is not due to an artefact. Magnification 200.

fluid. It is not an artifact due to the hardening, otherwise the delicate strands of connective tissue which you see stretching across the space would not be present. In another section of the same brain this canalicular system is shown surrounding the smaller vessels and con-

FIG. 7.



Photomicrograph of the subcortical white matter of the same specimen as Fig. 5, showing the dilated perivascular lymph spaces distended with a clear fluid; the contained blood-vessels are collapsed and empty. Magnification 200.

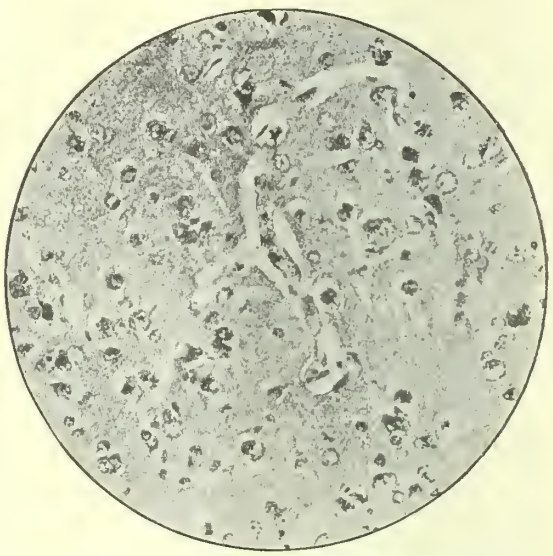
nected with the perineuronal spaces, and here again it may be observed that there is no evidence of any protein-containing lymph (Fig. 8). Occasionally the perineuronal spaces can be seen in direct communication with the space aronnd a capillary (Fig. 9). These perineuronal and perivascular lymphatic spaces and their interconnexions can only be seen in abnormal conditions. In experimental anæmia a space can be seen around the capillaries, and stretching across from the wall to the snrrounding nervous tissne are delicate connective tissue threads, as this photomicrograph shows. It would thns seem probable that a canalicular system snrrounding the cells and vessels of the brain exists which is in direct communication with the subarachnoid space. This canalicular system contains a fluid of non-protein nature (probably, therefore, the cerebro-spinal fluid), which may serve as the ambient fluid of the neurons and play the part of lymph to the central nervous system.

I will here quote a passage from the article on Meningitis by Sir T. Barlow and Dr. Lees. "We may here add that cerebro-spinal flnid as obtained from any point below the fourth ventricle cannot be an absolntely pure secretion; it must contain waste products resulting from cerebral metabolism, for into the subarachnoid space surrounding the brain open the lymphatic sheaths of all the cerebral arteries, and Dr. Bevan Lewis has shown that the nerve cells of the brain are placed within pericellular sacs, each of which has a definite lymphatic connexion with the wall of a small blood-vessel."

MECHANICAL EFFECTS OF THE CEREBRO-SPINAL FLUID.

The blood-vessels of the cerebro-spinal axis have comparatively thin walls, and the arteries relatively few muscular fibres and vaso-motor nerves. The uniform

FIG. 8.



Photomicrograph of the cortex cerebri of a monkey. Experimental anæmia. The dilated perivascular spaces are seen to be connected with the dilated perineuronic spaces; this is rendered clear by the empty condition of the small blood-vessels. Magnification 250.

pressure of the fluid sleeve which surrounds the blood-vessels serves to support their column of blood. The whole central nervons system being contained in a closed space, the cerebro-spinal fluid fills up all the space which is not occupied by tissues or blood, serving thereby to eqnalise the pressure throughout the whole cranio-spinal cavity; moreover, it acts as a water cushion, especially at the base of the brain, protecting the vital structures of the medulla from the shock of commotion and concussion. It serves also as a self-adjusting mechanism by maintaining a uniform eqnalisation of the blood-supply to the nerve elements dnring the rhythmical variations of respiration and circulation. The question arises, does it play the part of the lymph?

FUNCTION OF THE CEREBRO-SPINAL FLUID.

If the cerebro-spinal fluid serves as the lymph of the brain, it may be asked, How is it that generally, with few exceptions, experimental observations on men and animals have shown that drugs and bacterial toxins administered by the mouth and subcutaneously do not pass into the cerebro-spinal fluid? Experiments, however, have shown that very much smaller quantities of these same drngs and bacterial

toxins injected into the cerebro-spinal fluid of the subarachnoid space produced much more marked and a much more rapid onset of symptoms.

Thus Lewandowsky observed that a few centigrammes of sodium ferrocyanide injected into the subarachnoid space rapidly produced toxic symptoms, whereas from 4 to 6 grammes injected into the jugular vein in rabbits of the same weight produced no specific symptoms. This was not due to the salt solution employed, for a 10 per cent. saline solution injected into the subarachnoid space produced only slight effects.

Behring found that hens injected subcutaneously or intravenously with tetanus toxin suffered no effects, whereas when it was injected into the cerebro-spinal fluid they died from typical tetanus.

Jacob after introduction of methylene blue and iodine into the cerebro-spinal fluid was able to demonstrate their presence in the brain several days later, although these substances were now no longer present in the cerebro-spinal fluid. These researches indicate that substances in the cerebro-spinal fluid can directly act upon the ganglion cells of the brain and spinal cord. Lewandowsky affirms that this takes place by way of the lymph channels.

According to the anatomical proofs of Schwalbe, Key, and Retzius and the physiological observations and experiments of Quincke and Jacob, the perivascular lymphatics open freely into the subarachnoid space. They injected methylene blue and cinnabar, also ferrocyanide of sodium, converting the latter into Prussian blue, and showed in a most convincing manner under the microscope the existence of the substances injected in the perivascular spaces. Lewandowsky, after injection of methylene blue, also observed imbibition phenomena which were likewise observed by Bruno.

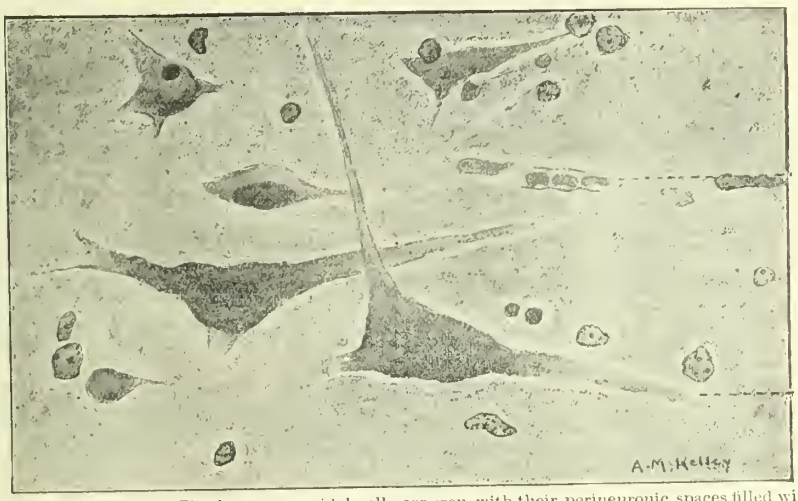
This experimental evidence tends to support my contention that the cerebro-spinal fluid comes into relation with the nerve-cell elements and therefore may be the ambient fluid. But if substances are unable to pass from the capillaries into the lymph spaces, experiments show that substances are able to find their way rapidly into the blood when injected into the subarachnoid space. This may be by the channels already alluded to. But I have shown that the perivascular lymphatics open into the subarachnoid space, and if these perivascular lymphatics contained ordinary tissue lymph the cerebro-spinal fluid would contain a very much larger amount of protein and lymph cells than it does; there must be some medium of exchange between the blood in the capillaries and the neurons, and, therefore, why not the cerebro-spinal fluid?

Suppose, then, it be granted that the cerebro-spinal fluid may function as the lymph of the brain, and is the ambient fluid in which exchanges take place between the blood in the capillaries and the neurons, can we explain why substances do not pass out of the capillaries into the fluid? Most authorities are agreed that there is no lymphatic sheath on the capillaries, so that we have only, so far as we know, the wall of the capillary intervening between the blood and a fluid which is similar to blood plasma in its crystalloid diffusible substances although not identical, for its alkalinity is only half that of the blood and the sugar it contains is less.

The force which determines a movement or exchange between solutions in immediate contact separated by a more or less permeable membrane is termed the osmotic pressure. By this force substances dissolved are displaced to situations where they are less concentrated. Water moves in an opposite direction. This movement constitutes the phenomena of diffusion and the osmotic pressure is the motive force which animates matter and produces diffusion of two liquids unequally rich in dissolved molecules separated by a membrane; the more concentrated liquid attracts a portion of the water contained in the less concentrated liquid. The osmotic pressure of a fluid is proportional to its dissolved molecules—in other words, to its molecular concentration. In human physiology the blood serum is generally taken as a standard of osmotic pressure, and the terms isotonic, hypertonic, and hypotonic solutions are terms used in reference to normal blood serum.

Is it a reasonable hypothesis that the osmotic pressure as regards water and carbon dixoide is from the ambient cerebro-spinal fluid to the blood, and that certain of the salts and sugar pass from the blood to the fluid through the wall of the capillary? As we have no precise knowledge of the composition of the cerebro-spinal fluid as it leaves the cells of the choroid plexus, we can only say it is possible that this fluid is not exactly the same in composition as that which is contained in the subarachnoid space. By this I mean to infer that the fluid which is secreted by the epithelial cells of the choroidal gland in its passage from the subarachnoid space along the perivascular lymphatics back to the subarachnoid space may receive substances—e.g., an addition of sugar and possibly some salts. Whether this fluid, as it is secreted by the choroid plexus, is the same as that withdrawn from the subarachnoid space by lumbar puncture is the crucial point which requires to be settled before the hypothesis I would draw can be maintained. The hypothesis is that the fluid as it circulates in the perivascular and pericellular channels may give up water and carbon dioxide and take up oxygen and sugar. Seeing that there is no proof to my mind that the fluid contains a glycolytic ferment, it may, if this hypothesis is true, be assumed that the ganglion cells produce the necessary glycolytic ferment by which the sugar can be converted into neural energy. The observations and experiments are, however, all in a preliminary stage and much work still is necessary before any safe conclusions can be drawn. The results so far obtained, however, are sufficiently

FIG. 9.



Drawing of a small portion of Fig. 1. The large pyramidal cells are seen with their perineuronic spaces filled with a non-coagulated fluid. The apical process of one cell is seen in a canalicula which is directly connected with a space around a capillary. Magnification 500.

encouraging to lead to a continuance of the work. In my next lecture I propose to deal with the subject of the cerebro-spinal fluid from the pathological point of view.

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A MEDICAL VISIT TO LE TOUQUET.—Le Touquet, a health resort near Boulogne, at least as well known for its golf course as for other reasons, was visited last week end by a party of medical men from London who were shown round the place by the Mayor and Mr. Stoneham representing the Le Touquet Syndicate. Among the party were Dr. F. M. Sandwith, Dr. Purves Stewart, Dr. Leonard Williams, Dr. Camac Wilkinson, Dr. F. J. McCann, Mr. H. Paterson, Mr. E. Canny Ryall, Mr. Charles Ryall, Mr. C. Gordon Watson, Dr. Eric Pritchard, Dr. J. Nachbar, Mr. G. Rowell, Mr. Rolf Creasy, and Mr. L. Eliot Creasy. The party were first conducted to the pavilion where the saline water of the place was dispensed. The analysis of this water shows that the resemblance in clinical results to the Contrexéville water is borne out by the chemical and other properties. The beautiful grounds of the charming casino in the pine woods opposite the Hermitage Hotel and the arrangements for safe bathing on the shelving sands of Paris Plage adjoining the Le Touquet forest came in for favourable notice. At a banquet given in honour of the visitors, held at the Golf Hotel, Dr. Leonard Williams, speaking in French, thanked the authorities of the different places for their courteous hospitality. The party were entertained also at the Atlantic Hotel at a luncheon, when Dr. Sandwith delivered an oration in French on the therapeutical value of climatic and hydropathic treatment. Dr. Purves Stewart voiced the sentiments of the visitors also in French, these three speeches going far to remove the time-honoured reproach to Englishmen that they never really know any language but their own. The Le Touquet Syndicate and the Paris Plage Municipality gave two cups for a golfing competition among the visitors. The competition resulted in the first prize going to Dr. Camac Wilkinson, and the second to Mr. Canny Ryall.

The Croonian Lectures

ON

THE BEHAVIOUR OF THE LEUCOCYTES IN INFECTION AND IMMUNITY.

Delivered before the Royal College of Physicians of London on June 14th, 16th, 21st, and 23rd, 1910,

BY F. W. ANDREWES, M.A., M.D. OXON., F.R.C.P. LOND.,

PATHOLOGIST TO, AND LECTURER ON PATHOLOGY AT, ST. BARTHOLOMEW'S HOSPITAL.

LECTURE II.[1]

Delivered on June 16th.

MR. PRESIDENT AND GENTLEMEN,—In the preceding lecture I attempted a short sketch of the chief doctrines of immunity, and I indicated my own conviction that the primitive means of defence lay in phagocytosis, and that this process still remains the main element in such defence, even in the higher vertebrates. So far as bacteria are concerned the chief phagocytes are admitted to be the polynuclear leucocytes, and it is to these and to their behaviour in the body under conditions of infection and immunity that I have now to draw your attention.

I wish that I could deal equally fully with the other kinds of leucocyte. That the lymphocytes, the eosinophils, and the basophils have some duties to perform in connexion with bacterial infections is not improbable, for they may exhibit remarkable fluctuations in infective conditions. But we know almost nothing of the meaning of these fluctuations. I shall have in some cases to record them, but I can do little more.

The leucocytes of the blood are, by general consent, specialised representatives of the primitive wandering cells seen in the body cavity of the lower invertebrates. The idea that the different types of leucocyte in normal mammalian blood are merely stages in the development of a single kind of cell is a defunct hypothesis. It is now clearly recognised that the lymphatic system provides one kind of cell—the *lymphocyte*—ungranulated to ordinary staining methods, though not to all, which seems specially associated with chronic inflammatory processes, and according to many observers is related to the plasma cells, and through them to certain reactions on the part of the fixed tissues. The bone-marrow, on the other hand, apart from such tiny foci of lymphoid tissue as it may contain, supplies the blood with at least three kinds of leucocyte, distinguished by the possession of specific granulations in their protoplasm—oxyphil, basophil, and neutrophil. The parent cells of these, as seen in the bone-marrow, are mononuclear, and are known as *myelocytes*. The adult cells, as seen in the blood, have a lobed or twisted nucleus, often apparently separated into distinct masses. The more powerful nuclear stains commonly reveal threads of chromatin connecting the separate masses, and hence the term "*polymorphonuclear*" is more correct than "*polynuclear*." The polymorphous character of the nucleus is chiefly conspicuous in the neutrophils of human blood, and when one speaks of polymorphonuclear cells it is these which are meant. In other mammals the granulations in the protoplasm of these essentially polymorphonuclear cells are not necessarily neutrophil. In the rabbit, with which animal all my experimental work has been performed, they are "amphophil," staining both with acid and basic dyes. But the amphophil leucocytes of the rabbit are the strict homologues of the neutrophil polymorphonuclears of man, and for convenience I shall refer to them simply as "polynuclears."

FUNCTIONS OF THE POLYNUCLEAR LEUCOCYTES.

Let me turn now to the "polynuclear" leucocytes, neutrophil in man, amphophil in the rabbit, and consider what we know of their functions. They are the most actively mobile of the cells in the body and seem to possess

[1] Lecture I. was published in THE LANCET of June 25th (p. 1737), 1910.

in special degree the property of being attracted or repelled by chemical stimuli. They are, further, the most actively phagocytic cells, and this function is pre-eminently displayed in relation to bacteria. They are the "microphages" of Metchnikoff. There is ample evidence that in most cases they are able to digest and destroy the microbes which they take up, and they must do so by the aid of a digestive secretion provided by their own protoplasm. This is not the only enzyme with which these leucocytes appear concerned; there are those who maintain that the "thrombo-kinase" or activating element in the formation of the fibrin ferment is derived from them. Ainley Walker has, indeed, suggested a general analogy between enzymes and bacterial antibodies. He brings forward evidence with regard to several enzymes that when inactivated by heat they can be reactivated by a "kinase" which may be complement under another name, and traceable to the leucocytes. As regards the humoral elements in defence against bacteria there is ground for the belief that an element, at least, of these is of leucocytic origin. Buchner, in the earliest of the humoral theories, was inclined on experimental evidence to trace his "alexin" to the leucocytes. The modern alexin—i.e., the "complement" of Ehrlich, which seems to be the "microcytase" of Metchnikoff, and, according to some, the opsonin of Wright (at least the thermolabile opsonin of normal serum), is with considerable probability to be traced to these cells. The evidence is, of course, circumstantial, but as a working hypothesis we may believe that the leucocytes furnish complement either as a secretion or by their disintegration. If so, we must look upon them as incomparably the most important cells in the body as regards defence against bacteria, for not only are they the chief mechanical agents in phagocytosis, but they furnish also a fundamental element in humoral defence. Whether we are disciples of Metchnikoff or Ehrlich, the polynuclear leucocyte stands out as the cell pre-eminent in defence.

THE DISTRIBUTION OF POLYNUCLEAR LEUCOCYTES IN THE NORMAL BODY.

I do not know that any physiologist has attempted to determine the distribution of this cell in the normal body. In the course of the experiments I am about to describe I desired information on this point; the only paper I have found which mentions the subject is one by Bruce.[2] This observer, studying the leucopenia which follows the injection of peptone into the circulation in the rabbit, examined the distribution of the polynuclear cells in the organs of two normal rabbits, finding them chiefly abundant in the spleen and in the lung. It is now generally admitted that the red marrow of the bones is the sole normal birthplace of the polynuclear leucocyte. It is well known that in its mature form it is the most abundant circulating leucocyte in the blood. It is conjectured that its grave may be the spleen. At the time when I began to investigate the subject I was unaware of Bruce's paper, but the methods which I devised are substantially identical with those he used, and my results are in harmony with his. I have, however, endeavoured to obtain data expressing the number of polynuclear leucocytes per cubic millimetre of tissue.

The rabbit lends itself with particular ease to the investigation. The amphophil granulations in its polynuclear leucocytes are large and conspicuous, and in sections stained with Ehrlich's triacid stain these cells stand out so plainly that they cannot be overlooked or confused with other cells. My method has been as follows. A healthy normal rabbit is killed either by a blow on the head or better by the intravenous injection of a small dose (½ cubic centimetre of a 5 per cent. solution) of potassium cyanide. The moment it is dead the various tissues and organs are removed and placed in 10 per cent. formalin. After one or two days appropriate blocks are cut and soaked for 24 hours in normal (0·9 per cent.) saline solution. Each block is next measured in millimetres as regards its three diameters, and then passed, through weak and strong alcohol, into xylol and lastly into paraffin. Before the final embedding in paraffin measurements of the three diameters are again made and recorded. The object of these measurements is to determine the degree of shrinkage of the blocks in the process of embedding. The measurements of the three diameters of the fresh hardened block are multiplied together and divided by the product of the three similar measurements of the shrunken block ready for embedding in paraffin. The result is a figure by which, when the figures obtained from the stained section are divided they are reduced to terms of fresh tissue. In the case of most organs, lung, liver, spleen, kidney, &c., I find this factor approximately 2. If one is careful to leave the block for not more than two or three hours in melted paraffin it shrinks to about one-half of its cubic content when fresh.[3] In the case of most organs I am content to accept 2 as an average shrinkage factor without the trouble of actual measurement in each case. With the bone marrow this is not so, as the varying fat content makes the shrinkage much more variable; I have obtained shrinkage factors from 1·23 to 11·65, and I always take measurements in each case.

Sections are cut in paraffin in the usual manner and are then stained for from one to three hours in Ehrlich's triacid stain, washed carefully in water and in alcohol, cleared in xylol, and mounted in balsam. If, now, one knows the superficial area of a given microscopic field, and the thickness of the section—data which are easy to obtain—it is clear that one can count the numbers of any sufficiently conspicuous cell in the known volume of tissue seen in the field, and go on to find the average number of many fields. As a rule, the whole field offered by a 1-12th inch oil immersion lens is too large for counting, besides being out of focus at the edge. Messrs. Leitz have made for me a metal disc with a square hole in it. This, when placed in the eyepiece of the microscope, restricts the field to a convenient area for counting. Having obtained the average of a sufficient number of fields (60 to 100), the numbers of the cell in question can be calculated per cubic millimetre of tissue, and this figure divided by the shrinkage-factor gives the number per cubic millimetre of fresh tissue. The method, which I first used in the case of bone marrow,[4] cannot pretend to absolute accuracy. One is apt to count fragments cut off tangentially from cells belonging to adjacent sections, so that no cell should be counted which does not present a nucleus. Nevertheless, I find it a method capable of sufficient accuracy to enable a reasonable comparison to be made between different organs or between the same organs in different animals.

Applying it to the tissues and organs of two normal rabbits, I obtained results which were concordant in the two animals, and which showed very remarkable differences in the number of polynuclear leucocytes in different tissues. In two tissues—viz., the spleen and bone marrow—it is impossible to state the number of *polynuclear* neutrophiles with accuracy, for a different reason in each case. In the spleen I find them absent from the lymphoid tissue of the Malpighian bodies, but extremely abundant in the spleen pulp. Here, however, they are in various degrees of disintegration. The opinion that the spleen pulp is the grave of the leucocytes is fully confirmed from my observations; in no other tissue have I found these disintegrating leucocytes. I find in the spleen every gradation between the perfect cell and amorphous masses in which the neutrophil granulations have fused together and are evidently breaking down. The eosinophil cells seem to break down into similar masses. In the counts which I give below I have tried to include only such polynuclear neutrophils as were still clearly recognisable. In the bone marrow, on the other hand, the difficulty is to distinguish them from the neutrophil myelocytes. In other tissues one recognises them by their specific granulations, for the nuclear staining with Ehrlich's triacid stain is by no means deep. I can only give the total neutrophil count for the marrow, including both myelocytes and adult polynuclears. From a series of eight or ten normal rabbits I find this count at the level of the middle of the femur, to lie anywhere between 100,000 and 200,000 neutrophil cells per cubic millimetre of fresh marrow tissue, and of these the majority are certainly myelocytes.

For tissues other than the bone marrow I have obtained the following results and they are borne out by those

[2] Proceedings of the Royal Society, vol. lv., 1894.

[3] Actual figures are:—For lung: 2·01, 1·72, 2·13, 2·27, 2·07, 2·12; for liver: 2·18, 1·93, 2·11; for kidney: 2·33, 2·14, 2·96; for spleen: 2·26, 2·15, 2·15; for brain: 1·61.

[4] See Local Government Board Reports for 1907-08.

which I shall presently relate, derived from abnormal animals.

Tissue.	Polynuclear leucocytes per cubic millimetre of fresh tissue.	
	Rabbit 1.	Rabbit 2.
Spleen pulp	68,000	38,400
Lung	20,000	12,000
Liver	2,900	1,700
Kidney	250	—
Voluntary muscle	—	20
Intestine	—	0
Medulla oblongata	—	0

It is apparent that even if the method I have used were less accurate than I believe it to be, such variations as these must be of deep physiological significance. We might be prepared for a great excess of polynuclear cells in the bone marrow and in the spleen; this, indeed, I find. But the differences in the other organs are enormously greater than those which the mere vascularity of the tissue would explain. The lung, the liver, and the kidney are all very vascular organs, and I know of no differences in the diameter of their capillaries such as could explain the variations seen in the above table. A leucocyte does not easily get through an ultimate capillary; one often finds the polynuclears squeezed into an elongated sausage form in the act of passage, but this is seen equally in lung, liver, or kidney.

Failing any mechanical explanation for the discrepancies in the distribution of the polynuclear leucocytes in the various tissues, it must be assumed that there are physiological reasons underlying them. It would seem that when once these cells are discharged into the blood they tend to be arrested in certain situations, either because they have some function to perform there, or because a sojourn there is requisite for their own needs. In such tissues as brain, muscle, and intestine they would appear to have no function to perform and no benefit to gain. They are hence relatively sparse passengers through the capillaries, and are seen hardly or not at all in sections of such tissues. In the more vascular kidney and liver they are seen in larger numbers, but I am unable to offer any conjecture as to the reasons for this fact. When, however, we turn to the lung we find the polynuclear leucocytes present in altogether disproportionate numbers. After the bone marrow and spleen, the lung tissue, though so largely occupied by air, comes far ahead of any other tissue I have examined in respect of the polynuclear leucocytes present in it. Failing any evidence that the narrowness of the lung capillaries mechanically arrests them, one is tempted to assume that they voluntarily tarry in this tissue. I cannot suggest any special function which they have to perform here; if I may speculate I should suggest that they sojourn here for the sake of oxygenation. I shall presently have to show that this accumulation of polynuclear leucocytes in the lungs is much exaggerated in certain pathological conditions. It may be that if the bone marrow is the birthplace of these cells and the spleen their ultimate tomb, while the blood is their means of transit, the lung may serve as a week-end at the seaside, where they may recuperate their energies. I cannot otherwise explain the accumulation of polynuclears in the pulmonary tissue.

THE CIRCULATING LEUCOCYTES.

My experimental work has all been carried out on the rabbit—an animal which is convenient for the purpose on account of the readiness with which blood can be obtained from the ear.[5] In studying the effects of infections and of vaccines, I have in most cases used the intravenous method of inoculation on account of the rapidity and intensity of the changes induced in the blood when the living or dead bacteria are introduced directly into the circulation. I have as a rule used fairly large doses of bacteria, desiring to produce marked and unequivocal results. By a fairly large dose I mean one or two hundred million bacteria; by a very large dose I mean a thousand million or more. The drawback to this method is that it has little parallel with naturally occurring disease in man or animals; it is only rarely that the body has to respond to the sudden irruption into the blood stream of large numbers of bacteria. In estimating the significance of the results I have obtained this discrepancy must be borne in mind. It is, I think, far outweighed by the simplicity and rapidity with which the effects of the dose are determined. My main object was to study the varying leucocytic response to the presence of bacteria of different kinds, and for this the method sufficed very well.

I employed ordinary hæmatological methods in the work and I have striven to make it as complete and accurate as possible. The complete study of the changes in the circulating leucocytes after a given intravenous dose of bacteria is very laborious on account of the frequent counts which it entails. The immediate effect of the injection is often precipitate and the blood must be examined every few minutes. The routine which I ultimately came to adopt was as follows. A drop of blood is withdrawn from the rabbit's ear to obtain the initial data. The dose of bacteria is then injected, and blood counts made after 1, 2, 5, 10, 15, and 30 minutes; again at the hour, and thenceforward hourly for 5 to 7 hours or more. On the following day two or three counts are made, and thenceforward once or twice a day till the animal is well again or dies. Each time the blood is counted films are made and stained with Leishman's dye; a differential count of 200 or more leucocytes is then carried out at leisure. It thus becomes possible to state the actual numbers of the different kinds of leucocyte present per unit of peripheral blood throughout the course of the experiment, and to represent them in curves on graphic charts. I cannot too strongly insist on the advantages of this method of procedure. Unless differential leucocyte counts are made, important events may be overlooked; a slight but definite polynuclear leucocytosis may be completely masked by a lymphocytic leucopenia. Further, the differential counts afford a valuable check upon the accuracy of the total counts: the lymphocytes and the polynuclears do not vary together as a rule, and when one finds their curves parallel suspicion may justly be aroused as to the correctness of the total counts upon which these are based.

It is not so easy as it might appear to make accurate total counts of leucocytes from a rabbit's ear. I have been compelled to make more than one special set of observations to determine the existence of fallacies; the chief fallacy is that of local leucocytosis. I commonly shave the animal's ear before the experiment begins, as it is thus easier to collect the drop of blood, but I find that the act of shaving induces a local leucocytosis which may easily vitiate the results obtained. Half an hour after simple shaving of the ear the leucocyte count from it may be double that obtained from the unshaven ear, owing, I presume, to slight inflammatory changes leading to an accumulation of polynuclear leucocytes in the small veins and capillaries. If the blood flows freely from the needle prick the fallacy is negligible, but if it flows poorly and any squeezing is employed it is a serious one. I now shave the ear a day or so beforehand.

If one has injected into the circulation living bacteria, and especially pyogenic cocci, fallacies may arise from local inflammatory changes in the animal's ears. Some of the injection may escape into the subcutaneous tissues, and even if counts are taken from the opposite ear the earlier needle pricks may permit of the escape of bacteria, which may then induce inflammatory changes. Counts taken from any inflamed area are open to grave suspicion when they show an apparent leucocytosis. After three years' work at this

[5] This is a suitable place to state the characters of the leucocytes in the rabbit. The average number of these cells per cubic millimetre of blood is not very different from that seen in man, being a little less than 7000. The range of variation in different normal rabbits appears wider than in man, so that in some counts of 15,000 and even 20,000 may be met with, while in others the count may be 2000 or 3000. In my experience these differences depend more on fluctuations in the lymphocytes than in the polynuclears. The lymphocytes are more numerous than in man; on an average they form 50 per cent. of the total, but they may reach 70 per cent. or more. The average number of lymphocytes per cubic millimetre is rather more than 4000. The cell which corresponds to the human polynuclear neutrophil bears so-called "pseudo-eosinophil" or amphophil granulations. These cells form on an average 40 per cent. of the total leucocytes—less than 4000 per cubic millimetre. The eosinophil cells are fewer in the rabbit than in man, forming less than 1 per cent. of the total. The basophil cells are, on the contrary, much more numerous than in man, though very variable in numbers. I have known them to form over 20 per cent. of the total leucocytes in an apparently normal rabbit; the average is 6 or 7 per cent.

subject I am, I trust, sufficiently alive to the danger of these fallacies to have allowed for them in all doubtful cases.

Some of the investigations which I am about to record have been carried out in the course of researches for the Local Government Board during the past few years, partly in conjunction with Dr. M. H. Gordon and Dr. T. J. Horder. I am glad to have the opportunity for summarising this work, and adding to it the special researches which I have carried out in view of these lectures. It is plain that the labour of the hæmatological investigations I have described is too great for a single observer, and I have much pleasure in acknowledging the able assistance of Mr. A. E. Gow in my more recent work. I can only regret that I have not had a longer time at my disposal to pursue the interesting lines of research which the work has opened up.

LEUCOPENIA.

I propose first to give an account of the observations which I have made on diminution in the numbers of the circulating leucocytes. Less attention has perhaps been paid to this than to the increase known as leucocytosis. The subject of leucopenia nevertheless offers more than one problem of importance in connexion with immunity.

The number of circulating leucocytes may be reduced in several ways. They might conceivably be destroyed to an excessive degree, but I know of no good evidence of this. They may be withdrawn from the peripheral circulation and accumulate elsewhere; this is well known to occur. Or the supply of leucocytes may become exhausted and there may be a failure to replenish the circulation. There are thus different kinds of leucopenia, but my experiments throw light on only two varieties—the leucopenia of marrow exhaustion, and the leucopenia which appears as an initial phenomenon when a dose of bacteria is introduced into the circulation. I will deal with the latter first, because it has more particularly engaged my attention.

THE PHENOMENON OF INITIAL LEUCOPENIA.

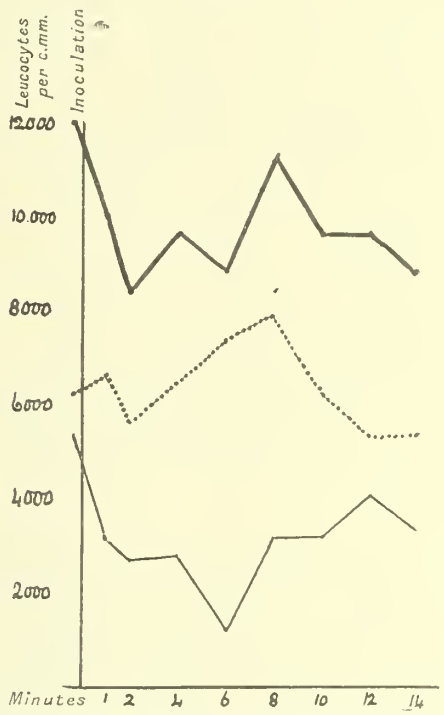
The importance of this remarkable form of leucopenia is in the main theoretical, for we have no opportunity of observing it in human infections; indeed, the conditions which evoke it can rarely occur in man. It has long been known that an experimental leucocytosis can be induced in animals by the injection of certain chemical substances, notably of certain organ-extracts, of albumose, and of bacterial proteins. It was found, on closer investigation, that this leucocytosis was preceded by a marked diminution in the circulating leucocytes; both the diminution and the subsequent increase were found mainly to concern the polynuclear leucocytes. Löwit, who was one of the first to describe this initial leucopenia, considered that the foreign substance introduced actually destroyed the leucocytes, and that it was the products of their dissolution which evoked the subsequent leucocytosis. Goldscheider and Jacob, and also Bruce, later showed that the decrease in the circulating leucocytes was not due to their destruction but to their accumulation in the capillaries of the internal organs, and especially of the lungs. I know of no important light which has been shed on the subject since the appearance of Bruce's and of Goldscheider and Jacob's papers in 1894.

I have closely examined the initial blood changes, after the intravenous injection of bacteria, on 30 or 40 occasions mostly by means of differential leucocyte counts. Frequently the counts have been made at intervals of only two or three minutes. The bacteria employed for the experiments have included staphylococcus aureus, streptococcus pyogenes, streptococcus fæcalis, micrococcus citreus agilis, the pneumococcus, bacillus coli communis, the typhoid bacillus, Gärtner's bacillus, the diphtheria bacillus, the tubercle bacillus, the anthrax bacillus, and bacillus fluorescens aureus. These various organisms have been injected both living and dead; the effect as regards the initial leucopenia seems the same in either case.

While I can confirm the general truth of the doctrine of initial leucopenia after the intravenous injection of bacteria, I have a good deal to add to the mere fact that leucopenia occurs.

Let me first describe a single case in detail. It is not easy to select from my numerous charts one that can be called "typical" because the details vary considerably in the case of different bacteria, and sometimes even in two rabbits injected with the same bacterium. I will take, however, the case of a normal rabbit not previously immunised and describe the sequence of events for a quarter of an hour after the intravenous injection of 1000 million living bovine tubercle bacilli. The changes were quite moderate in degree. (See Chart 1.) The initial count, just before the inoculation, showed 12,000 leucocytes per cubic millimetre of blood; of these 6240 were lymphocytes and 5340 were polynuclears. During the 15 minutes following the inoculation the lowest total count obtained was 8400 per cubic millimetre at the second minute and the highest 11,200 at the eighth minute. There was thus no very striking change in the total count. What truly happened was only revealed by the differential counts. These showed that the polynuclears fell to 3150 per cubic millimetre in one minute to 2646 in two minutes and to 1276 in six minutes, after which they rose again to 4032 at the twelfth minute. There was thus a marked transitory polynuclear leucopenia. More than three-quarters of the polynuclears vanished from the peripheral circulation in six minutes, though they soon reappeared. In

CHART 1.



Showing the changes in the circulating leucocytes for 14 minutes after the intravenous inoculation of a normal rabbit with 1,000,000,000 living tubercle bacilli. Thick line = Total leucocytes. Dotted line = Lymphocytes. Thin line = Polynuclears.

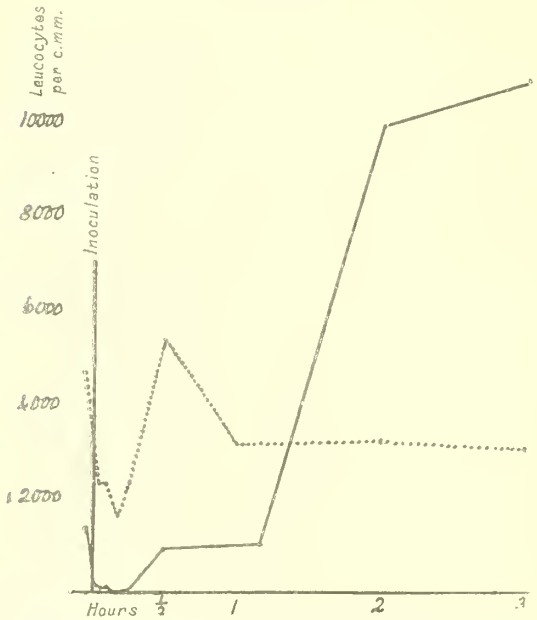
the total counts the fact was masked by an irregular rise in the lymphocytes, which reached 7896 per cubic millimetre at the eighth minute.

I have chosen this case to start with because it illustrates the fundamental fact of initial polynuclear leucopenia, though in a moderate degree, and because it shows the necessity for differential leucocyte counts if that fact is to be appreciated in its minor manifestations. Chart 2 is a much more extreme example of initial leucopenia. It shows the changes occurring after the intravenous injection—not of bacteria, but of sheep's corpuscles—in a rabbit which had already been immunised against these cells. In this instance the polynuclears actually vanished from the circulation at the tenth minute; in a count of 200 leucocytes lymphocytes were alone found. I now pass on to discuss the matter more fully.

In the first place, I find that the phenomenon of initial leucopenia is by no means equally marked after injections of differing bacteria. Some species excite it to a high degree and for several hours; others to a trivial extent and for a few minutes only. The group of bacteria in which I have found the property of exciting an initial leucopenia most highly developed is that including the typhoid bacillus and B. coli. The staphylococci and the diphtheria bacillus have

the power only feebly developed, nor under ordinary circumstances is it well marked in the streptococci, the pneumococcus, the tubercle bacillus, and the anthrax bacillus. I have never found initial leucopenia quite absent when the blood has been investigated every few minutes during the first quarter of an hour after an intravenous injection, but it may be trivial and transitory or intense and lasting.

CHART 2.



Showing an extreme initial polynuclear leucopenia following the intravenous inoculation of 3 cubic centimetres of a 5 per cent. suspension of sheep's corpuscles into a partially immunised rabbit. Dotted line=Lymphocytes. Continuous line=Polynuclears.

Thus in two animals inoculated for the first time with a dose of (100 million) B. coli communis vaccine, the polynuclear leucopenia lasted for four hours; in one the fall was from 3960 polynuclears per cubic millimetre before inoculation, to 700 at the third hour; in the other it was from 6400 before inoculation, to 1344 at the second hour. In both cases a polynuclear leucocytosis then supervened. In animals, on the contrary, inoculated for the first time with living and dead diphtheria bacilli, the leucopenia was trivial and soon over; less than one-fifth of the polynuclear leucocytes disappeared from the peripheral circulation, and in an hour the normal numbers were exceeded. It is clear, therefore, that the power of exciting a polynuclear leucopenia when injected into the circulation is one present in very varying degree in the case of different species of bacteria.

[I have generally given the dose of dead or living bacteria suspended in about 1 cubic centimetre of normal saline solution. I therefore thought it right to test the effect of administering a dose of 1 cubic centimetre of simple warm saline solution intravenously, by differential counts every few minutes upon the leucocytes. No result of any moment was observed beyond a slight polynuclear rise lasting for 30 minutes and broken by a trivial fall at the fifth minute.]

I may summarise the effects of the different species of bacteria tested so far as concerns the initial leucopenia produced when a *first dose* is intravenously administered to a rabbit which has not previously been immunised. In the case of the harmless *Micrococcus citreus agilis* I find the phenomenon substantially absent. In the case of *Staphylococcus pyogenes aureus*, *Streptococcus pyogenes*, and *Streptococcus fæcalis* it is absent or very slight. In the case of the *Pneumococcus* it is slight but occasionally distinct. With the *anthrax bacillus* it is trivial, and with the *diphtheria bacillus* almost absent. In the case of the *tubercle bacillus* I find the phenomenon moderate in degree and transient at the first inoculation. With *Bacillus coli* I have obtained variable results: in two rabbits I found only a slight initial leucopenia; in a second pair inoculated with a different vaccine the leucopenia was well marked and lasted for several hours. I have met with similar differences when living colon bacilli were administered intravenously. In all my experiments with the *typhoid bacillus* and *Gärtner's bacillus* the leucopenia has been marked and of some hours' duration.

The phenomenon is seen, even in the case of unimmunised animals, to vary in its extent and in its duration. The intensity and the duration commonly, but not invariably, go hand in hand. It is not always an absolutely initial phenomenon: I have more than once found it preceded by a very transitory rise in the polynuclear leucocytes—e.g., after the injection of staphylococcus aureus. With B. coli and B. fluorescens aureus I have seen it delayed till the second or third hour, but this is exceptional.

It is commonly held that initial leucopenia is exclusively an affair of the polynuclear leucocytes, and it is true that the fluctuations in these cells are usually more abrupt and noticeable than in the other types. I find, however, that the circulating lymphocytes undergo similar, though less abrupt, changes, and that the lymphocytic leucopenia may be more lasting than that affecting the polynuclears. A survey of nearly 40 graphic charts of differential leucocytic changes after the intravenous injection of living and dead bacteria enables me to state that a lymphocytic leucopenia is hardly ever absent. I find it least marked after first injections with the pyogenic cocci: here it is usually slight and of transient duration. In the case of diphtheria, tubercle, and anthrax it is more pronounced and may last some hours. It is most pronounced in the case of injections with members of the coli group. After injection of B. coli vaccine I have seen the lymphocytes fall from 3880 per cubic millimetre to 1220 at the third hour; after typhoid vaccine I have seen a fall from 5040 to 504 at the fourth hour; and after a Gärtner vaccine from 4760 to 324 at the fifth hour. These were the lowest points of a prolonged and gradually developing lymphocytic leucopenia

CHART 3.

Showing the behaviour of the circulating lymphocytes and polynuclears in a rabbit after the intravenous inoculation of a dose of typhoid vaccine (200,000,000). Dotted line=Lymphocytes. Continuous line=Polynuclears. There is seen a lymphocytic leucopenia, slower in onset, but more lasting than that affecting the polynuclears.

This is rarely so abrupt in onset as the corresponding polynuclear leucopenia; it may take several hours to reach its lowest point, and in the severer types seen after administration of the last-named group of bacilli it may continue

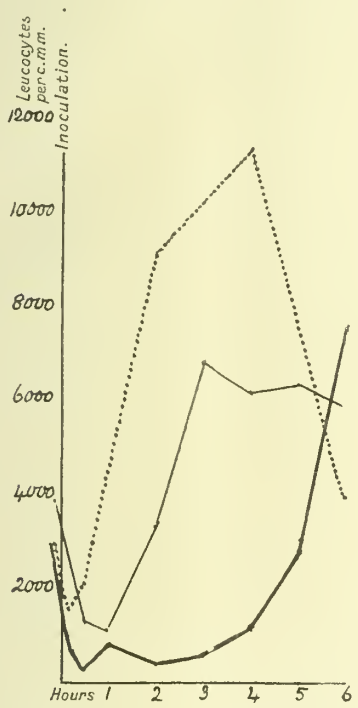
long after the polynuclear leucopenia has given place to a pronounced leucocytosis. When the lymphocytes again return to normal they may pass above their natural limits, so that the blood shows a temporary lymphocytosis which I have once seen very highly marked.

I shall not refer further to this lymphocytic leucopenia because I have been unable to trace its mechanism and am ignorant of its meaning. I must content myself with placing the facts on record, and pass on to consider a further and very important feature of initial leucopenia which concerns especially the polynuclear leucocytes. This lies in its relation to immunity.

Initial Polynuclear Leucopenia as an Immunity Reaction.

In my earlier work on the leucocytes I was occupied chiefly with the pyogenic cocci, after inoculation with which the phenomenon is relatively ill marked. On beginning to work with members of the B. coli group it at once began to obtrude itself on my attention. As, however, it commonly occurs with these bacilli in animals which have not been artificially immunised, its relation to immunity

Chart 4.



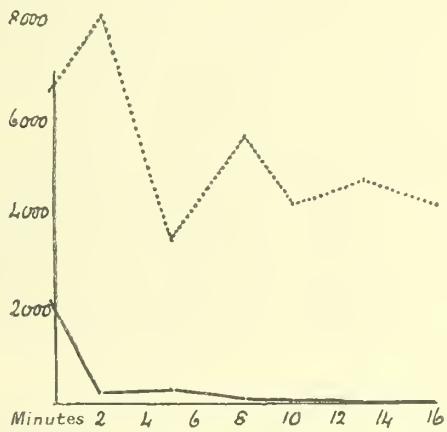
Showing the superposed curves of the circulating polynuclear leucocytes in the rabbit for six hours after three intravenous inoculations of killed tubercle bacilli in doses of from 100,000,000 to 200,000,000. The effect of the first inoculation is shown by the dotted line, that of the second by the thin line, and that of the fourth by the thick line. The duration of the polynuclear leucopenia is seen to increase with the progressing immunity. (Data for the third inoculation are lacking.)

did not at first strike me. This relation first became apparent in the course of experiments with the tubercle bacillus. I had administered to a rabbit successive intravenous doses of killed bovine tubercle bacilli (varying from 100 to 200 million), with intervals of about a month between the doses. I had prepared complete differential leucocyte charts on the occasions of the first, second, and fourth inoculations, and on comparing these I noticed a very remarkable progressive increase in the initial polynuclear leucopenia. On the first occasion this had lasted less than an hour and the lowest polynuclear count observed had been 1544 per cubic millimetre; on the second inoculation the polynuclears fell to 1118 at the end of one hour, but in two hours had nearly regained their initial figure. On the fourth occasion they fell to 224 per cubic millimetre in half an hour and were still very low (532 per cubic millimetre) at the third hour; they did not regain their initial number till between the fifth and sixth hours.[6]

I was convinced that there must be some relation between the increasing immunity of the animal and the more marked polynuclear leucopenia seen, and I began to consider other charts which I possessed from this point of view. In the case of animals vaccinated against members of the B. coli group I found that succeeding doses were more constantly associated with polynuclear leucopenia than the first dose, and that the leucopenia was more abrupt in onset and more extreme in degree. I found further that animals intravenously inoculated with the pyogenic cocci and with the diphtheria bacillus, which on their first injection showed only a trivial polynuclear leucopenia, might on subsequent injections show the phenomenon very distinctly.

I now instituted experiments to test the point and commenced to examine the blood at short intervals after inoculation, sometimes killing the animals, for a purpose I shall shortly describe, a quarter of an hour from the beginning of the experiment. I began with the tubercle bacillus. I took the animal mentioned above, which had been vaccinated five times, three weeks having elapsed since its fifth vaccination, together with a normal control animal which had not been treated in any way. Each animal received an intravenous dose of about 1000 million living bovine tubercle bacilli, and was killed after a quarter of an hour. The leucocytes were counted every two minutes, with the following result. In the case of the immune rabbit the polynuclears numbered 1562 per cubic millimetre before inoculation; in one minute they fell to 136 and in two minutes to 34 per cubic millimetre; after this they rose a little and numbered 432 per cubic millimetre before the animal was killed. In the case of the non-immune rabbit the polynuclears numbered 5340 per cubic millimetre: they fell to 1276 at the sixth minute, but this was the lowest figure seen; in 12 minutes they had risen again to over 4000. There was thus a most striking difference between the immune and the non-immune animal.

Chart 5.



Showing the curves of circulating polynuclears in a normal and in an immune rabbit respectively for sixteen minutes after the intravenous inoculation of 1,000,000 virulent pneumococci. Dotted line=Normal rabbit. Continuous line=Immune rabbit.

In an experiment with the pneumococcus the difference was even more remarkable. I possessed a rabbit which had survived a dangerous pneumococcal septicæmia, and which had later been inoculated with living attenuated pneumococci; 18 days had elapsed since the last infection. I took this rabbit, together with a normal untreated animal as a control, and I injected intravenously into each 1000 million living, virulent, capsuled pneumococci from cultures made the day before from a case of human pneumococcal septicæmia. Both animals were killed after 16 minutes. The effects upon the circulating polynuclears were as follows. The immune animal had 2160 per cubic millimetre

[6] A fifth inoculation yielded a somewhat discordant result; there was a more abrupt polynuclear fall than on any previous occasion, for they fell in five minutes to 264 per cubic millimetre, but the leucopenia was not maintained so long as on the fourth occasion—indeed, in two hours the number had surpassed the initial figure.

before the inoculation; in two minutes they had fallen to 264; they had risen slightly in five minutes, but at the eighth minute they were only 56 per cubic millimetre, and this number fell to 10 per cubic millimetre at the sixteenth minute; the polynuclear cells were practically wiped out of the circulation. In the non-immune animal the result was very different; its initial polynuclear count was 6596 per cubic millimetre; this had risen in two minutes to 8136, but in five minutes was only 3480 per cubic millimetre, the lowest number observed. Thenceforward the counts were between 4000 and 6000.

With streptococcus fæcalis the results were less extreme. In this experiment I used a rabbit which had received three intravenous doses of vaccine, the last 23 days previously. No normal control animal was tested on this occasion. A does of 1000 million living streptococci was given intravenously and the animal was killed after 15 minutes. The polynuclear leucocytes numbered 2990 per cubic millimetre before the injection; in two minutes they had fallen to 504, but they began to recover at the eighth minute, and in 14 minutes they exceeded the initial number.

I carried out a similar experiment with micrococcus citreus agilis upon an animal twice immunised with living cultures of this organism, but no noteworthy leucopenia was induced. The polynuclear count was 2920 per cubic millimetre before inoculation, and the lowest subsequent count was 1888 at the eighth minute; after this the counts were above normal.

I shall have later to mention experiments with typhoid immune rabbits in which the polynuclear leucopenia was rapid in onset, extreme in degree, and of long duration, but I need hardly labour the point further. It is clear that there is a relation between the degree of immunity and the intensity and abruptness of the polynuclear leucopenia induced by an intravenous injection of the homologous bacterium. In other words, we may describe the initial polynuclear leucopenia as an immunity reaction. I cannot claim to be the first to recognise this. While I was engaged in these experiments and had already arrived at the above conclusion, I came across a reference to observations by Sacerdotti, published in 1907. He had immunised rabbits against the blood-platelets of the dog and found that these platelets produced an extreme but transient leucopenia when injected into the immune animal, whereas in the normal rabbit they caused so such effect. He therefore put forward the phenomenon as an immunity reaction, and his observations encouraged me to pursue the matter further, as I shall presently describe.

It may be objected that the leucopenia is seen in animals which are not immune—or rather which have not been artificially immunised. I have already stated that this may be so, in marked degree, with the B. coli group of bacteria. But it does not follow that because one has not intentionally immunised an animal it is destitute of immunity: some degree of natural immunity is often seen and it may well be better marked against some bacterial species than against others. The question is a much larger one than this, as I hope soon to show.

THE MECHANISM OF THE LEUCOPENIA.

In a marked case nine-tenths or more of the polynuclear leucocytes may disappear from the peripheral circulation within a minute or two of the bacterial injection. Nor is this all, for a considerable number of the lymphocytes usually vanish also at the same time. Where the latter go to I do not know, but with regard to the polynuclears I can most fully endorse the results of Goldscheider and Jacob and of Bruce. They are held up in the lung, screened off, as it were, by the pulmonary capillaries.

I have already described the method by which I have endeavoured to measure the number of polynuclear cells in unit volume of given tissue; in two normal rabbits, suddenly killed, I found them to number respectively 12,000 and 20,000 per cubic millimetre of lung. In no other organ (except the bone marrow and spleen pulp) are these numbers approached. The accumulation of the polynuclears in the lung after a bacterial injection appears to be an exaggeration of a natural physiological process.

I have examined the lungs and other organs of seven rabbits killed while in the leucopenic condition—mostly about a quarter of an hour after the bacterial injection. Where the leucopenia has been pronounced the number of polynuclears in the lung is very much increased. Thus, in a rabbit immunised against streptococcus fæcalis and killed a quarter of an hour after a large dose of the living organism I found 51,000 polynuclears per cubic millimetre of lung tissue. In a coli-immune animal dying two hours after a moderate injection of vaccine, with a circulating polynuclear count of only 205 per cubic millimetre, there were 60,000 polynuclears per cubic millimetre of lung. But in an animal killed 15 minutes after the injection of micrococcus citreus agilis, and which showed hardly any circulating leucopenia, the lung figures were normal—viz., 11,000 per cubic millimetre.

The relation of the phenomenon to immunity is shown by two pairs of animals. I have already described the early circulatory changes in the immune and non-immune rabbit, after the intravenous injection of very large doses of the tubercle bacillus and of the pneumococcus, and have shown the much more intense leucopenia in the immunised animal. In all cases the animals were killed in about a quarter of an hour. In the case of the tubercle bacillus, the immune animal showed 57,000 polynuclears per cubic millimetre of lung, the non-immune only 35,000. With the pneumococcus the corresponding figures were 72,000 and 41,000.

No such increase was found in any organ except the lung. The figures for the spleen, liver, and kidney did not exceed those found in the normal animals (except in the case of the animal dying after the B. coli vaccine, in which the liver showed 13,000 polynuclears per cubic millimetre). I feel justified in asserting that the polynuclears are held up, to all intents and purposes, solely in the lung. And calculation shows that the observed increase in the lung tissue is sufficient to account for the observed decrease in the peripheral circulation.

It may naturally be asked by what mechanism the polynuclear cells are thus screened off, as it were, in the lung. I do not know, just as I do not know why the process occurs to no inconsiderable extent in the normal animal. It looks as if the sojourn in the lung were a voluntary one on the part of the leucocytes, fulfilling some need which they feel, possibly for oxygenation. Levaditi, in his experiments with cholera immune guinea-pigs,[7] lays stress on the phagocytosis seen in the leucocytic accumulations in the lung. At first I was inclined to think that where phagocytosis had occurred in the circulation the leucocytes retired to the lung to digest their prey, just as a dog may retire under a sofa with a bone. It is true that in certain cases the leucocytes which have accumulated in the lung may be seen full of ingested bacteria; in my experiment with streptococcus fæcalis this was noticeable, but in a similar experiment with virulent pneumococci I could find no phagocytosis in the lung or elsewhere. In the case of an immune rabbit inoculated with living tubercle bacilli I made smears from the lung and stained them for the tubercle bacillus. Polynuclear leucocytes were abundant in the films, but out of 400 which I enumerated only 5 contained bacilli (1·25 per cent.). Clearly, then, the phagocytic theory will not explain matters, and I shall shortly show that the phenomenon occurs in immunity against unorganised antigens, putting phagocytosis completely out of court. A possible explanation, though a somewhat speculative one, lies in the suggestion that in the circulatory reaction between antigen and antibody, complement is used up and that, assuming an origin of complement from the polynuclear leucocytes, these cells need a free supply of oxygen to recuperate their powers.

In some cases the initial leucopenia may be transient; in other cases it may endure for four or five hours or more. There then ensues, in most cases, a polynuclear leucocytosis. Watching the blood from hour to hour one finds the polynuclears slowly regaining the normal and then more quickly rising high above it. The question of leucocytosis I must defer till another lecture, but it is relevant here to ask whether, as the leucopenia is passing off, the returning polynuclears are those which had for the time being retired into the lung, or whether they are a new supply derived from the bone marrow. I have no sufficient data for answering the question, but in a case of severe and protracted leucopenia in a typhoid-immune rabbit which had received a large intravenous dose of living typhoid bacilli I noted in the blood about the fourth and fifth hours, as the leucopenia began to pass off, considerable numbers of nucleated red

[7] Annales de l'Institut Pasteur, vol. xv., p. 894.

corpuscles (normohlasts) and a few myelocytes. This suggests an over-activity of the marrow.

THE CONSTITUTIONAL SYMPTOMS ASSOCIATED WITH INITIAL LEUCOPENIA.

So long as I was working with the pyogenic cocci, which do not cause much leucopenia except in the highly immune animal, I did not notice any marked constitutional symptoms after the intravenous injection of hacterial vaccines. The rabbits were at times quiet for an hour or two after an injection, hut they were not manifestly ill. When, however, I began to experiment with vaccines prepared from the B. coli group, I speedily met with symptoms of marked illness after the injection. The animals were not merely quiet; there was sometimes much respiratory distress, the symptoms coming on in from 30 minutes to an hour or so after the inoculation. In a marked case the animal lay down with its limhs extended, and the respirations rose in frequency to 60 or 80 per minute. (The respiration frequency in a normal rahbit at rest is about 30 per minute.) I soon noticed that these symptoms hore some relation to the leucopenia; they were marked in proportion to its intensity, and as the leucopenia passed off and leucocytosis set in the animal would recover its liveliness and hegin to eat again. During the height of the leucopenia it was often difficult to obtain a flow of blood from a punctured vein; it is easy in the natural animal to induce a vascular dilatation, during which hlood flows readily from the smallest prick, hut in a leucopenic rabbit it may be difficult to induce this vasodilatation.

My attention was at last very decisively aroused by the occurrence of actual death in an immune animal, following a not immoderate dose of B. coli vaccine. I had two rabhits which had heen three times immunised with doses of 100 million killed B. coli communis at intervals of about a fortnight. They had then heen left for three months without treatment. Fearing lest their immunity should fade, I gave each a double dose—200 million of the same vaccine, which had heen standing in the laboratory for some months. All the injections were intravenous. An hour after the injection I noticed that one of the rabhits was lying down and hreathing rapidly, while the other showed similar symptoms in lesser degree. In an hour and three-quarters the first animal had a respiration frequency of 130, and in two hours of 150 per minute. Suddenly it became convulsed and died in less than a minute. Just hefore death its total leucocyte count was 1000 per cubic millimetre, of which 205 were polynuclears. The fellow animal, though ill, recovered. I may add that I have repeatedly administered doses of 200 million killed B. coli intravenously without serious symptoms, but never hefore in an immune animal after so long an interval as three months.

Now the symptoms I have described in initial leucopenia in rabhits and the mode of death in the single animal which died are the symptoms associated with the condition known as "*anaphylactic shock.*" Increased frequency of respiration is the most obvious symptom of the anaphylactic animal after the injection of a second dose of antigen. It is known that anaphylaxis can he induced hy bacterial proteins, and notahly with those of the B. coli group. I do not doubt that the phenomena seen in the leucopenic rabhit after the injection of living or dead hacteria are the phenomena of anaphylactic shock. I have come to the conclusion that the initial leucopenia seen after intravenous injection of bacteria and hacterial vaccines, especially in the immunised animal, is intimately hound up with anaphylactic shock, and is an integral part of this condition. To suhstantiate this opinion I must offer a few remarks on anaphylaxis.

THE RELATION OF LEUCOPENIA TO ANAPHYLAXIS.

By the term "anaphylaxis" is meant a condition of induced super-sensitisation to an alien protein. The protein may be harmless to a normal animal, but in the sensitised animal even a moderate dose causes severe symptoms and sometimes death. The term anaphylaxis was coined by Richet in connexion with his ohservations on a protein derived from the sea anemone, and against which he sensitised dogs. For awhile the phenomenon remained a mere curiosity, but renewed attention was drawn to it hy the observation of Arthus in 1903, that although normal horse serum was harmless to the rabbit, highly toxic symptoms occurred if the animal had previously been several times injected with this substance, provided that a sufficient interval had elapsed since the last injection. It was later shown that a single previous injection sufficed to sensitise the animal. The practice of employing guinea-pigs for standardising diphtheria antitoxin led to a rediscovery of the phenomenon here also, and Theohald Smith in America drew attention to the frequently fatal results which followed second injections of serum. Inasmuch as horse serum is now extensively used in the treatment of human disease, the matter was soon seen to be of considerable importance, for it became apparent that there was some connexion hetween anaphylaxis and the so-called "serum disease" in man. The subject has now heen attentively studied hy numerous ohservers, and though no complete explanation is yet forthcoming, it is possible to make certain general statements ahout the condition.

It would seem that an animal can be supersensitised against any alien protein or allied substance capable of acting as an antigen—that is, of evoking the formation of an antibody. The anaphylactic condition is closely associated with the development of the antihody; after the primary sensitising injection an incubation period of two or three weeks is required hefore the supersensitisation is fully estahlished, and this period coincides fairly with that known to be requisite for the formation of an antihody, but is rather longer. The reason seems to he that something more than the formation of antibody is required; before the animal is fully sensitised the antigen must also have disappeared from the body. When this condition is reached and antihody alone is present (a state of affairs which may last for many months) the introduction of a new dose of antigen, especially if it be injected directly into the circulation, leads to a violent disturbance of the system, the so-called "anaphylactic shock," in which the animal may die. Should it survive it is found to he for the time desensitised and is said to be in a condition of "anti-anaphylaxis"; a further injection of antigen causes no such systemic storm. Anaphylaxis may in time return or may be reinduced by suitahle injections of antigen.

It must he noted that in order to induce the condition of supersensitisation the antigen must be administered by way of the circulation, the peritoneum, or the suhcutaneous tissue, not hy the alimentary canal. Although some have claimed to obtain anaphylaxis by feeding, the great majority of observers have failed to get any results in this way.

The symptoms which follow the introduction of a second dose of antigen into the anaphylactic animal vary somewhat with the species. The most obvious clinical symptoms are usually respiratory; the animal is restless and hegins to hreathe quickly; the respirations may he enormously accelerated. The heart's action is feehle and it has heen shown that there is an extreme fall in hlood pressure. The temperature falls and urine and fæces may he passed involuntarily. In a fatal case convulsions end the scene. The clinical picture is that of "shock" in an extreme degree. Post-mortem examination reveals nothing to account for death. Local hæmorrhages have sometimes heen found, hut there is no visible organic lesion sufficient to explain the symptoms. If the animal does not die it recovers from its apparently dangerous condition with the most remarkable rapidity.

Besredka, who has largely employed the intracerebral method of injection for administering the second dose of antigen (in which an extremely small dose suffices to produce a fatal result), has found that if an anaphylactic guinea-pig be deeply narcotised with ether the desensitisation can he carried out without harm to the animal.

I do not propose to enter here into the highly speculative theories which have heen put forward to explain the remarkahlc facts that I have mentioned. The phenomena hear a striking resemhlance to those which have long heen known to ensue when peptone is intravenously administered, and it may be that the matter is hound up with the functions of the intestinal wall or portal area in defending the hody against the toxic effects of the initial products of proteid digestion. It is stated that the phenomena seen when a dose of antigen is administered to a supersensitised animal are associated with a disappearance of complement from the serum. If this he so, and if complement is derived from the leucocytes, we may obtain somc inkling of the reason for the participation of the polynuclear cells in the events of the anaphylactic shock. In any case it may confidently be

asserted that the phenomenon of anaphylaxis is closely bound up with that of specific immunity.

It has been known for some years that bacterial proteins are capable of setting up anaphylaxis (Wolff-Eisner, 1904). The subject has been carefully studied by Rosenau and Anderson in America and by Krans and Doerr in Austria. The most striking results have been obtained with bacteria of the B. coli group (including the bacilli of typhoid and dysentery), and with the cholera vibrio and allied organisms; the bacterial proteins have been prepared by autolysis with weak caustic soda, or by alternate freezing and thawing. Definite results have also been obtained with tubercle and anthrax bacilli, and even with species which are not pathogenic—such as the hay bacillus. It seems to be the alien protein, rather than the toxin present, which evokes the supersensitisation—indeed, Krans and Doerr found that in guinea-pigs sensitised against dysentery bacilli only the bacillary bodies were able to induce anaphylactic shock; the germ-free toxin produced no effect. Nevertheless, hypersusceptibility to true bacterial toxins, such as that of the diphtheria bacillus, is known to exist—witness the observations of von Behring and Kitashima on horses in course of immunisation. Whether this latter phenomenon is identical with that of anaphylaxis against alien protein is not yet settled.

It must he noted that there is such a thing as *natural anaphylaxis*, as opposed to the artificially induced condition. It is held by many that the idiosyncrasies of some persons against certain food-stuffs—crab, mussels, &c.—are an example of this. And there is no difficulty in believing that anaphylaxis may naturally exist against certain bacteria, inasmuch as the serum of some individuals or species is known to contain antibodies capable of destroying some sorts of bacteria. Such natural anaphylaxis may well be in truth a post-natal acquirement: if the intestinal bacteria tend to invade healthy tissues so frequently as we must now believe, a sort of continuous auto-vaccination on a small scale will serve to explain the presence of antibodies and inferentially of anaphylaxis.

THE PELVIC CONDITIONS RESULTING FROM THE SLIGHTER FORMS OF PUERPERAL SEPSIS AND THEIR TREATMENT.[1]

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THE subject to which I wish to call attention is perhaps best illustrated in the out-patient departments of our gyæcological hospitals, and the most striking cases are those of "one-child sterility." The patients belong for the most part to the class who even yet receive the least possible attention during labour and the lying-in state, and who most patiently endure the discomforts and ailments which can ultimately be traced directly to parturition and the puerperium.

The category of cases with which I wish to deal contains those which are in the puerperium not diagnosed as abnormal, or are even in the ordinary course of medical practice not definitely diagnosable. The term "morbidity," which we have accepted with a certain degree of levity and with entire confidence that we comprehend its causes and its consequences, is responsible for a large proportion of the chronic invalids who so patiently endure the travesty on gynæcological practice which characterises so much of our out-patient work. Much harm may be done in the female pelvis with the temperature under 100·4° F., and without a quickening of the pulse sufficient to attract the attention of the midwife, or even of the busy general practitioner.

Why are these cases not diagnosed?—1. The ordinary midwife makes no exact observations. She is incapable of doing such a thing. The number of the *bonâ-fide* type of persons practising midwifery who cannot read a clinical thermometer is astonishing and deplorable, and this seven years after the rules drawn up by the Central Midwives Board have come into force.

2. Our "monthly nurses" belong largely to the same uneducated class. They miss slighter symptoms and consequently at the daily visit give the practitioner an unduly favourable report of the patient's condition. It is so much pleasanter and easier to do so.

3. The most careful and experienced medical practitioner with an apparently normal case visits only once a day and that in the forenoon. The pulse and temperature are then at their best, and if the pulse is quickened in some measure the acceleration is attributed to excitement due to the doctor's visit. It is natural for the medical attendant to assume that when everything known to obstetric science has been done for the welfare of the patient the puerperium will he normal unless observations are made to the contrary. We know, of course, from painful experience that absolute asepsis of the genital organs is as yet impossible of attainment in private practice, especially among the working classes, bnt with onr well-founded belief in cleanliness and non-interference with practice in conformity we obtain very good results upon the whole. Fortunately, an encyclopædic knowledge of hacteriology is not so generally diffused among practitioners as to paralyse their efforts at prophylaxis and treatment, as has been the case to such a large extent in some regions of the continent, especially in Germany.

In contrast with private practice it is alleged that "morbidity" is almost unknown in some of our lying-in hospitals. Their statistics should be exactly inquired into with some salutary scepticism. For the sake of peace I shall not compare British lying-in hospitals in this respect, but if for illustration we look at reports of a series of German Obstetric Kliniks we are at once struck with the extraordinary range between the maximum and minimnm of morbidity. The differences appear to depend, not upon facts, but upon interpretation of terms, and also largely npon the temperament of the director of the hospital.

In the class of case in British practice to which I am seeking to attract attention, neither pulse nor temperature observed by the nurse may amount to "morbidity" in any sense yet generally accepted. The case is ultimately diagnosed by the remote effects of certain pathological processes.

What, then, are the symptoms which might be observed by the exercise of great care?

Never a rigor. Rigor always implies sepsis of the graver degree. We can exclude all the forms and degrees of sepsis to which we attach the name of "puerperal fever," a good old term which has a prescriptive right to survive. In the severer cases, still within the category which forms my subject, probably on careful enquiry it would be found that a certain sense of chilliness would be mentioned by the patient. In my experience, however, this is one of the important symptoms that are almost always glibly explained away by the nurse, and receive vastly too little attention.

We have fallen into an evil custom of manufacturing new terms not based on new knowledge, and reputations are being built up on the use of the Greek dictionary, as in the middle of last century. There have been a vast amount of experience and much controversy throughout the generations, but no noteworthy new knowledge has heen added to obstetric science and practice since the middle of the eighteenth century. We can only except the evangel of Semmelweis, explained by the work of Pasteur, and practically applied to surgery by its apostle Lister. Keeping this in mind it will be seen that my subject occupies a distinct place in the new knowledge as dealing with the slighter forms of *lymphatic sepsis*. It excludes *a fortiori* the pyæmic form which is always grave even in its slighter manifestations, and the mixed hæmic and lymphatic form which shows itself more or less tardily in a comparatively light attack of *phlegmasia alba dolens*.

Among the new terms bandied about without clearness of thought, and consequently without recognition of their essential identity, are "sapræmia" and "septicæmia"—they are responsible for many a disaster.

If we now analyse the positive signs and symptoms in the cases under consideration we find invariably with exact and painstaking investigation: (*a*) accelerated pulse-rate, when it should be very slow; and (*b*) slight and not evanescent rise of temperature at some period within the 24 hours, usnally in the early part of the evening, when it shonld be

[1] A paper read on June 9th, 1910, at a meeting of the Obstetrical Section of the Royal Society of Medicine.

subnormal. This altogether apart from the physiological maximum in persons who live regular and peaceful lives. For observations on these finer points the medical man must depend upon a well-trained conscientious nurse who is able and willing to keep full nursing notes, showing the exact temperature every four hours during the day. When the notes are a correct record the medical attendant will see at a glance during his daily visit whether there is any abnormality, and he will take measures accordingly. If the doctor belongs to the type of easy-goers who can be satisfied with the monthly nurse's explanation that the baby was fractious, that the husband was not very kind, or that the breasts were just a bit too full, then so much the worse for the patient.

Is pain a symptom? There is none which may not be, and usually is, mistaken for some incidental and entirely fortuitous discomfort—the expression of pain depends so largely upon the patient's up-bringing and temperament. Upon the whole, among the humbler class of patients there is an expectation of great tribulation in the first labour and child-bed, and the fear of being thought "soft" produces a tendency to minimise symptoms which ought to receive close medical attention. In any case a slight pain is a late symptom in the class of cases which we are considering, and it can be elicited only by special manipulations according to the pathological type to which the particular case belongs: bimanual examination in slight endometritis with metritis, because the uterus is more or less sensitive to touch; deep lateral external pressure when there is a suspicion of slight perimetritis.

Is there a foul-smelling lochial discharge? Frequently. The association of foul lochia and slight rise of temperature always implies the possibility of immediate danger, and it is characteristic of the only class which calls for manipulative treatment without delay.

But, says an objector: "It is only a slight attack of sapræmia; it is not septicæmia." That is a very modern and entirely unproved, even unfounded, distinction. If you analyse and appraise the flux of verbal propositions which compose such a large part of the chapters on the pathology of the puerperium in so many of our text-books, you will find no clear exposition of a difference between sapræmia and septicæmia which can be properly grasped and effectively applied by the general practitioner. We are assured that the cases differentiate themselves in a few days; but a few days may make all the difference between satisfactory recovery and ruined health. No question of puerperal *mortality* arises here.

I have my doubts as to "wait and see" being a satisfactory principle for application either to the practice of midwifery or of politics. Foul-smelling discharge in child-bed demands prompt and active interference for the removal of the cause, some retained product of conception, not mere concealment of the odour by an antiseptic douche.

Now what are the *pathological processes* going on under our eyes, unobserved or under-valued, their import and possibilities seldom or ever exciting the interest of even the medical attendant? The process is a matter of *degree*, not of *kind*. It may be (1) septic endometritis with metritis; (2) perimetritis strictly localised in addition to the endometritis; (3) Parametritis owing to lacerations to such a slight extent as only to show its previous existence remotely by cicatrices and changes in the cervical mucosa.

It is not my intention to inflict upon you more than the average amount of platitude on prophylaxis, diagnosis, and treatment.

Prophylaxis is the application of all the practical knowledge we possess for the preventing of septic conditions in child-bed. The greater includes the less. The medical practitioner does not allow his patients to suffer because of ignorance or apathy on his part. It may be admitted that he is often not so long-suffering as he ought to be, and that he readily conceives conscientious reasons for harmful interference. Then at the present transition stage he is frequently ill served by half-trained self-satisfied persons who have obtained a little superficial instruction in "monthly" nursing alone. So prevention is deplorably and exasperatingly difficult.

As to *diagnosis* in such cases it is possible to be too conscientious in the employment of manual methods. Presumptive diagnosis with watchfulness are usually best for this class of patient.

The time for *treatment*, except in the more marked cases still within the category which we are discussing, has not yet arrived. The object of treatment is to prevent or minimise the consequences of the pathological processes, and the time for active interference is comparatively remote.

Let us return in more detail to the pathological processes.

I. *Endometritis with metritis.*—As soon as the endometrium becomes infected the process of involution of the uterus is arrested. This is a fact which does not appear to receive the attention which it deserves. In the severer cases of septic infection which call urgently for treatment because of symptoms implying danger to the life of the patient we often find, when we proceed to active treatment at the end of the first week of the puerperium, or even later, that the curette with a graduated stem will pass in for 6 to 8½ inches before it reaches the fundus uteri, and yet we are advised by some authorities to explore and clear out the cavity with our fingers! What digits they must be endowed with who can accomplish such a feat! This arrest of involution is the chief cause of the pelvic condition observed remotely even in the slighter degrees of sepsis.

In the typical case the patient leaves her bed at the time usual with the social class to which she belongs, and if she does not feel very robust some of the numerous minimising explanations are found by neighbours or nurse, and accepted as sufficient. Sooner or later certain symptoms arise—the remote symptoms of the pelvic condition which must in the long run receive attention even from the most apathetic or patient of women. These symptoms are produced by conditions resulting primarily from sub-involution. They are usually a sense of weight or dragging.

On physical examination, say six months or more after the confinement, some displacement of the uterus will be discovered. The usual displacements are downward or backward or both combined. If the examination has been delayed until the retroflexion has become chronic it will be found that there is thickening with erosion of the posterior lip. If this condition is discovered it considerably affects the prognosis as to cure by manipulations and pessaries. I have heard this anatomical change attributed to a local sepsis and curettage recommended for its cure. This is, in my humble opinion, mere imbecility as pathology, and the coarsest and most irrational abuse of the curette, even in an epoch when curettage is the most prominent and discreditable abuse in gynæcological practice. I can remember a time when the guiding principle with many was: "If in doubt, introduce a pessary." Nowadays the principle appears to be, "If you do not know what is the matter, employ the curette."

If in a case of backward displacement of a sub-involution uterus the ovaries are dragged off their shelves—out of their fossettes—then cure without operation is one of our rarest experiences. Even in cases of uncomplicated retroversion or flexion cure by manipulation and pessary is by no means common. One recent German writer puts the proportion of cure in cases observed for from 1 to 17 years as 7 to 10 per cent. The largest proportion of cures amounts to 20 per cent., according to August Martin and Fehling. What becomes of the remaining 80 to 90 per cent.? They are condemned to "palliative" proceedings as a rule, and remain more or less under medical observation and treatment for the rest of their natural lives. This is the simple statement of a sad fact which is perhaps not as a rule faced frankly and courageously by medical practitioners.

During the child-bearing time of life sterility is by no means a consequence of these backward displacements without apparent cause. Impregnation, early symptoms of pregnancy, then abortion, is the usual cycle, occasionally varied by spontaneous rectification or retroflexion with incarceration of the gravid uterus.

II. *Perimetritis.*—When the sepsis in the slightest unobserved degree is conveyed by the lymphatics through the uterine wall or along the tubes the result is peritonitis—the circumscribed peritonitis which we designate perimetritis. Even the very slightest peritonitis is followed as direct effect by some measure of adhesion; involution has been arrested or retarded early; the uterus is therefore large and heavy at the patient's getting up, and all the anatomical conditions favour the occurrence of complicated backward displacement. Whether tubes and ovaries become displaced or not they at once take on certain processes of change which lead to important consequences. The tubes sooner or later have the fimbriated ends retracted and closed, or they

become adherent to the ovaries. The ovaries gradually undergo pathological changes which may produce no specific and individual symptoms, but are fraught with important consequences. The tunica albuginea becomes thickened and sclerosed, so that the Graafian follicles cannot rupture externally and shed their ova, but they must rupture within the ovarian stroma, producing at first small cysts containing blood instead of forming corpora lutea. If such ovaries are not displaced they become adherent in their fossettes, clothed in the organising peritonitic exudation which slowly but certainly contracts, doing still further injury to the ovary.

This process of organisation of exudation and adhesions is by no means rapid, and for perhaps a year or so the bands are readily torn down. Later, the adhesions may become as completely organised and injurious as those that result from puerperal perimetritis, obvious from the first because of the severity of the symptoms. They are separable only by cautious prolonged manipulation, and they sometimes require the use of scissors.

Treatment.

1. *Sub-involution with displacement.*—The routine method of treatment has for its objects to diminish the congestion and bulk of the uterus and to restore it to its normal position. These objects may be occasionally attained by medicated glycerine tampons and manipulations. The "medicated" is not essential; it is the glycerine which has the depleting effect. My favourite tampon consists of a long shred of lint like a bandage with two inches or so of the end soaked in glycerine. When introduced it depletes and acts mechanically as a pessary. The most useless of all tampons is the pledget of absorbent cotton which the patient is directed to apply herself. These methods are all purely palliative and temporary in their effects.

The final resort is, as a rule, to the pessary, and the result is far from generally satisfactory. In simple hypertrophy with backward displacement the relief conferred may satisfy the patient and the medical man, but in the great majority of cases we condemn a young and otherwise healthy woman to discomfort and medical supervision for the rest of her life, for the menopause usually brings exacerbation.

In retroflexion complicated with prolapse of the ovary nothing but harm can come from pessary treatment. It is astonishing how frequently the displacement of an ovary is overlooked in general practice, just as the complication of retroflexion with adhesions is not diagnosed in another category of cases, and the pessary treatment is persevered with in spite of the suffering resulting from pressure on sensitive parts.

In the long run, in most cases some sort of operation must be the last resort. In most of the old-standing cases which we meet with there is a history of curettage once at least. The theory, if any, at the foundation of this practice may be that once septic always septic, as may be seen seriously alleged by a contributor to a German gynæcological journal a few years ago. This, on the analogy of Noeggerath's original doctrine that once infected with gonorrhœa always gonorrhœic.

I would suggest a method of treatment of the endometritis more gentle, as efficient, and without some of the serious objections to the curette, such as producing a wound which ultimately becomes a cicatrix.

The uterine canal is cautiously dilated by means of a suitable laminaria tent, and a wick of gauze soaked in a solution of chloride of zinc is introduced up to the fundus, care being taken to neutralise the excess of the escharotic fluid. This application destroys a pellicle of the endometrium in a perfectly smooth, symmetrical manner. The hypertrophy of the uterus is best reduced when there is some laceration of the cervix by an exaggerated Emmet operation with the apex of the wound on each side reaching so high as to divide some branch of the uterine artery. Failing success of these minor measures posterior colporrhaphy may be tried, here also by a rather exaggerated operation to make allowance for future shrinking, but after an apparently successful operation of this kind a pessary will have to be worn if the tendency to prolapse has been at all marked.

Among the operations suitable for uncomplicated prolapse with retroflexion is, I need hardly say, Alexander's operation of shortening the round ligaments. There is a distinct field of usefulness for the original operation which it must be conceded has a tendency to diminish in area. It fails to stand the test of pregnancy and parturition in 20 per cent. of all cases.

2. *Pelvic peritonitis with displacement.*—By far the most interesting portion of the class of pelvic diseases concerning the origin of which we can obtain no clear evidence from the patient is that of complicated uterine and ovarian displacement, of which the cause, or some part of the cause, is pelvic peritonitis or perimetritis. It is, as I have said, a question of degree. Instead of a statement in general terms, an illustrative case will perhaps more clearly indicate the features of such a category. Such illustrative cases are by no means difficult to find. Here, e.g., is a typical case of one-child sterility, from the practice of a man of wide experience and sound judgment in one of our most important Lancashire towns.

CASE 1.—A married woman was admitted to the Manchester Southern Hospital in October, 1899. The patient was 28 years of age; she had been married nine years and had one child born eight years ago. The labour was apparently normal and required no interference whatever. The patient got up at the end of 12 days apparently well. She did not try to suckle the infant. In the course of a year or so she began to complain of certain discomforts, and Dr. —, after the usual examination, tried to replace the uterus, which he found retroflexed, by means of a pessary. This method was not successful, and the patient had been ailing to a slight extent ever since. There was no menstrual derangement, except within the last year or two the menstrual flow had gradually become more profuse and prolonged. It now continued seven days. At the hospital the case was diagnosed as retroflexion with adhesions. The patient was kept in bed for three weeks for treatment by douching and glycerine tampons without appreciable benefit, so after due consideration by all interested the operation of ventrofixation was performed. The uterus was found to be bound down by firm, but not extensive, adhesions. These were dealt with in the usual way and the operation was completed. The patient was kept in bed for five weeks after the operation, although there was no incident to suggest special caution, and she went home perfectly well.

Let us supplement this case with another in which the adhesions resulting from perimetritis were not allowed time to become firmly organised. It also illustrates the futility of some of our methods of treatment in complicated backward displacements, such as the Schultze process.

CASE 2.—The patient was a married woman, aged 28 years, with a history of some slight illness after miscarriage during the first year of marriage. When admitted to the Manchester Southern Hospital in October, 1891, she was found to have retroflexion with adhesion of the uterus. The ovaries were not displaced as far as could be made out by ordinary examination. The employment of douching, tampons, and the Schultze manipulations failed to rectify the position of the uterus. The operation of ventrofixation was performed in October, 1891. The uterus was found to be adherent to the pelvic floor; the broad ligaments were folded back but the ovaries were not dragged from their fossettes to which they adhered. The adhesions were broken down readily, some hæmorrhage coming from the torn adhesions. Ventrofixation was completed in the usual way and a smooth recovery resulted. The patient had a normal pregnancy, labour, and puerperium in the following year.

Now as such cases could be multiplied indefinitely from the notes of the last 20 years, and the practical conclusions from these two early cases are obvious, I forbear from the tedious process of further story-telling. I do not propose to analyse and criticise the vast number of ingenious methods of treatment, mostly surgical, which have been proposed and adopted more or less in Europe and America; I should only like to state my own conclusions that all these fancy operations have failed with the exception of those which enable the operator to inspect the field of operation. Incomparably the best of these operations for backward displacement of the uterus with adhesions or abnormalities of position resulting from pathological conditions of the ovaries and tubes is *ventrofixation*—that is, hysteropexis hypogastria—when properly performed, and no such operation is properly performed in which there is not complete abstention from interference with the round ligaments and the corpus uteri, except for a very short distance immediately above the

isthmus.[2] With the field of operation clearly in view any necessary repair of the tubes or the ovaries can be readily effected. It is seldom, if ever, justifiable to sacrifice either tube or ovary.

Without going into details I may state broadly the practical conclusions thrust upon us by the frequent occurrence of the pathological conditions which I have endeavoured to describe—viz., those not preceded by any observations of puerperal sepsis in the puerperium. (1) Every woman should be carefully examined six or eight weeks after her confinement; (2) if sub-involution without complication is discovered treatment should be at once begun with the object of bringing the uterus to its normal condition; (3) if uncomplicated retroflexion is diagnosed the use of tampons, followed by the temporary wearing of a pessary, may possibly be successful; (4) if tampons and pessary fail to restore the uterus to its normal condition and position adhesions must be suspected and efforts made to break them down by manipulations under anæsthesia; (5) failing success by manipulation ventrofixation with the necessary modifications is the only rational operation; (6) in every case of one-child sterility with retroflexion, whatever the negative evidence, puerperal sepsis to some degree should be assumed as the cause and ventrofixation resorted to.

In conclusion, I venture to predict that as the futility of pessary treatment becomes more generally recognised ventrofixation will take its proper place as the only reliable and successful method of treating all complicated cases of displacement of the uterus.

Manchester.

THE TUBERCULOUS GLAND: ITS SIGNIFICANCE AND TREATMENT.*

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Earlier View.

TWENTY years ago one's attitude towards the tuberculous gland was very different from to-day. Twenty years ago it was my custom to advise the immediate removal of the pronouncedly enlarged gland, and I sent to the surgeon all cases of cervical glands showing a tendency to caseate. The conception at that date was that by timely operative interference one might expect to arrest the spread of the tuberculous disease, and in numerous cases of strictly limited involvement the result did prove satisfactory.

Growing experience, however, showed that the procedure led to frequent disappointment. Oftentimes after operation the tuberculous process continued to advance, not only in those cases where one or two glands alone had been removed, but in those where more extensive dissecting operations had been undertaken with a view to complete extirpation.

Revision of View.

This led to a gradual reconsideration of the whole question and to more careful observation of the process of tuberculous invasion from its earliest and slightest manifestations in conditions where operative interference would not have been dreamt of, to the pronounced appearance presented by old-standing cases whether treated by operation or not.

Many years ago I began to follow the development of glandular tuberculosis in a number of individuals, from the minor degrees of change in early childhood through varying stages of development in the different instances. Such observation, prolonged through infancy on to adolescent and even adult life, proved of much interest and significance.

Suppuration merely an Incident.

It showed conclusively that *suppuration* in a gland is a relatively uncommon event as compared with the occurrence of *infiltration* of varying degree. In other words, suppuration is merely an incident, a relatively uncommon incident, in the course of progressive involvement of the glands by tuberculous infection. It is an incident which may never emerge—an incident which, as a matter of fact, does not emerge in by far the greater number of cases.

Yet in the earlier days, and I fear in large part still, attention has been chiefly centred on this incidental occurrence and too little on the actual process of tuberculous infection, which often runs its course quietly—it may be its fatal course—apart from the more clamant evidence of caseation or suppuration.

Course of Tuberculous Infection.

Let me ask you to recall briefly the path of tuberculous infection. I may not dwell at length on the much-debated question of the more frequent avenue of infection. Clinical and pathological evidence, including the results of experiment, goes to show that tuberculous infection may occur by the passage of the tubercle bacillus through the unbroken mucous surface. The facts of abdominal tuberculosis clearly support this view. In order that the tubercle bacillus may enter the system there is no need of a primary local lesion of the mucous membrane.

Without attempting to compare the relative frequency of entrance of the bacillus by different portals, I would press for acceptance the view that the throat—including under the term the nasal, pharyngeal, palatal, and tonsillar regions—is a vastly more common avenue of general tuberculous infection than is usually believed. It is unnecessary for the present to enter on the connexion between initial changes in the tonsils and other glandular structures, and the subsequent stages of infection. The significance of the tonsils and adjacent glandular structures in relation to tuberculous invasion is immense. I cannot accentuate too strongly the need for careful investigation of the tonsils, peritonsillar tissue, and the extratonsillar glands.

It is of first moment to follow the successive spread of change from point to point along the lymphatic chain of ducts and glands connected with the throat. The lymphatics of the neck, including the lymph nodes at the angle of the jaw, and the great network of glands in the supraclavicular triangle, are extremely often involved. Of especial frequency and significance is a fine multiple enlargement of lymph nodes in the supraclavicular triangle, commonly without any traceable tendency to caseation or suppuration. The infiltrative change is often so slight as to be passed over, unless deliberately investigated by careful palpation. The enlarged nodes—to be reckoned by the score—may be little more in size than a split pea. Many of them are even less. A refinement of ordinary palpation, requiring a certain amount of practice, is needed for their detection.

This general involvement of the lymph nodes of the supraclavicular region is, in practically every case, the expression of tuberculous infection, the infection spreading from the throat in the way just indicated. The chain of enlarged glands may be traced from the angle of the jaw throughout the supraclavicular region, and even below the clavicle. One may follow during months or years the gradual advance from point to point in this region, and perhaps later the further involvement—apparently by direct communication—of the axillary glands. Sooner or later I am satisfied that it occurs in the great majority of children.

Furthermore, there would seem to be a ready intercommunication between the cervical lymphatics and the thoracic lymphatics. It is probable that in this way—by primary invasion of the throat and subsequent spread along the lymphatic pathway—invasion of the lungs most commonly occurs.

Had the custom of this society permitted, I should have liked to present to you a series of cases illustrative of this important point—some in which the lymphatic involvement is still slight and limited to the submaxillary region; others, where the lymphatic involvement is widespread, covering the whole supraclavicular triangle, but without traceable pulmonary invasion; and others still, where, along with the submaxillary, supraclavicular, and perhaps axillary involvement, there is evidence of commencing infiltration at the apex of the lung on one or both sides.

Relation to Childhood.

This localisation of the initial lesion in a large group of tuberculosis—I believe the largest of all—is of far-reaching clinical significance. It corroborates the view I have long maintained as to the commonest site of infection. Tuberculosis is, in the greater proportion of cases, acquired in the early years of childhood. The earlier the invasion, the more

[2] For a description of this operation in detail see THE LANCET, Oct. 3rd, 1908.

* An address delivered before the Edinburgh and Leith Practitioners' Association on June 7th, 1910.

easy and rapid the spread. The absence of reactionary disturbance with enlargement and suppuration does not mean, unfortunately, a less virulence or less certainty of spread. The infection spreads uniformly and quickly in those cases where the glandular involvement is of so fine a character as readily to be missed. In the case where the glands are much enlarged there is often less danger.

The occurrence of tuberculous infection by way of the throat has the additional interest that it links tuberculosis with other infections commencing in the throat, such as diphtheria, scarlet fever, measles, rheumatism, &c. It emphasises more than before the importance of a watchful scrutiny of this portal from infancy onwards in relation to every kind of infection. In other words the mouth and throat of a child must be kept as *absolutely clean* as possible.

In the acuter infections, such as diphtheria or scarlet ever, the systemic involvement following the local lesion is rapid by the dissemination of virulent, doubtless highly soluble toxins, which either kill or lead to spontaneous cure by the elaboration of antitoxic products. In the case of tubercle, we have to deal with an infection of lower virulence, but one which is more or less continuously present to the child, or at least is frequently repeated through the conditions of compulsory environment during home and school life. The result is that in a very great proportion of instances the child is tuberculised by the time it is 15 years of age, as evidenced by traceable glandular and other changes. The after-course of the infection—which is extremely various in different individuals—and the bearing of the progressive lymphatic involvement on the distribution and other clinical manifestations of pulmonary tuberculosis I may not enter on now.

What concerns us especially now is the immense frequency during childhood of tuberculous involvement of lymphatic glands in the areas described. In the great majority of instances the glandular involvement is comparatively inconspicuous, so inconspicuous, indeed, that it is oftenest undetected.

If we trace the glandular changes in such cases several points of interest emerge. We find that, as a rule, the enlargement of glands becomes less and less marked in passing from the submaxillary region downwards—the proximal glands being commonly larger than those placed more distally. If you will follow the developing process from week to week and month to month, you will find the cause of this progressive variation in size to be the gradual extension of the process over successive glandular areas.

All this time the occurrence of suppuration is relatively rare. The reason why one gland caseates and suppurates and another does not is not always clear. It is not a question of simple maturation. Thus, glands nearest the seat of primary involvement do not necessarily caseate. If suppuration occurs it is not infrequent to find it in one or several glands more peripherally disposed.

Treatment.

In turning to the treatment of tuberculous glands, the practical point to be kept prominently in view is that caseation or suppuration is simply an incident in the process—an incident which is far from constantly present in the course of tubereulous infection. My present thesis is that rational *treatment must be directed chiefly to the essential lesion rather than to the incidental occurrence*. The fine, multiple, and spreading involvement of lymph nodes is the important thing. In the past disappointment has resulted from the direction of attention to the more conspicuous, but less essential, lesion, and there has been a corresponding limitation of treatment to operative dealing with caseous glands.

Operative Interference.

It is freely admitted that the immediate result of operative treatment has been usually satisfactory, *so far* as the removal of disfigurement is concerned. In some cases it has gone further than this, and the treatment may be fairly described as radical. In the majority of cases, however, such operative treatment is of local and partial value only. The very success of the operation has diverted attention from the tuberculous infection as such, and the final result has been often disappointing.

In sanctioning operation this fallacy must be kept in view. In numerous instances the effect of operation can only be, from the nature of things, partial, for it is obviously impossible to remove all the glands which are involved. In numerous instances in my experience, where operation has seemed immediately successful, suppuration, or at least disfiguring enlargement, has recurred, and, even after repeated operation, has recurred again. In other instances, after several operative attempts, the effect of lymphatic extension has become so urgent as to call for further treatment after the possibilities of surgical relief were exhausted. I could submit a series of cases in illustration of this point. I could show you cases where, after repeated operation, enlargement of the glands continued with a gradual extension downward and more deeply, with the ultimate determination of pulmonary tuberculosis. I might show you cases in which an extensive operation had been undertaken for deep-lying glandular tuberculosis, where little relief followed the operation, and cases where disfiguring enlargement in one set of glands removed by operation was speedily succeeded by a like disfigurement in another series. I should like to have brought before you a case at present in my wards, where, through the spread of the process, after extensive operation, to more deeply-seated glands, dyspnœa of aggravated type supervened, and where further application to the surgeon only elicited the reply that the surgeon could do no more. I have in view cases operated on some half a dozen times, with the same final result that the disease was not eradicated, because, indeed, ineradicable along these lines.

Vaccine Therapy.

In presence of a progressive infection of this indolent, creeping sort, it seems to me that the usual method of interference by the removal of one or several glands cannot be regarded as sufficient treatment, even if the procedure be admitted satisfactory from the incidental point of view. A more definite opposition must be offered to the spreading infection. This opposition is afforded by vaccine therapy. Our purpose must be the production of immunity by stimulation of the natural protective mechanism. We must seek to activate the leucocyte and the bacteriotropic elements of the lymph stream and blood. And the outlook is most encouraging. In exhibiting tuberculin we make use of an agent closely related to the infecting organism, and there is abundant ground for the belief that we thereby reinforce nature's own effort at immunisation. While lacunæ exist in our theory as to the mode of action of tuberculin, there can be no doubt whatever as to its great therapeutic value.

The effects can be traced readily in superficially placed glands. Immediately following the first injection of a suitable dose the gland may be found slightly enlarged and possibly tender. The gland is congested. In the course of a few days the gland under observation will be found reduced in size. Sometimes it may take more than one injection before this is evident. With successive doses the alteration in size becomes more and more definite. The change takes place throughout the entire chain of glands. The larger proximal glands shrink in size gradually, while the smaller glands in the periphery seem to disappear—literally to melt away. An apparent formless mass of matted glands tends to become reduced both in size and in complexity. In grosser conditions, with much cervical deformity, the advance of local improvement is remarkable. The measurement of the neck is altered in striking fashion. Thus in one case at present under observation the neck, which was hugely disfigured, has resumed almost a natural appearance, a reduction of 2½ inches in circumference being registered. Another patient told me the other day that in place of a 16½ inches collar which he had been compelled to adopt on account of the swelling he now found one of 15½ inches too wide.

The systemic effects are no less striking. During treatment the two patients I have just mentioned put on no less than 25½ pounds and 14½ pounds respectively. Further, lung symptoms, which were already aggressive, including in one instance sharp hæmorrhage on more than one occasion, with corresponding physical signs, have dropped into the background. In the other case, the conditions had become associated with respiratory symptoms of serious moment. When the patient came under treatment the neck was greatly swollen and the patient cyanosed, and so dyspnœic that he could hardly walk the length of the inner corridor of the ward. In bed he had to sit up in a state of orthopnœa. It looked as if at any moment he might die from asphyxia. Under treatment with tuberculin not only has the local disfigurement been largely removed—the huge, ill-defined mass being broken up into a collection of discrete glands—but the

dyspnœa has yielded completely, the patient resting comfortably at night and having walked the other day nine miles without difficulty.

Procedure and Dosage.

A word as to procedure. It is best to begin treatment with *small* dosage. This is the more important because of the frequency with which glandular tuberculosis is associated with visceral involvement. By repetition of the same dose so as to exclude the fallacy of a missed reaction, and by gradual increase, if no effect has been produced, it is commonly easy to determine the *minimal* dose which is *effective*. So long as the given dose is effective in producing local change or systemic disturbance, however slight, it is wise to repeat the same dose, or, should the reaction seem excessive, to reduce it. Thereafter the dose may, in similarly cautious fashion, be progressively increased. The effect is estimated by careful observation of temperature, pulse, local appearances, and the patient's aspect. The determination of the opsonic index is, in my experience, unnecessary.

If incidental suppuration occurs evacuate the pus in the simplest way possible. I have no objection to the surgical extirpation of the gland, but it is often unnecessary. Simple aspiration of the gland will suffice in a large proportion of cases. I have thus, on several successive occasions, aspirated pus amounting collectively to a couple of ounces with the happiest result. In some instances the effect may be hastened by small incision. In all cases of such interference the tuberculin should be continued. As to the tuberculin itself, there are many preparations available. For my own part I have used Koch's original tuberculin, Koch's T.R., and latterly Béraneck's tuberculin. As initial dose I have used, of Koch's original tuberculin, 0·0001 gramme; of T R., 1-5000th to 1-2000th milligramme; and of Béraneck's tuberculin, 0·1 cubic centimetre of a 1 in 100,000 solution.

Conclusions.

To shortly sum up conclusions drawn from prolonged observation and treatment of such cases I should say: 1. Watch for the earliest indication of spreading involvement of lymphatic glands in young children. Especially have regard to distribution downward from the extratonsillar gland into the supraclavicular triangle. 2. Regard such process as almost certainly of tuberculous nature. If in doubt make use of the tuberculin test (cutaneous or percutaneous). 3. Treat as soon as may be with tuberculin on the lines indicated, while at the same time carefully cleansing the throat and correcting the child's faulty environment. 4. If incidentally one or other gland suppurate, evacuate in simple fashion, continuing the use of tuberculin.

There is ample reason for the statement that if such procedure be followed the glandular disturbance will commonly yield, grosser deformity will become rare, and, what is vastly more important, the risk of the spread of tuberculous infection to internal organs will be greatly lessened.

Edinburgh.

JAPAN-BRITISH EXHIBITION.—In the Japan-British Exhibition an important place is assigned to chemical industry. Messrs. Burroughs, Wellcome, and Co. have here a striking exhibit of the various "Wellcome" manufactures, many of which are displayed in vases and amphoræ of ancient Grecian design. These vases are replicas in glass of actual relics of that old civilisation to which we owe so much, and their association with the latest developments of synthetic and analytic chemistry is quaint and pleasing, while their contents serve to show that much is now being done to win back this department of scientific industry from foreign rivals. A series of photographs of scenes from the "Wellcome" materia medica farm at Dartford is also exhibited. This farm was started some six or seven years ago for the culture of medicinal plants, chiefly those which are indigenous to England, and is conducted partly with a view to experiment and research, and partly to obtain supplies for pharmaceutical purposes of fresh herbs of known origin and of uniformly high standard. The results of this scientific herb culture, checked and standardised by chemical analysis and physiological tests, are calculated to bring a new element of exactitude into the somewhat hazy posology of some vegetable substances.

THE ADMINISTRATION OF THE PUBLIC HEALTH AND EDUCATION ACTS IN RELATION TO THE PREVENTION AND CURE OF DISEASES OF THE THROAT AND NOSE.

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(*From the London School of Economics.*)

(*Continued from p. 1749.*)

STATISTICS showing the results of school inspection are notoriously unreliable [1] and not mutually comparable. Reference need only be made to the results of school inspection quoted above to satisfy oneself on the point. Compare also the following table:—

Statistics based on Reports received from 20 Counties and Towns in England. Number of Children Examined over 40,000.

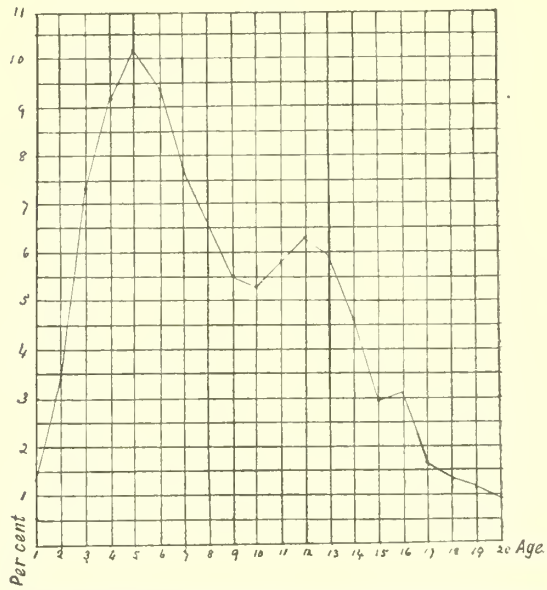
Reported to be suffering from—	Percentages.		
	Lowest.	Highest.	Apparent average.
Tubercular disease	0·015	4·3	0·8
Bodily deformity	0·04	6·0	3·4
Defective nutrition	0·3	19·0	3·0
Uncleanly head and body ...	1·0	60·0	18·0
Decayed teeth	0·7	25·0	8·0
Enlarged tonsils	2·0	23·0	13·0
Adenoids	1·5	21·0	8·0
External ear disease...	0·8	3·5	1·8
Eye disease	0·4	8·7	3·0
Defective vision...	4·1	39·0	13·0
Mentally defective	0·3	4·2	1·3
Heart disease	0·4	5·0	1·5
Lung affection	0·1	2·4	1·4
Skin diseases	0·9	2·1	1·9

One of the chief reasons for this is that the tests and standards used are variable and arbitrary and influenced by the personal equation of the examiner. But they show sufficiently well the nature of the problems in treatment and prevention set before us. We read a great deal about mouth breathing, glands in the neck, running at the nose, deafness, discharging ears, backwardness at school, deformities, liability to fevers, and other illnesses. If anyone thinks to avert all these evils by a timely operation for the removal of tonsils and adenoids he will be grievously disappointed. There is no royal road to health in these cases except in a limited number. An attempt is made in another part of this paper to give a general account of this operation as carried on in London at the present time. What is the condition of the patients at the time of operation and what are their ages? The first question is sufficiently answered by saying that practically all are suffering in some way or other. Therefore, theoretically at least, earlier operation would prevent a good deal of illness. It would certainly have that effect in fact if the cases could be properly selected. Evidences of neglect abound and many apply for treatment only when permanent damage has already been suffered.

In order to answer the question as to the age of the patients I have collected a total of 4769 persons who underwent operation in nine hospitals and tabulated them according to their ages. (See Tables A and B and Fig. 1.)

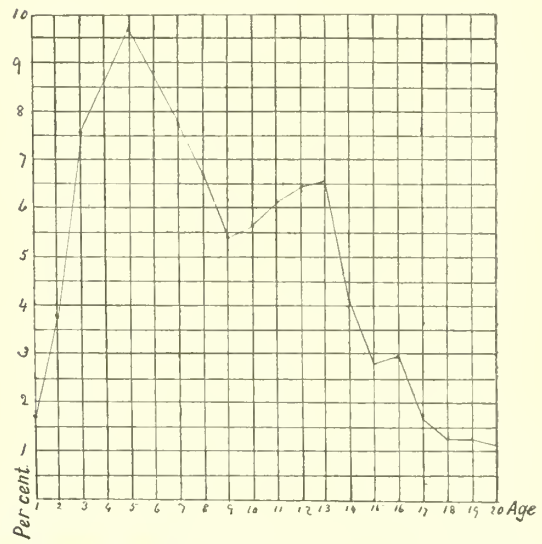
[1] THE LANCET, June 26th, 1909, p. 1851.

FIG. 1.



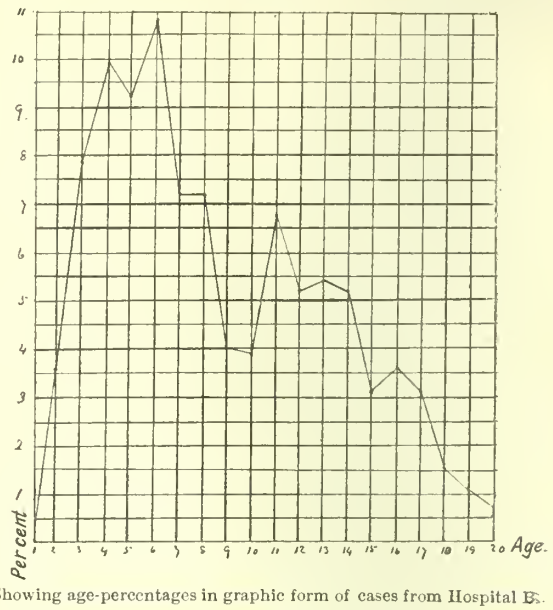
Showing age-percentages in graphic form of cases from nine hospitals.

FIG. 2.



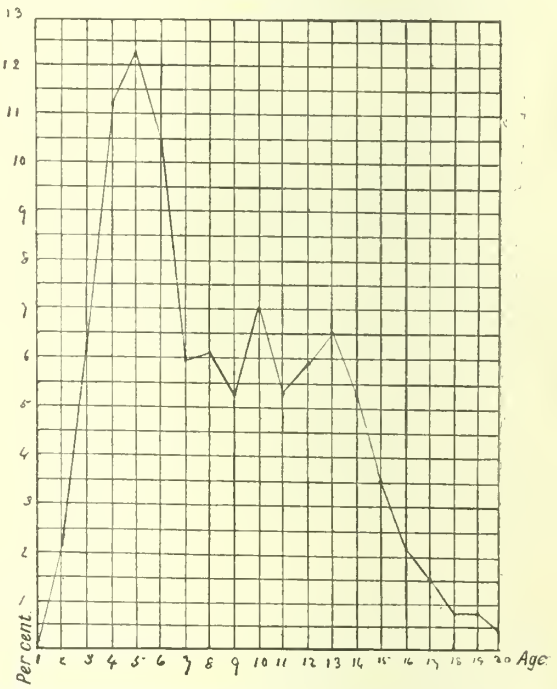
Showing age-percentages in graphic form of cases from Hospital G.

FIG. 3.



Showing age-percentages in graphic form of cases from Hospital B.

FIG. 4.



Showing age-percentages in graphic form of cases from Hospital E.

TABLE A.—*Patients who underwent Operations for Removal of Tonsils and Adenoids at Different Ages.*

Hospitals.	Years of age.																			Total.
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
A	—	3	10	5	8	9	5	9	2	3	4	6	5	7	3	8	—	1	2	1	91
B	2	16	35	44	41	48	32	32	18	17	30	23	24	23	14	16	14	7	5	3	444
C	3	10	11	31	18	24	21	12	12	9	11	13	9	6	2	5	3	3	2	1	206
D	1	2	12	9	21	14	19	8	10	9	9	8	7	10	9	3	5	2	—	—	158
E	1	12	29	51	56	48	27	28	24	32	24	27	30	24	16	10	7	4	4	2	456
F	1	7	6	14	14	13	8	6	11	8	6	9	11	11	8	7	1	4	4	4	153
G	51	106	213	244	276	245	220	189	155	161	174	184	186	117	80	84	46	36	36	33	2836
H	1	4	20	31	32	31	21	22	17	11	14	19	10	14	7	15	5	5	3	2	284
K	2	—	13	9	18	16	17	11	14	5	9	10	4	7	3	1	—	2	—	—	141
	62	160	349	438	484	448	370	317	263	255	281	299	286	219	142	149	81	64	56	46	4769

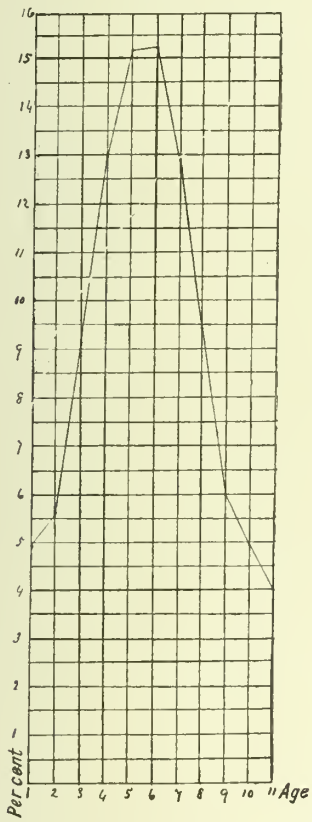
TABLE B.—*Showing Percentages at Different Ages.*

Years of age.	Number.	Percentage.	Years of age.	Number.	Percentage.
1	62	1·30	11	281	5·80
2	160	3·35	12	299	6·26
3	349	7·31	13	286	5·99
4	438	9·13	14	219	4·59
5	484	10·14	15	142	2·97
6	448	9·39	16	149	3·12
7	370	7·75	17	81	1·69
8	317	6·64	18	64	1·34
9	263	5·51	19	56	1·17
10	255	5·34	20	46	0·97

For purposes of comparison I have made curves from some of the components of the 4769 cases. (See Figs. 2, 3, and 4.)

Table C shows the age-percentage distribution in a series of 2410 cases operated upon in the Great Ormond-street Hospital for Sick Children. It is convenient to keep this series separate from that given in Table A.

FIG. 5.



Showing in graphic form the age-percentage of 2410 cases from the Great Ormond-street Hospital.

TABLE C.—*Showing the Age-percentage Distribution in a Series of 2410 operations.*

Years of age.	Number.	Percentage.	Years of age.	Number.	Percentage.
1	119	4·93	7	306	12·69
2	134	5·56	8	227	9·41
3	220	9·12	9	144	5·97
4	312	12·94	10	119	4·92
5	365	15·14	11	98	4·06
6	366	15·18			

Let it be borne in mind that these diagrams and tables are made from a collection of patients actually operated upon for the removal of tonsils and adenoids, and that these patients arrived in various out-patient departments in the ordinary way. The diagrams show at what period in their career these patients began to suffer from their throat in such a manner as to attract the attention of those responsible—e.g., parents. There is a general similarity in all the curves, Figs. 1 to 4. In all of them the age 5 is the highest point reached. In all of them the percentage rises rapidly from age 1 to age 5 and falls more gradually to age 20. Also they all have a slight temporary rise at or just before the age of puberty. It is quite possible these facts are to some extent merely a reflection of the greater interest which parents may be supposed to take in their children at the period of their entrance into, and their departure from, the public elementary schools. But, in addition, the rapid rise of the line up to age 5 unquestionably shows that the causes of these throat maladies begin to act early[2] and before the children come under the notice of the school medical officer. Some school officers have found that there is no relation between the occurrence of adenoids and poor home conditions or, to put it in another way, that a school attended by very poor children is no more likely to show a large proportion of adenoid cases than a school attended by relatively better class children. But so many factors come into a wide question of this kind that it is exceedingly difficult to draw any valid inferences from them. The elaborate report of the City of Edinburgh Charity Organisation Society above referred to gives an account of the homes and surroundings in the case of 1400 school children. If on that report we take as a standard of home conditions the number of rooms occupied by each family we find there is not much difference in the incidence of throat disease as represented by tonsils and adenoids on the different grades. Table D shows the ratios between the numbers of those affected and those unaffected with tonsils and adenoids in the different classes of "house."

TABLE D.—*Showing the Rates between the Numbers of those Affected and those Unaffected with Tonsils and Adenoids in the Different Classes of "House."*

	Number of rooms.									
	1		2		3		4		5 or more.	
Tonsils and adenoids	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Numbers	68	165	216	564	83	191	17	39	2	3
Ratios	2·42		2·61		2·30		2·29		1·5	

If anything, these ratios are against the better class of "house." But obviously we must take into account, not only the number of rooms in a house, but the number of occupants, the cubic air-space per occupant, the number of wage-earners in the family, the amount of the wages, the manner of spending the wages, the amount of charitable aid obtained, as well as personal habits of the individuals. It is, however, *a priori* likely[3] that insanitary home conditions bring about insanitary conditions in the nose and throat of children and that, apart from adenoid growths, a large amount of nasal "catarrh," nasal suppuration, nasal obstruction, and mouth breathing is thus produced. Just in the same way, the lower we go in the social scale the more commonly do we find "running ears" and other septic conditions in children. In this respect the problems respecting children's teeth, throats, noses, and ears are on parallel lines. It is clear that any complete system of prevention directed against these diseased conditions of the throat with all their various sequelæ will have to begin long before the children arrive at the schools. In this connexion notice should be directed to the work done in what are called "infant consultations," which are special clinics dealing solely with infants. For example, at the St. Marylebone General Dispensary in Welbeck-street, W., these consultations are carried on by Dr. E. Pritchard, who is the

[2] Sutherland: Diseases of Children, p. 142. Mrs. Sidney Webb: p. 21 of report referred to supra. THE LANCET, August 15th, 1903, p. 474.

[3] Waggett: Diseases of the Nose, p. 81.

pioneer of this kind of work in London. The work is of an extremely valuable nature and it might with obvious advantages to the public be more widely extended and ultimately joined up with the school medical service. An account of the work in infant consultations is given in the annual reports of the St. Marylebone General Dispensary for the last three years, and reference should be made to these reports by those interested in the subject.

Only by some such means shall we arrive at a sound method of preventive medicine.[4] The early years of life are those in which specific fevers are most rife, and it is not surprising that so much damage has already been done when school life begins. On account of the vagueness of patients' statements and for other causes it is at present impossible to show by statistics any direct relation between the presence of enlarged tonsils and adenoids and the incidence of specific fevers, but at the same time it is impossible to resist the thought that such a connexion does exist. What is required is a system of registration which will bring the fever hospitals into relations with the school medical service.

Coming now to the actual treatment[5] of the conditions found when the children have entered school, it should be postulated that unless this work be well done it had better not be done at all. Otherwise the whole scheme must fall into disrepute, and everyone—general public, ratepayers, and the medical profession—will be dissatisfied. It is absolutely certain that whatever the cost[6] may be the best will be the cheapest.

"Existing institutions are to be utilised as far as possible."[7] But are existing institutions at all suitable for what is now needed? This depends entirely upon the character of the work required to be done. Is a crowded out-patient department a suitable place for the treatment of chronic discharging ears? Is such a department a favourable place for the cure of simple inveterate mouth-breathing due to bad habits or uncleanliness? Is the ordinary dental out-patient department the best venue for the preventive treatment of decay of the teeth? In these three groups the main and essential part of treatment is of necessity routine, prolonged and more or less tedious. And it will be found that the greatest and the most valuable part of "school doctoring" will be of this very nature.

In the case of children whose breathing is defective it should be the business of a competent surgeon to assess carefully the different factors in each individual. There should be no inducement for hurrying over this, the diagnostic process. Adenoids may be inferred from symptoms alone, but if children are subjected to operations on symptoms alone much useless and unnecessary operating will be done, and this ought to be avoided. There are many cases where all would agree that operation is not only the best but the only satisfactory treatment of first instance. There are a number of cases, again, where all would agree that operative treatment is likely to do no good. Between these two extremes lies a large class of cases which might give rise to differences of opinion.[8] The work of diagnosis and examination of these children is so enormously important that it ought to be done with the extremest care and thoroughness. Moreover, like the work of school inspectors themselves, it is of such a nature that any one man can only do a certain limited amount of it efficiently per day or per week, per month or per year. It is absolutely certain that after a certain point the value of routine work of this sort deteriorates.

Many out-patient departments at the present time are so crowded that it is physically impossible for this quiet methodical diagnosis of each case to be carried out. It is certain that as operation is practically the only method of treatment here available it is applied to numerous cases where other simpler and better, though more tedious, means of remedy could be devised. Hence discredit is cast by some upon the operation for tonsils and adenoids. In the cure of chronic discharging ears it is of practically no use to supply the patients themselves with lotions or drops for purposes of syringing and disinfecting the ears. To obtain satisfactory results there must be skilled, specially trained nurses available.[10] A surgeon should personally instruct these nurses and generally exercise supervision. Exactly the same applies to cases of nasal obstruction, nasal discharge, &c. Those cases which are subjected to operation as well as those deemed unsuitable for operation should be attended to by skilled trained nurses under the general instruction and supervision of a surgeon. Here also it is often a simple matter of cleanliness, but besides that there is the inculcation of proper breathing habits[11]—i.e., breathing exercises systematically carried out. In connexion with breathing exercises the development of the chest ought to be observed. This is best done by means of callipers. Two diameters of the chest are taken, the transverse and the antero-posterior at the same level, and the ratio between them determined. What may be called the normal development of the chest is known, and deviations from this normal are best found by the calliper ratio. Is an out-patient department of the present day a suitable place for such treatment?

(To be continued.)

[4] Cf. Dr. A. Newsholme on the Prevention of Disease by the Coordination of Medical Services, British Medical Association, Exeter, 1907.
[5] THE LANCET, May 28th, 1904, p. 1507.
[6] The Times, March 20th, 1908.
[7] Ibid., Dec. 9th, 1908. THE LANCET, vol. i., 1908, pp. 175, 592, and 1315; vol. i., 1909, pp. 805, 997, 1343, 1347, 1393, 1484, 1554, 1635, 1714, 1793, and 1862; vol. ii., 1909, pp. 163, 1367, 1383, 1476, 1633, and 1699. Brit. Med. Jour., 1908, vol. ii., pp. 1040, and 1311.
[8] Brit. Med. Jour., 1908, vol. ii., 946.
[9] THE LANCET, April 14th, 1900, p. 1073.
[10] Daily Telegraph, Oct. 22nd, 1908. THE LANCET, vol. ii. 1909, p. 1393.
[11] Chiari: Krankheiten der Nase, p. 77. Waggett: Diseases of the Nose, p. 86.

POINTS IN FAVOUR OF EARLY OPERATION IN APPENDICITIS.[1]

BY ARTHUR H. BUCK, F.R.C.S. EDIN., M.R.C.S. ENG., L.R.C.P. LOND.,
SURGEON TO THE SUSSEX COUNTY HOSPITAL; SURGEON TO THE BRIGHTON, HOVE, AND SUSSEX THROAT AND EAR HOSPITAL.

IN a paper which I had the pleasure of reading before this society in 1905 on appendicitis I discussed the functions of the appendix and the diagnosis and treatment of inflammation of that organ. As the treatment of election I advocated rest with certain dietary and medicinal precautions during an attack and removal in quiescence. My belief as to the treatment of election has so changed from further experience that I am glad to have an opportunity of putting my present opinions on record.

I am now very strongly of opinion that in every case of inflammatory appendicitis diagnosed within the first 24 hours the appendix should be removed at the earliest moment that an operation can be performed. I say "inflammatory" to distinguish these from the so-called catarrhal attacks. These occur generally as the result of stricture, do not necessitate the patient's lying up, and are recurrent perhaps every day or two, sometimes several times a day, often for a long period of time. The pain is colicky in character, and lasts from a few minutes to half an hour. Such an appendix should undoubtedly be removed, but there is not so much urgency in a case with a history of this sort. If I had not the history to guide me, and saw a patient in the first attack with severe pain, I would advise immediate operation.

I will now put forward arguments in favour of immediate operation in the ordinary inflammatory attacks. I take it that everyone is nowadays agreed as to the propriety of removing a diseased appendix at some time or other. Perhaps there are a few—a very few I hope—who still lay down a rule that cases of appendicitis should never be operated on. After my last paper I had quite a kindly letter from a man who assured me that in 50 years he had never had a case of appendicitis operated on nor had he ever lost one or seen one that needed operation. The practice of some, I feel sure, is to allow the first attack to quiesce if it will, but not to recommend operation unless a second attack takes place, and then only after that has passed over again by good luck to a state of quiescence. Others, and they are numerous, still adopt a palliative treatment during the first attack and have the appendix removed during quiescence.

Now, presupposing that a case does quiesce and is operated on in quiescence, rest is necessary for about three weeks, or at least 14 days after the temperature becomes normal, before the operation is undertaken. Should the patient move from bed during that time, and I have seen this happen many times, a relapse may quite easily occur,

[1] A paper read before the Brighton and Sussex Medical and Chirurgical Society.

necessitating a further rest if the appendix is to be attacked in an uninflamed state. After all this the patient is incapacitated for three weeks following the operation. The period of enforced idleness would thus be six weeks at least, quite possibly more, to say nothing of the pain and anxiety experienced during the illness. Even after three weeks of normal temperature I have found encysted collections of pus, necessitating drainage with all its concomitant disadvantages.

But I prefaced this argument by presupposing that the attack would quiesce, which is absurd, as Euclid would say, for who can say whether or no any case will quiesce. Even whilst waiting, and with no warning whatever, perforation may occur, setting up at once a dangerous peritonitis. Again, a palpable swelling usually forms and in nine cases out of ten pus collects somewhere in the confines of that mass. Who can say whether that pus will escape by the bowel or into the general peritoneal cavity, whether it will track into the pelvis, up behind or in front of the cæcum and colon, or what is going to happen. These are cases of infinite doubt and anxiety to every medical man who has an appreciative knowledge of the possible dangers. It may be a time of great pain, suffering, and anxiety both to patients and friends. The latter are generally insistent on knowing exactly what is going to happen, and no one can with any certainty tell them. One *hopes* that the case will quiesce, one may *believe* that it will, but one does not *know*.

I remember so well that I happened to meet a practitioner about 18 months ago who told me that he was attending a very mild case of appendicitis, and I expressed the view that one never knew what might happen, even in what appeared to be the mildest case. This gentleman expressed a very definite opinion that no operation would be necessary, at any rate, till quiescence. 36 hours later, in the middle of the night, I was opening the abdomen of that patient and I found a small collection of pus near the appendix, which lay in the centre of dense adhesions, and a large, but localised, collection of turbid and stinking fluid in the pelvis. About two months later I removed the appendix. This case illustrates well the waste of time involved if the waiting method be adopted, the dangers to which the patient is exposed, the suffering entailed by drainage, the anxiety caused by the two operations to himself and his relations, the unnecessary expense, and lastly, but not least, the difficulty of avoiding a subsequent ventral hernia.

In favour of operating in the first 24 hours are the following facts. The larger number of appendices will then be found swollen, inflamed, and turgid, perhaps covered with lymph, perhaps with a little turbid fluid in their neighbourhood. At this time Nature will be making vigorous efforts of resistance. Dilated vessels will have brought to the part blood rich with antibodies and leucocytes, created at once in opposition to the pathogenic organisms and their toxins. Adhesions will not yet have formed. Remove the focus of infection, leave a small silk ligature in its place, and the powers of resistance already called into play find it easy enough to embed that ligature and the stump of the appendix in a perfectly satisfactory manner. Provided that at the same time care is taken to protect the wound in the abdominal wall from infection whilst removing the appendix, this heals by first intention and one obtains a perfect result.

It is these results that have induced me to change my views. Here we have as satisfactory an ending to the case as after operation in quiescence. I used to believe that drainage would be necessary after operating on any inflamed appendix. It is not so in such cases as I have just described, and they are the majority.

But again I draw attention to the fact that before operating even in the first 24 hours it is absolutely impossible to say what exactly will be the state of affairs found when one opens the abdomen. I have myself found an unsuspected perforation where the symptoms were as mild as they were deceptive. I have found the appendix not perforated but yet already surrounded by pus, which has extended to the pelvis and necessitated drainage. Here, however, drainage was only necessary for 48 hours or so, the fluid quickly becoming clear and the result was most satisfactory. I have also found the appendix distended in a manner that I can only compare to a bomb waiting to explode. In one case it was about 7 inches long, horseshoe-shaped, of about the size of small intestine, held down on to the floor of the iliac fossa by a short meso-appendix and somewhat difficult to remove on account of the extraordinary distension and tension of its walls. The contents were to the naked eye blood and a fæcal calculus. Obstruction, preventing the return of these into the cæcum, was complete, and on puncturing the distended walls after removal the blood squirted out as from a syringe. In this case the temperatnre and pulse-rate were raised, but pain, spasmodic and excessive, with great rigidity of muscles, were the prominent symptoms.

In another case the temperature was normal and the pulse-rate 88, but spasmodic and violent pain had occurred during the night. Rigidity was at once apparent on the least pressure over the appendix. There was considerable difficulty in persuading this patient, who was between 50 and 60 years of age, to have an operation, and I finally said that I did not feel justified in leaving the house without her appendix. Fortunately she consented. The appendix was 5 inches long and presented the same bomb-like characteristics as in the last case. Half an inch before its junction with the cæcum was a complete stricture. When removed it could be held out by one end as a rigid rod. When punctured fæcal pus squirted out with great force, leaving a flaccid sac with ulceration commencing in several parts of the mucous membrane. It could have only been a matter of a few hours before it would have burst into the peritoneal cavity. There were no adhesions around, and I firmly believe the patient would have died.

The last-mentioned cases are undoubtedly two instances where I was lucky enough to operate in what used to be described, and rightly too, as fulminating cases, but I caught them immediately before explosion. I said lucky, but surely it should not be a matter of luck; it should be a matter of routine. It is a comparatively simple matter to remove an appendix at this early stage, before dense adhesions have formed. I find that a per-rectal or valvular rectal incision is best. Fairly forcible retraction may be necessary, but one gets a much better view of the parts.

I have not touched on the question of operating in those cases which have gone over the 24 hours when first seen, but my experience in the last five years leads me to say that the earlier an operation is undertaken the better, and that whenever the appendix can be safely removed it should be.

To sum up. The prognosis of any case of inflammatory appendicitis is absolutely uncertain. If an operation has to be undertaken in advanced stages drainage will he necessary and probably prolonged. Peritonitis more or less general may occur at any time. If the appendix is not removed the patient lives on the brink of a precipice. If the appendix is removed in the first 24 hours one knows where one is. Uncertainty is removed together with the appendix. The majority of cases will heal by first intention. Those that do not are such as would certainly need surgical interference during the attack. Drainage, if necessary at all, is necessary for a far shorter period. If it *is* necessary one is only too pleased to have got at the trouble so early. The earliest possible knowledge of the exact nature of infection will be obtained; a stock vaccine can be injected if necessary within a few hours, to be followed at the earliest possible moment by a vaccine prepared from the patient's own pns. This is, I believe, the only chance of saving a case with a virulent streptococcic or other infection. Finally, I repeat that operation in the first 24 hours in cases of inflammatory appendicitis I believe to be the proper routine treatment.

Brighton.

INTERNATIONAL CONGRESS OF LEGAL MEDICINE, BRUSSELS.—This Congress is announced to take place from August 4th to 10th next. It has been promoted by the Belgian Society of Legal Medicine, of which the President is Dr. Eugene Dewez and the secretary-general is Dr. Camille Moreau. The Minister of Justice and the Minister of Public Health and Hygiene of Belgium have accepted honorary presidencies of the Congress. Those wishing to become members of the Congress must address the treasurer, Dr. Héger-Gilbert, Place Jean Jacobs, 9, Bruxelles. The subscription is 20 francs, by a cheque or order payable at Brussels. Reports and communications must reach the Secretary-General, Dr. Camille Moreau, Rue de la Gendarmerie, 6, Charleroi, Belgium, by July 1st. An exhibition of medical apparatus and instruments will also be made.

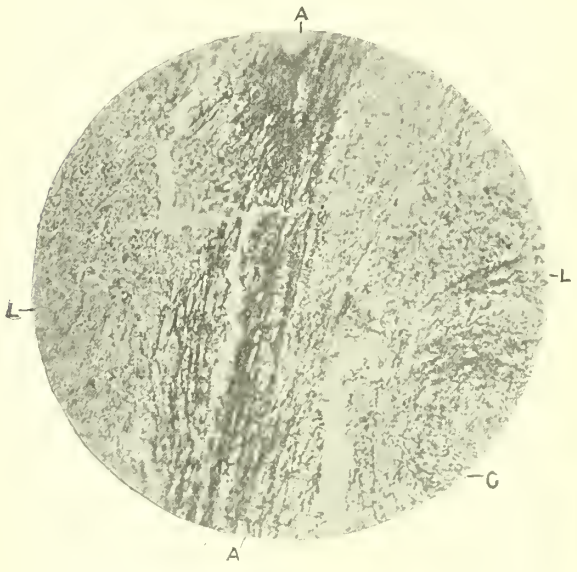
A NOTE ON THE DISTRIBUTION OF TREPONEMA PALLIDUM IN CONGENITAL GUMMATA.

BY ERNEST ALBERT SHAW, M.B., B.C. CANTAB.,
FLEET-SURGEON, R.N.; ACTING BACTERIOLOGIST TO GOVERNMENT OF HONG-KONG.

IN the autumn of last year, while acting as bacteriologist to the Hong-Kong Government, I was carefully examining all the bodies of infants which came to the public mortuary for an undoubted case of congenital syphilis so as to secure the liver to use in investigating the Wassermann reaction for the diagnosis of syphilis. In my desire to be absolutely certain of what I was using I discarded several livers from what appeared to be undoubtedly congenital syphilitic infants, because smears from these stained for 24 hours with Giemsa showed no spirochætæ. However, I got one at last which did show them and which was used for the purpose mentioned. Shortly afterwards another appeared in which the liver (from an infant a fortnight old) was studded with gummata of all sizes from a pin's head to a small cherry. From this I made many smears and was gratified to find spirochætæ present in every slide looked at. I then determined to cut sections prepared by Levaditi's modification of Ramon y Cajal's method for nerve fibrillæ, and amongst the sections cut were some passing through a small gumma. In all of the sections spirochætæ could be found, but only in occasional fields in the sections not containing the gumma.

In a section of this small liver gumma (which was about $\frac{1}{8}$ inch in diameter) I was struck by the appearance of a dense black band disposed more or less concentric to the centre of the gumma but at its periphery. This band occupied the position of a boundary zone between the healthy liver tissue and the gumma tissue; it was, in fact, the periphery of the gumma. This was seen with a $\frac{1}{3}$ inch objective. On applying the $\frac{1}{12}$ inch oil immersion, this black band resolved itself into a dense felted network of spirochætæ which were lying at every possible angle to the plane of section, and overlying each other like handfuls of pins. Proceeding inwards from this band towards the centre of the gumma there were many more, but proceeding outwards from the black band above mentioned they rapidly diminished in number as healthy tissue was reached, till at a distance from the gumma of about a millimetre they were very infrequent indeed.

FIG. 1.

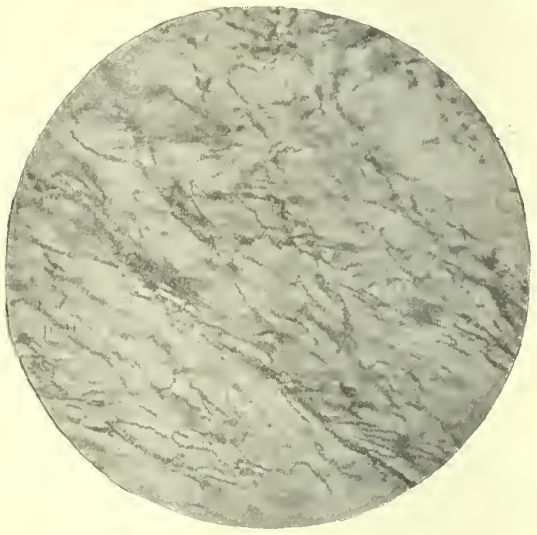


A, A, Band of T. pallidum; G, gumma; L, healthy liver.

I similarly prepared and cut sections of many other gummata, and in all of them this peripheral band could be seen, varying in thickness and occasionally more or less interrupted, and always on being examined was it found to be caused by thickly aggregated spirochætæ.

A study of these sections led one to the conception of gumma growth in this type of case, commencing as a small colony of spirochætæ, gradually enlarging in all three dimensions and ultimately developing an encasing capsule, more or less spherical, of thickly agglomerated spirochætæ; then growth proceeding from this peripherally by multiplication of its component individuals, with the spirochætæ inside the gumma, multiplying at the expense of the tissue territory

FIG. 2.



Middle of band of T. pallidum. × 1000.

thus gradually acquired, until its nutritional possibilities had been by degrees exhausted and it became that half-necrosed area with which we are familiar as the middle of a gumma, and in the centre of which spirochætæ were no longer recognisable as typical. If this conception of gumma growth be true, it naturally follows that smears on glass slides made from the surface of a section taken tangentially to the gumma at its junction with healthy tissue should be exceptionally rich in spirochætæ. I tested this, fixing the smears with methyl alcohol and staining for half an hour with heated Giemsa, and found spirochætæ varying in number from 12 to 30 in every field, instead of, as before, a few in each slide. To confirm this I sent a piece of the liver to my friend, Mr. J. Bell, of the Government Civil Hospital, Hong-Kong (to whose great kindness I owe the microphotographs accompanying this note), and asked him to try this way of preparing smears. He did so with a similar result.

Hong-Kong.

NOTES ON SOME OBSCURE CASES OF EXTRA-UTERINE GESTATION.

BY T. B. BROADWAY, M.B., CH.B. GLASG.

THE three following cases of extra-uterine gestation occurred in my practice within the last two years. In each case the patient complained of something giving way in the iliac region followed by intense pain, nausea and vomiting, and a uterine discharge.

CASE 1.—The patient, a primipara, aged 21 years, had recently married. She had missed menstruating for three months, but had no other symptoms of gestation. While standing on a chair to hang up a picture she felt something give way inside her, and this caused such severe pain in the right iliac region that she fell off the chair. I was summoned to her and saw her within a quarter of an hour after the accident. She was lying on the floor in the dorsal decubitus with the feet drawn up. The pulse was shallow and the rate was 141 per minute; the respirations were purely thoracic and numbered 29 per minute; and she had an anxious look on her face. On removing her to bed and examining her the abdominal muscles, especially in the right iliac region, were rigid and board-like; per vaginam nothing

definite could be made out. When I saw her a couple of hours later she complained of intermittent cramp-like feelings in the lower abdomen (uterine contractions). The abdominal muscles were still rigid; per vaginam beyond some slight increased resistance in Douglas's pouch nothing definite could be made out; there was no vaginal discharge. On the next morning when I called the patient said that she felt better. The colic, as she called it, had ceased, and she had come on unwell; clots had also been passed. On examining them I came across the decidual membrane. This with the history of amenorrhœa helped towards a definite diagnosis of extra-uterine gestation. As the patient felt better she would not hear of an operation. I, however, kept her in bed, and all went well till the tenth day, when against my wishes she got up and did some washing. She again felt as if something had given way inside her, followed by excruciating pain. I was out when this occurred and saw her an hour later, when I had her removed to the local hospital, where she was operated upon. On opening the abdomen it was full of blood due to recent hæmorrhage. On removing it, clots of former hæmorrhage were found, chiefly filling the right iliac fossa, and among them was an embryo attached by cord to the Fallopian tube of the left side. The patient died from collapse on the third day after the operation.

CASE 2.—The patient was a multipara, aged 45 years, and came under my care two months after the date of falling ill. In the meantime she had been under the care of another medical man, who had applied linseed-meal poultices assiduously for that time. She was supposed to be suffering from inflammation of the womb. When called in the temperature was 102° F., the pulse was 110, and the respirations were 19 per minute. The abdomen was tender and rigid; per vaginam a hard mass could be felt in Douglas's pouch. There was a history of five months' amenorrhœa, which the patient looked upon as being due to the change of life till she fell ill, when she passed some clots. I made an incision into Douglas's pouch and removed clots and a macerated fœtus of from two to three months' gestation. The pouch was packed with iodoform gauze, which I removed on the second day. The patient made an uneventful recovery.

CASE 3.—The patient was a multipara, aged 30 years, and felt something give way inside her whilst she was coughing. She had missed one period. There were tenderness and rigidity over the whole abdomen, being most marked in the right iliac fossa and over the umbilicus. The pulse was 115; the respirations were 18 and thoracic; she complained that she could not breathe. On the next day she came on unwell and passed clots and membrane; the temperature rose to 102° F., the pulse was 120, and the respirations were 18. Operation was refused. This patient has gradually improved, though there is fulness over the hypogastric region and a definite bulging in Douglas's pouch and the right lateral fornix. As she says she has passed membranes at other times when unwell, diagnosis in this case cannot be definite. But if correct, rest in her case is proving curative; it also did so in the first case till the patient got up to wash, and in the second case the patient had nothing done to her till two months after taking ill.

This brings up the question, Should cases of extra-uterine gestation be operated upon at once, or should rest be tried and abdominal section done when the acute stage has passed? American gynæcologists, I believe, hold the latter view. Personally, I believe immediate operation would save more lives than a waiting policy.

Dorchester.

SURGERY AT THE BRUSSELS EXHIBITION.—The exhibit of British surgical instruments at Brussels compares in the most gratifying manner with anything shown by other nations. It is that of only one firm, but it is sufficiently representative and attracts a good deal of attention. The German surgical exhibit contains, no doubt, ingenious and practical instruments, but what makes the evident superiority of the British installation is the high finish and the comparative lightness of the appliances which admit of more delicate manipulation. At the Brussels Exhibition Great Britain is worthily represented and the section attracts cultured visitors of every sort. Members of the profession who have friends abroad should certainly urge them to see the exhibit of Messrs. Down Bros.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

OBSTETRICAL SECTION.

Pelvic Conditions resulting from the Slighter Forms of Puerperal Sepsis.

A MEETING of this section was held on June 9th, Dr. H. MACNAUGHTON-JONES, the President, being in the chair.

Sir WILLIAM JAPP SINCLAIR read a paper upon the Pelvic Conditions resulting from the Slighter Forms of Puerperal Sepsis and their Treatment, which appears in full on p. 16 of our present issue.

Dr. HERBERT R. SPENCER said that there was no mystery about hysteropexy or Sir William Sinclair's method of performing it. It was a useful operation in certain cases of retroflexion, but, as was shown by Dr. H. Russell Andrews and others, it did not always give good results, and was sometimes followed by disaster. He had known pain to follow the operation in cases performed by himself and others. He thought on the whole that the results of shortening the round ligaments by the abdomen were preferable to stitching up the uterus, although he had known pain also after that operation. He had operated by shortening the round ligaments in a case where conception occurred a few weeks after the operation, and the pregnancy and labour pursued a normal course, and the subsequent health of the patient was excellent. He protested against the statement that "in contrast with private practice, it is alleged that morbidity is unknown in some of our lying-in hospitals." He asked Sir William Sinclair for the source of that statement, which he (the speaker) had never come across in any work he had ever read. Then, again, what was the meaning of "ovaries are dragged off their shelves"? Could Sir William Sinclair give any authority for the implication that normal ovaries were ever *on* shelves in the living body? Then, again, "No noteworthy new knowledge has been added to obstetric science and practice since the middle of the eighteenth century." He did not see the slightest use in discussing statements of this kind.

Sir F. H. CHAMPNEYS said that Sir William Sinclair's preliminary remarks apologising for the character of his paper almost disarmed criticism. He would only speak to one or two points. In the first place, he did not think that Sir William Sinclair was correct in saying that it was the habit in London to treat cases of sapræmia lightly. He believed that all teachers taught that at the onset it was impossible to be sure that a case of puerperal pyrexia was nothing but sapræmia. The point was to make certain that nothing gross was left inside the uterus, and in severe cases to remove anything remaining. If symptoms ceased on providing for the thorough evacuation of the uterus the case was one of sapræmia. Sir William Sinclair had referred to the Central Midwives Board (of which he was an original member) and to the great drawback from the survival of so many *bonâ-fide* midwives. It was not the fault of that Board that these women were on the roll; but, indeed, it was an act of justice that they should be put upon the roll, and this was in accordance with the practice of the legislature in such cases. Now this class of midwife doubtless included many who were highly undesirable, and such women were giving up practice, dying, and being eliminated by the Board in its penal sittings; but it also included women who were of great utility, and of whom local supervising authorities spoke highly. They had, it is true, to make bricks without much straw, but the bricks which they made were often uncommonly good. Sir William Sinclair had spoken rather despondingly of the progress which was being made in the care of the poor mothers of the kingdom. In this respect it might interest the section if he quoted from the Registrar-General's reports figures showing that the lives of more than 621 women were saved in 1907 which would have been lost in 1902.

Dr. E. MALINS traversed the remarks made by Sir William Sinclair as to the present lack of intelligent appreciation of their duties by midwives and nurses. He said that the contrary was his direct experience, for that since the formation of the Central Midwives Board he had noticed, both from

observation and experience as an examiner, a vast improvement.

Dr. LEWERS said that Sir William Sinclair had spoken of cases of so-called "one child sterility" associated with retroflexion. These he claimed to have cured by ventral fixation of the uterus. He had incidentally mentioned that in these cases separation of adhesions was necessary in order to restore the uterus to its normal position. Dr. Lewers thought that in the class of cases mentioned it was the adhesions more or less completely occluding the fimbriated ends of the Fallopian tubes that were the cause of the sterility rather than the retroflexion. He considered that if pregnancy followed the performance of ventral fixation in the circumstances mentioned it was to be ascribed to the separation of the adhesions interfering with the patency of Fallopian tubes rather than to the alteration of the uterus itself.

Dr. T. W. EDEN said he understood the main point of the paper to be that a great many cases of chronic pelvic inflammation and of uterine displacement were due to slight septic infection during the puerperium which had not been recognised or treated. He was quite in agreement with this view, which had been impressed upon him by his experience of gynæcological out-patient practice. But with the explanation offered by Sir William Sinclair he could not entirely agree. So far from thinking that the distinction between sapræmia and septicæmia was a source of danger, he regarded it as of great practical usefulness. And further, he thought that the work of Bumm with regard to septic endometritis in the puerperium marked a great advance in our knowledge, and justified the clinical distinction of the two varieties of uterine infection.

The PRESIDENT said that with the general trend of the conclusions come to by Sir William Sinclair as to the occurrence of certain preventable complications arising out of labour he quite agreed, but both as regards nurses and practitioners Sir William Sinclair appeared to have had a very unfortunate experience. He could not conceive that Sir William Sinclair was speaking seriously when he said that the art of midwifery had not advanced since 1750. Since that date it had been elevated into a scientific art, worthy of the place it occupied in medicine generally. They were indebted to Sir William Sinclair for having brought these practical matters before them for discussion, while he had afforded an opportunity for expression of opinion on the points that he had raised.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—A meeting of this society was held on May 6th, Professor R. Muir, the President, being in the chair.—Sir George T. Beatson, in showing two cases illustrating the treatment of Operable and Inoperable Cancer of the Mamma, referred to the work done in the study of the mamma and its lymphatics by Heidenheim, Stiles, Handley, and others, and to the operative measures thereby shown to be necessary for the adequate removal of the gland. Case 1: A female, aged 45 years, was admitted to Western Infirmary, on June 17th, 1909, with extensive mammary scirrhus. As there seemed to be no regional or metastatic deposits, the mamma (left) was removed. Pathological report showed scirrhus carcinoma with marked involvement of lymphatic glands. The patient made a good recovery; there was no recurrence up to March, 1910, and she had very satisfactory power of movement of the left arm. Case 2: A female, aged 46 years, had her left mamma with all the axillary glands removed in February, 1907, for scirrhus. By May, 1908, small recurrences had taken place alongside the scar and the axillary glands were again involved. In June these recurrences and glands were removed. The wound healed completely. In December there was found recurrence in the portion of the pectoral muscle left after the previous operation—a mass about the size of a walnut. Above and below the clavicle were enlarged glands, and in the skin on each side of the scar were small whitish nodules. No further local treatment was considered advisable, and on Jan. 28th, 1909, both ovaries were removed. By Feb. 16th there was a marked difference in the appearance and size of the hard mass in the pectoral, and the nodules in the skin had disappeared. On March 30th the hard mass could not be felt, the scar tissue had become pliant and freely moveable, and no glandular enlargements could be made out. Examination of the patient at the meeting on May 6th showed no apparent disease. In Sir George Beatson's opinion oöphorectomy or thyroid treatment and oöphorectomy combined do not influence visceral deposits in metastasis, but undoubtedly do so in other tissues, such as lymphatic glands. It was not maintained by him that these procedures were cures, but that in certain cases they favourably controlled the disease.—Dr. J. Shaw Dunn showed Preparations from two cases of Acute Leukæmia. Case 1: A female, aged 22 years, was admitted to the Western Infirmary in June, 1907, whose chief symptoms were weakness and breathlessness, which dated from loss of blood following extraction of a tooth six months before, menorrhagia, a purpuric rash, ulceration of the gums, and diarrhœa. Temperature 99°–101° F.; spleen slightly enlarged; lymphatic glands in neck, axilla, and groin just palpable. Blood examination showed: red blood cells, 1,288,000 per cubic millimetre; hæmoglobin, 15 per cent.; colour index, 0·5; nucleated red blood cells, about 7000 per cubic millimetre (about half of which were megaloblasts and many of very embryonic type); leucocytes, 198,000 per cubic millimetre. Differential count: neutrophile polymorphs, 0·5 per cent.; neutrophile myelocytes, 1·5 per cent.; small lymphocytes, 2·5 per cent.; large mononuclear cells with basophile protoplasm, 95·5 per cent. These last, in their lack of neutrophile granules and in their possession of markedly basophile protoplasm and very indistinct nucleoli, resembled the cells described by Schulze and Pappenheim as occurring in acute myeloid leukæmia—the myeloblasts of Naegeli. The presence of these cells and of the large number of nucleated red blood cells pointed to acute myeloid leukæmia, but no necropsy could be obtained. Case 2: A male, aged 22 years, was admitted to Glasgow Royal Infirmary on May 12th, 1908, with a history of illness beginning six weeks before with shivering, and marked by weakness, headache, failure of vision, deafness, and, later, delirium; no hæmorrhages or stomatitis. Blood examination showed red blood cells, 2,953,000 per cubic millimetre; hæmoglobin, 30 per cent.; colour index, 0·5; leucocytes, 984,000 per cubic millimetre; nucleated red blood cells, scanty; a few megaloblasts. Differential count of leucocytes: neutrophile polymorphs, 0·4 per cent.; neutrophile myelocytes, 0·5 per cent.; eosinophiles, 0·05 per cent.; small lymphocytes, 0·4 per cent.; large mononuclear cells with basophile protoplasm, 99·1 per cent. These last corresponded in all respects with the classical description of large lymphocytes, possessing from one to three very distinct nucleoli and no granulations. Post-mortem examination pointed to acute myeloid leukæmia, though the blood picture suggested the lymphatic form.—Dr. Dunn showed also a specimen of Rupture of the Diaphragm, with Hernia of the Stomach and Transverse Colon, and read notes of a case of similar Rupture of the Diaphragm, with Hernia of the Liver.—Mr. Archibald Young showed specimens (with microscopic sections by Dr. Dunn) from two cases of Sarcoma. 1. Left tibia of a male, aged 60 years. At the first operation, in November, 1908, a tumour was enucleated from the tibia, microscopic examination having indicated a perithelioma, which was judged unlikely to give off metastatic tumours. The cavity filled up satisfactorily and the patient was well and able to go about freely till June, 1909, when pain, tenderness, and pulsation returned at the seat of operation and radiographs showed more extensive absorption of bone. On June 23rd a Lister-Carden amputation was performed. The patient remained well till January, 1910, when he had a hæmoptysis and was ill for several weeks. Since April he had suffered from pain in the right hip and flexion contracture of the knee, and there is now evidence that a fresh tumour is developing in the lower end of the femur, and at least a suspicion of some pelvic deposit. Microscopic sections showed that the tumour tissue in many respects resembled that of a hypernephroma. 2. Right femur of a male, aged 19 years. The first operation was exploratory and revealed a tumour of the lower end of the femur, which on microscopic examination proved to be a chondrosarcoma. Disarticulation at the hip was performed on April 4th, 1910, and the patient was allowed up 25 days later. The tumour was of the epiphyseal type, and probably a development from a cartilaginous rest.—Dr. David Dickie showed three drawings illustrative of his new method of treating pus-tubes, and showed various water-colour drawings of this condition.

MEDICO-LEGAL SOCIETY.—A meeting of this society was held on June 21st, Sir John Tweedy, the President, being in the chair.—Dr. C. A. Mercier read a paper on the Lunacy Certificate and the Liberty of the Subject. When the lunacy certificate was first instituted, he said, in 1819, the chief motive of those who prescribed its form was to safeguard the liberty of the subject. The scandal of the madhouses at that time had become notorious, and it was well-known that sane persons were detained in them who were obnoxious to their relatives. The last great reform of the Lunacy Laws in 1890 proceeded from the same motive, and was evoked by the series of actions brought by Mrs. Weldon in the early "eighties" which resulted in her obtaining heavy damages against the various defendants concerned. It would seem that that result was substantial vindication of the efficiency of the law as it then stood, but the public mind was so sensitive to any attempt to infringe the liberty of the subject that a great outcry arose for a modification of the law, and the 1890 Act was accordingly passed. Since those days a remarkable change had taken place in public sentiment on the subject. The difficulty now was not to get people under control, but to preserve some modicum of liberty. The character of amusements was settled by authority, the conditions of work in factories, in workshops, and on the farm, the age at which a public-house might be entered, and projects were continually being brought forward for restricting liberty in various directions. Habitual criminals were sentenced as such, compulsory detention of inebriates would soon be enforced, and restrictions on marriage were urged. He did not know whether this was beneficial or not, but he drew attention to the remarkable change of public sentiment which permitted restrictions on liberty seriously to be considered which less than a generation ago would have been beyond the realm of discussion. The particular point on which Mrs. Weldon gained her verdict against the two medical men who certified that she was insane was their non-compliance with the statutory requirement that the examination of each medical man should be made separately from the other. It was a little difficult to understand what was in the minds of those who inserted this provision in the Act. Presumably it was to prevent collusion between the practitioners or to prevent one of them from biassing the mind of the other in favour of the insanity of the patient. If that was the object a more futile provision was never enacted. It could only be attained by providing that the certifying practitioners should hold no communication with one another previous to certifying. It was not the practice to argue the expediency of certifying a patient in his presence, and there was nothing in the Act to prevent argument and persuasion taking place to any extent between the medical men, provided they did not make their examinations in the presence of each other. As a means of preventing collusion the provision was worthless. Also, it was not to be forgotten that if it were effectual in preventing the mind of one practitioner being influenced in favour of certifying, it would be equally effectual in influencing his mind against this course. In practice the provision is extremely inconvenient, and if it were now adhered to with the strictness required by the decision in the Weldon case it would work great injustice to the patient whom it was presumably intended to protect. When medical practitioners examined a patient they did not set themselves the problem, as the law seemed to assume, as to how they could best get the patient certified, they set themselves the problem of ascertaining what was the best thing to do for him. A patient had the right to the best examination and advice available in the circumstances. Now when one practitioner was called in by another to examine a patient the consultant was entitled to a full and complete account of the case and the patient to a full and complete consideration of his case. It was a commonplace of medical experience that such an account and such consideration could not be given unless the two practitioners conducted the examination together. Then the important question also arose as to what was meant by an examination conducted separately from another practitioner. If it was to be separate in the sense required by the decision in the Weldon case, where the two practitioners were never in Mrs. Weldon's presence together for a moment, but drove to the house together and left together, then he said with confidence that the law was continually being broken. The consultant was always introduced, and, he submitted, might always be introduced to the patient by the practitioner in charge of the case. But was it necessary in order that an examination should be conducted separately from any other practitioner that no other practitioner should be in the house during the time that the examination was being made, for that was what the judgment in the Weldon case amounted to? Suppose the patient was the wife or child of a medical man, was the husband or father to leave the house during the examination? If the patient himself was a medical man how was the examination to be conducted separately from him? If, as the judgment in the Weldon case asserted, no other practitioner was to be present in the house while an examination was proceeding, what was to be done in the case of a flat? If in such a case another practitioner might be in the same building without infringing the Act, then why might he not be in the same house? and if in the same house, why not in the same room, provided he took no part in the examination? He submitted that if he examined a patient at the Polyclinic in the presence of 30 or 40 medical practitioners that examination was conducted separately from any other practitioner if he alone performed the examination. If the Act were interpreted in that sense then there was no harm in it, but that was the utmost that could be said for it in any case; and as that particular enactment could not in any circumstances be of the slightest value to anyone, and was often productive of inconvenience, expense, and disadvantage to the patient it was presumably designed to benefit, it ought to be abolished altogether.

OXFORD MEDICAL SOCIETY.—The annual meeting of this society was held in the Radcliffe Infirmary on June 17th, Dr. James Neil, the President, being in the chair.—Mr. C. A. Coventon exhibited a young man whom he had previously shown to the society. The patient had had tuberculous abscesses from early youth and had practically never been free from discharging sinuses. A large number of operations had been performed in order to rid him of the infecting foci. In Mr. Coventon's hands the patient had been treated with vaccines of staphylococcus and streptococcus and with tuberculin T.R. This treatment had been continued for three years, and for the last six months he had been entirely free from any discharge and had been able to lead an ordinary life.—Mr. A. P. Dodds-Parker related a case that had been sent into the Radcliffe Infirmary as one of gastric ulcer. From a child the patient, a young woman, had hardly ever been free from pain in the abdomen, which at times was so bad as to make her vomit. The diagnosis was not certain, but at the urgent wish of the patient an operation was undertaken. The first thing discovered was the presence of coils of small intestine in the lesser sac of the peritoneum; a complete examination of the whole of the contents of the abdominal cavity revealed a hernia of a large portion of the small intestine through a hole in the transverse meso-colon into the lesser sac. The hernia was reduced, the hole in the meso-colon was sewn up, and the abdomen closed. The patient made an uninterrupted recovery and has remained well ever since.—Dr. H. T. Gillett read a paper on Diet in Training, in which he said: The majority of Oxford rowing men consume on the average at least 169 grammes of protein daily. This is only a rough estimate, but they probably exceed Atwater's standard of 150 grammes daily for those doing severe muscular work. Liebig taught that the oxidation of proteins was the sole source of muscular energy: hence the diet formerly consisted largely of flesh, but now carbohydrates and fats are recognised as sources of energy, so that a high protein diet is unnecessary and possibly harmful. Atwater and Bryant in their dietary studies in University boat crews estimated that the average amount of protein consumed daily was 155 grammes. They do not show that it is necessary to take so much, but they say that the diet best suited to training has not been decided upon, and varies according to the ideas of special trainers. Chittenden, on the other hand, does not follow the ideas of trainers or tradition, but proves that athletes can keep in good condition and compete favourably with others on as little as 55 grammes of protein daily for a man weighing 69·2 kilogrammes. These figures are the average for his athletes. In order to ensure nitrogenous equilibrium it may be safer to allow 1 gramme of protein for each kilogramme of body-weight. Any excess of protein is broken down in the lining membrane of the gut; the carbonate of ammonia passes to

the liver, where it is changed to urea and so excreted. Excess of protein must mean unnecessary work for the digestion, liver, and kidneys. The purins may cause symptoms of general malaise and irritability and throw extra work on the organs of excretion. Toxæmia may result from decomposition of protein and cause a high blood pressure and consequent strain on the heart in addition to the strain due to rowing. Atwater and Bryant mention the beneficial effects of fairly large quantities of sugar in training.

Reviews and Notices of Books.

A Text-book of Medical Treatment. (Alphabetically arranged.) By WILLIAM CALWELL, M.A., M.D. R.U.I., Physician, Royal Victoria Hospital, Belfast; University Clinical Lecturer on Medicine, Queen's University, Belfast; Consulting Physician, Ulster Hospital for Women and Children, the County Antrim Infirmary, the Throne Consumptive Hospital, Belfast, the Old Charitable Institute, Belfast, &c. London: Edward Arnold. 1910. Pp. 630. Price 16*s.* net.

THIS book is a practical work of reference on the subject of the medical treatment of disease, and Dr. Calwell, in his preface, states that it is the outcome "of 20 years' experience in teaching the principles as well as the application of modern therapeutical knowledge." It bears the stamp of a wide practical experience in treatment, and although numerous authorities are quoted and references made to special forms of treatment, it is the personal note which renders this book a useful and practical work of reference. The author acknowledges his indebtedness to Dr. William Graham for the articles on insanity, to Dr. Thomas Houston for the article on vaccine therapy, to Dr. Campbell Rankin for that on electrical therapeutics, and to Mr. H. Norman Barnett for that on inebriety and State treatment for inebriates. Dr. Robert J. Ferguson has assisted in systematising the articles and in revision, but with these exceptions Dr. Calwell is responsible for the book. There is thus a continuity of character about the recommendations given which is often lacking in works of similar character but produced by the collaboration of many authors.

In spite of the title given to the book, it is rather a dictionary of treatment than a text-book, since the alphabetical arrangement precludes the systematic exposition of the principles of treatment except in so far as the diseases of a given organ or system are classed together, which is frequently done, but not invariably. The individual articles vary considerably in length, and repetition is avoided by copious cross references. The general plan adopted is to discuss preventive measures where these are practicable, to outline the general regimen and method of treatment, including diet as well as medicinal measures, and to give details of the latter, including as a rule actual prescriptions. Where different forms of treatment are practised for the same malady these are indicated, and the names of authorities recommending them are often given. As a general rule the author gives his own experience, and frequently his practical hints are good and useful. Where drug treatment is necessary the doses of the various substances advised are given, and the most satisfactory way of administering them is described. The treatment of the ordinary forms of poisoning is considered, but the accounts given are often meagre and not of the same detailed character as those of most of the other conditions dealt with. To the treatment of skin lesions Dr. Calwell devotes considerable attention, and long descriptions with several alternative methods of treatment are given for many of them; these should be very useful to the practitioner using the book for purposes of reference. The treatment of general nutritional diseases, such as gout, diabetes, and obesity, is dealt with very fully and special directions in regard to diet are given. These are in all instances explicit and definite. Pulmonary tuberculosis is considered at some length and the use of tuberculin is discussed. The recent work upon the value of graduated labour in the treatment of this condition is not referred to, although the importance of rest and exercise for patients suffering from this condition is recognised. The symptomatic treatment of pulmonary tuberculosis is also fully discussed. The various common parasites are considered, and the appropriate treatment for their removal and for the relief of the effects produced by them is given.

The articles on the treatment of insanity by Dr. Graham give a useful account of the general principles involved in the management of insane patients. In regard to the prevention of mental disease, Dr. Graham states that most authorities would agree that if we could destroy alcoholism and syphilis about 50 per cent. of insanity would disappear with them, and he urges the importance of educating public opinion in regard to these two matters. He is also strongly in favour of the establishment of out-door departments in connexion with asylums or hospitals for the treatment of patients capable of remaining at their own homes. He gives useful directions in regard to feeding insane patients, including the methods of forcible feeding, and he discusses at some length the use of hypnotic drugs. The questions of occupation, restraint, and psychic treatment are also dealt with, and brief descriptions are given of treatment appropriate to the various common forms of insanity.

Mr. Barnett's article on inebriety and the State treatment for inebriates gives a *résumé* of the various Inebriates Acts, and discusses the value of the treatment in reformatories. The subject of alcoholism in its various forms is dealt with by Dr. Calwell, and he gives careful directions in regard to the management of delirium tremens, chronic alcoholism, and dipsomania. Dr. Rankin's article on electrical therapeutics gives a short description of the various forms in which electricity is employed in treatment, with the indications for their use. An interesting description of the general principles of vaccine therapy is contributed by Dr. Houston. He closely follows the recommendations given by Sir Almroth Wright and emphasises the importance of commencing with small doses of vaccines and controlling by determination of the opsonic index. The manner of preparing the commoner vaccines is given.

Dr. Calwell's book should prove helpful to the practitioner and we can recommend it because of its practical and common-sense character. There seem to be very few omissions, though we miss mention of the medical treatment of cystitis. A few errors, such as "spinal chord" and "folie du doubts" have escaped correction, and "mixable" is an inelegant substitute for miscible.

A System of Operative Surgery by Various Authors. Edited by F. F. BURGHARD, M.S. Lond., F R C.S. Eng., Teacher of Operative Surgery in King's College, London; Surgeon to King's College Hospital, &c. In four volumes. Vol. III., pp. 764. London: Henry Frowde and Hodder and Stoughton. 1909. Price 36*s.* net per volume, or £6 for set of four volumes.

THIS the third volume of this System deals with the surgery of the ductless glands, the bile passages and the pancreas, the central nervous system, the genito-urinary organs, and the thorax and its contents, so it is seen that many and various parts of operative surgery are dealt with.

Mr. Harold J. Stiles has written on the operations for tuberculous diseases of the lymphatic glands, and he especially refers to the structures that might be possibly injured

in the various operations described. Mr. B. G. A. Moynihan and Mr. Harold Upcott have contributed the article on the surgery of the spleen. The authors declare that excision of the leukæmic spleen is totally unjustifiable, and with this opinion we concur. Mr. James Berry has supplied the section dealing with the operations on the thyroid gland. It contains as full an account of the subject as could be put in the 36 pages allotted to him, and it is clearly written.

Mr. A. W. Mayo Robson has contributed the section dealing with the operations upon the bile passages, and from his wide knowledge of this branch of surgery we have, as might have been expected, a masterly account of the subject. Mr. Mayo Robson prefers cholecystotomy to cholecystectomy for the greater number of cases of gall-stone, and in this opinion most surgeons will agree, though there is certainly a tendency in America, and to a less extent in this country, to employ the more radical operation in all possible cases. The article on the surgery of the pancreas is also from Mr. Mayo Robson's pen. The surgery of the pancreas is extremely difficult, and although every year advances our knowledge of it, it cannot be said yet that we have settled many points in connexion with it. Pancreatic cysts form practically the only morbid condition of the pancreas in which at present surgery has much to offer.

Mr. L. Bathe Rawling has dealt with the operations on the skull and brain. This is an important section and occupies nearly 100 pages. The first chapter treats of cranio-cerebral topography and forms a useful introduction to the subject. Mr. Rawling recommends that in operations on the brain the scalp and eyebrows should be shaved completely. A general description is given of the technique of cerebral operations, but we may mention that the author does not appear to be aware of the difference between a trepan and a trephine Mr. Rawling speaks strongly in favour of hand instruments in opposition to those which are driven by machinery, and we agree with him that the hand-driven instruments are much less likely to do harm. Naturally, the most interesting portion of the subject is that dealing with the operations for tumour of the brain. Mr. Rawling considers that it is almost always advisable to effect the removal of a cerebral tumour in two stages, a few days at least intervening between the two operations. This is, on the whole, the opinion held by most surgeons who have had much experience of cerebral surgery. He is also in favour of a crucial incision of the dura mater as opposed to the formation of a flap. We concur with this expression of opinion, but the statistics relating to operations for cerebral tumours are very untrustworthy, for, as he points out, as few surgeons have operated on a large number of cases it follows that most statistics are based on the results of the practice of many surgeons. And when we consider, in addition, that many unfavourable cases are never published, it is clear that the statistics cannot be trusted. It is, however, worthy of note that in Duret's collection of 400 cases more than a third died within one month. The most important point as regards prognosis in the operation for the removal of a cerebral tumour is, as Mr. Rawling puts it, accurate localisation of the growth. The chapter on the operation for internal hydrocephalus is important, as it is probable that before long the method of subdural drainage will be more widely employed.

Mr. W. Thorburn has written the article on the operations on the spinal cord and canal. He holds a somewhat pessimistic view as to the value of operations in early cases of injury to the cord. At all events, it must be confessed that in the present state of our knowledge it is but rarely that any benefit is to be expected from surgical interference in these cases. The technique of the operation of laminectomy is very fully described, and it is the most important portion of this chapter.

Dr. David Newman has written the section describing the operations on the kidneys and ureters. An excellent description is given of the mode of examining these organs. Dr. Newman does not consider that urinary segregators are trustworthy for diagnostic purposes. He looks upon catheterisation of the ureters as of more value, but he places most reliance on the cystoscopic examination of the mouths of the ureters and of their effluents. Dr. Newman in the operation of nephrolithotomy considers that it is better to make the incision through the parenchyma than through the wall of the pelvis. At present there is a little reaction against this method, for if care be taken a wound of the pelvis of the kidney heals as readily as one of the parenchyma, and it does less harm.

Mr. J. W. Thomson Walker has contributed the section on operations upon the bladder. A very good account is given of suprapubic cystotomy and the various methods of draining the bladder from above are fully described. The description of operations for ectopia vesicæ is hardly sufficiently long to be of much practical value.

Mr. P. J. Freyer has dealt with the operations for the removal of stones from the bladder. He prefers for lithotrity the handle of Bigelow's lithotrite and the blades of Thompson's. It is interesting to note that an illustration representing the performance of lateral lithotomy is taken from so old a work as Sir William Fergusson's "Operative Surgery." Mr. Freyer was also not unnaturally selected to describe the operations on the prostate, and, as might be expected, he gives a good account of prostatectomy, especially that by the suprapubic route, a subject which we discussed in a leading article in our issue of June 25th, p. 1767. He considers that the statistics relating to the comparative mortality of the suprapubic and the perineal operation are of little value, for the types of patient dealt with are, he holds, not similar.

Mr. Thomson Walker has described the operations upon the urethra. In his description of Wheelhouse's operation the surgeon is told to open the urethra to the extent of two inches. This is a quite unnecessarily extensive injury; at the most an inch is all that can possibly be required. In the excision of urethral strictures he very strongly urges the desirability of suprapubic drainage of the bladder while the urethral wound is healing, and in this opinion we fully concur.

Mr. F. F. Burghard, the editor of the work, has contributed the account of the operations on the male genital organs. The only criticism that occurs to us is with regard to a detail in the operation for the radical cure of hydrocele. We are told that after the excision of the whole of the parietal layer of the tunica vaginalis it is useful to swab over the distal layer with undiluted carbolic acid as an additional precaution against recurrence. We should be interested to know if Mr. Burghard has ever seen a recurrence after this operation for radical cure when the carbolic acid has been omitted. We consider such an addition to the operation to be absolutely unneeded.

Mr. Harold Stiles has described the operations upon the breast. We are glad to see that the author appreciates the work which Mr. W. Sampson Handley has done on the mammary lymphatics. Mr. Stiles advises the maintenance of the arm in the fully abducted position after the operation of complete excision of the breast. This position is, he maintains, a great improvement on the old method of bandaging the arm to the chest, but we consider that it is still better not to fix the arm in any way but to allow the patient to assume that position which is most comfortable.

The last article in this volume is devoted to operations

upon the thoracic wall and its contents, and it has been contributed by Mr. Rickman J. Godlee, than whom no more suitable writer could have been found. It was not possible in the 60 pages allotted to give anything like a full account of the operations on this portion of the body, bnt the space used has been thoroughly well employed. Mr. Godlee gives a description of Sauerbruch's chamber for operations on the chest, in which the body is under a diminished pressure, but he considers that Brauer's high-pressure method is much more practicable. He does not refer to one of the chief objections to the Sauerbrnch chamber, and that is the heat and discomfort experienced by the surgeon and his assistant during the operation. The account of the operations on the heart is a little brief. We concur in the advisability of the flap Mr. Godlee advocates for exposure of the heart, that is to say, a flap with the hinge outwards.

The third volume of this System of Operative Surgery will be found of great value to all operating surgeons. It is an admirable collection of articles.

The Plant Cell: its Modifications and Vital Processes. A Manual for Students. By HAROLD A. HAIG, M.B., B.S. Lond. London: Charles Griffin and Company, Limited. Pp. 207. 1910. Price 6*s.* net.

IN the words of the author the object of this book is "to give a concise and correct idea of the principal structural elements of plant tissues; stress has been laid upon practical microscopical observations and reactions with various reagents, for these, although generally simple to perform, sometimes afford a very clear demonstration of important life-factors. A brief account has also been given of the most important chemical and physical phenomena occurring in a cell."

Compared with the best elementary text-books of botany the work leaves much to be desired. No teacher should deal with the histology of a plant without first directing the attention of his students to the gross morphology of the selected organisms. In the present instance such a consideration is lacking; indeed, the author does not appear to appreciate the difficulties inseparable from teaching, otherwise he would not have given in his introduction what is essentially a *résumé* of the anatomy of plants together with a plan to indicate "the main genealogical relationships of members of the plant kingdom." A statement regarding the phylogeny of plants is, for the student, absolutely valueless unless the evidence is first given and adequately weighed.

The author's statements are misleading in several directions. To take a few examples: On p. 49 it is written that the vascular tissues proper are "the wood and soft bast, and possibly the cambium—these tissues being functional in the conduction of sap, raw and elaborated, to and from the leaves respectively"; from this the reader will conclude that the function of the cambium is somewhat doubtful, but that there is reason to suppose that it may share with the xylem and phloem the conduction of raw or elaborated sap; it is, of course, a meristem, or, in other words, a tissue which, by the division of its cells, adds new structural elements to the xylem and phloem. Again, on p. 67 it is stated that wood-fibres "are formed by the junction end to end of several tracheides." This statement is absolutely incorrect; a fibre is formed, not by the union of tracheides, but from a cell which elongates to a considerable degree and undergoes much thickening of its walls. Further, on p. 44 it may be read that "from the starch thus built up [by the action of leucoplasts] the protoplasm is able to manufacture cellulose. ....." This is misleading; such reserve food-material is used for a variety of purposes—to supply energy, to make good waste, and to provide material for new structures; but before it can be thus utilised it must be converted into sugar.

Nuclear division is treated rather more fully than is usually the case in an elementary book, but this is not a disadvantage; it is a pity, however, that the heterotype division is dismissed in a few words; and further, when it is stated that centrosomes are in all probability absent from the higher plants, at least during ordinary vegetative divisions (p. 103), it is unfortunate that these structures should be represented in an illustration of a cell from the root tip of, presumably, such a plant.

An outstanding feature of the book is the large number of illustrations—115 text-figures in addition to several micro-photographs, the majority of which are quite good. It is a matter for regret that the shortcomings of the work render its recommendation to students extremely difficult.

Agricultural Bacteriology: A Study of the Relation of Germ Life to the Farm, with Laboratory Experiments for Students. By H. W. CONN, Ph.D., Professor of Biology at Wesleyan University; author of "Bacteria in Milk and its Products," "Practical Dairy Bacteriology," &c. Second edition, revised and enlarged. With 64 illustrations. London: Rebman, Limited. 1909. Pp. 331. Price 9*s.* net.

WHEN the first edition of this book appeared in 1901 it was reviewed in these columns[1] and regarded as opening up a new aspect of bacteriological instruction. Since then many books on similar lines have been published, the majority being of American origin. The value of scientific agriculture to the prosperity of a country is fully recognised even in England, but it is to America that we have to look for examples of financial aid from the Government for the necessary research. There the commercial value of a knowledge of scientific agriculture is appreciated, agricultural colleges and schools give it increasing attention, and all connected with the land have a strong desire to know something of the theory of farming. To meet this demand is the purpose of works such as this by Dr. Conn, and in the second edition there is a more systematic handling of the material, and an arrangement of the text into sections with bold headings so as to make it more suitable for class use. It is in pursuit of this aim, too, that suggestions for a course of elementary practical work have been added. During the decade which has elapsed since the appearance of the first edition so much new work on agricultural bacteriology has been done that the book has had to be rewritten, but notwithstanding the new matter incorporated, the second edition is both shorter than the first by 80 pages and cheaper by two shillings.

The sequence of instruction in agricultural bacteriology has become almost as stereotyped as that intended for the medical student. In the present work the subject is divided into six parts. The first deals shortly but satisfactorily with the general characters of micro-organisms and with their principal functions in the economy of nature. The second deals with the bacteria of soil and water. Attention is chiefly directed to the soil organisms, and the important subjects of nitrification and nitrogen fixation, both with and without the aid of root nodules, are dealt with. The next section concerns dairy products, and here there has been a considerable alteration by the incorporation of material from the author's work on "Practical Dairy Bacteriology." The question of milk-supply in relation to public health is dealt with in a definite and practical manner. In the following section methods for the preservation of foods and the commercial use of bacteria in various fermentative processes are considered. Part V. deals with parasitic bacteria

[1] THE LANCET, vol. ii., 1902, p. 82.

concerned with human disease and with the diseases of plants. This latter subject has grown during the last few years and receives more attention than it did in the first edition. Tuberculosis in cattle and the relation between bovine and human tuberculosis naturally form the most important part of this section on parasitic disease.

The book is of a somewhat popular character and deals with results of investigations rather than with the basis on which these results rest. It is, however, accurate, and should be of value to those for whom it is intended, and might well serve as an introduction to work at county council dairy farms and agricultural schools. The book is well printed and of attractive appearance.

LIBRARY TABLE.

The Vagrancy Problem: The Case for Measures of Restraint for Tramps, Loafers, and Unemployables, with a Study of Continental Detention Colonies and Labour Houses. By WILLIAM HARBUTT DAWSON, author of "The Evolution of Modern Germany," &c. London: P. S. King and Son. 1910. Pp. 267. Price 5*s.* net.—This book has a special interest at the present time, when the necessity for a reform in the administration of the Poor-law is being seriously considered by our legislators. The publication of the reports of the Poor-law Commission only confirmed prevalent opinion on the subject of the evils which were known to exist. And the author, who has studied the problems of public relief for the past 20 years, in England and on the continent, and who has acted as Poor-law guardian himself, offers further evidence in support of different findings of the Commissioners and suggests a scheme for the reformation of the Poor-law. His contention is that society is wholly justified in legislating the loafer out of existence, and he proceeds to justify his contention and to give examples of the kind of legislation by means of which this may be accomplished. Like the Departmental Committee on Vagrancy, he advocates prolonged disciplinary treatment; he urges the necessity for the abolition of the casual wards which, he considers, tend to encourage vagrancy, and which are certainly unsuitable for *bonâ-fide* workmen who are "on the road" looking for jobs. The Local Government Board advises the detention of vagrants for a period of 36 hours in order that they may be compelled to do a full day's work in return for their food and lodging, and suggests that the period should be extended to four nights in the case of a vagrant who has called twice within a month at the same poor-house. At present, however, there is no uniform practice to this effect. Each union acts independently, and the vagrancy question is often not treated over seriously by the various local authorities. The measures of reform which are advocated are briefly these: The transference of all measures in connexion with vagrancy from the sphere of the Poor-law to that of penal law; that loafing should be considered a misdemeanour; that certain restrictions should be placed on the right of the "pauper unemployed" to travel in search of work; that the casual wards should be closed; and lastly, that "correctional" institutions—detention colonies in the country and labour houses in the towns—should be established. Labour houses have been founded in Belgium, Holland, Germany, and Switzerland, and a detailed account of the system upon which these institutions are worked is given in this book. These houses are for the treatment of loafers by methods of vigorous restraint, and in addition to serving as reformatories, would be open to the genuine "unemployed" also. The author advises the detention of certain classes of confirmed inebriates, of husbands who desert their wives, and of "dissolute persons whose lives are an alternation of more or less regular work and spells of indulgence from which the workhouse is their only hope of recovery." To make these detention colonies serve as asylums for inebriates and persons of "inferior mental and moral capacities," as reformatories for vagrants, and as poorhouses for paupers, in addition to being places for providing work for the unemployed, seems rather a revolutionary scheme. Nevertheless, a very carefully thought-out statement of the vagrancy problem of this country is given in the pages of this interesting book, together with a full description of the continental system of labour depôts, hostels, and tramp prisons. Of recent years the tramp as a disseminator of disease has come under the notice of medical men, and the medical profession would welcome any reform which would put a stop to vagrancy with all the evils that accompany it.

Letters of a Modern Golfer to his Grandfather: Being the Correspondence of Richard Allingham, Esq. Arranged by HENRY LEACH. London: Mills and Boon. 1910. Pp. 309. Price 6*s.*—Written by a golfer, who not only plays a good game but who has made a name for himself as an authority on golfing topics, this book is a curious combination of anecdotes and practical hints on golfing, together with a love story. The hero is a young golfer—keen and a fairly good player, and in the course of the letters we hear of his visits to some of the best known links in the United Kingdom. He has golfers for his friends, and when he is not playing the game he is studying it—in fact, he is a typical example of the "Golf Fiend." He falls in love with a charming girl and subsequently golf and the lady fight for the affections of the hero. The book is amusingly written and contains some sound golfing philosophy.

The Origin of Popular Superstitions and Customs. By T. SHARPER KNOWLSON, author of "The Education of the Will," &c. London: T. Werner Laurie. 1910. Pp. 235. Price 6*s.* net.—The correct attitude of mind towards superstitions which are still operative is one not of mere condemnation but of scientific inquiry. The scientific and psychological data which may be obtained from such an inquiry are of value, as from it developments in mental science may in some cases be reached. In this book, which is not wholly a folk-lore study nor yet a scientific treatise, an attempt has been made to trace the various customs which are in vogue to-day to their origins in ancient ignorance, fear, and superstition. The author, in making a collection of facts relating to these prevalent superstitions and customs, has based his work very largely on Brand's "Popular Antiquities," and has reinvestigated—in the light of modern science—the customs mentioned in that work. Social customs relating to the keeping of various seasons and holidays are dealt with; marriage customs are fully discussed; while the subject of divination and omens occupies a quarter of the whole volume. The problem of dreams is touched upon, but the subject is neither discussed very fully nor very scientifically. The book, although not very wide in its scope, is an interesting attempt to discover the origins of the most common of our modern superstitions.

The House Fly: A Study of its Structure, Development, Bionomics, and Economy. By C. GORDON HEWITT, D.Sc., Dominion Entomologist, Ottawa, Canada, and late Lecturer in Economic Zoology in the University of Manchester. Manchester: Sherratt and Hughes. 1910. Pp. 189. Price 20*s.* net.—This volume, which is the first of a series of biological text-books published by the University of Manchester Press, contains a complete study of the Musca domestica. The papers from which the book has been compiled originally appeared as separate monographs in the *Quarterly Journal of Microscopical Science* for 1907, 1908, and 1909. Several additions on matters of practical importance in connexion with the

habits of Musca domestica have been made in the appendices. The book describes the anatomy of the fly, its breeding habits, its development and the anatomy of the larva, its bionomics, allies and parasites, and also its relationship to diseases of man. In the first appendix further observations on the dissemination of bacteria and other organisms by Musca domestica are made. The relation of flies to the summer diarrhœa of infants is discussed, and the author draws special attention to the necessity of studying the temperature curve when attempting to trace any connexion between the number of flies found in a given area and the number of cases of infantile diarrhœa. Further additions to the original monographs have been made in the paragraphs which refer to flies as contaminators of milk, while in the last appendix preventive and remedial measures with regard to the disease-carrying capabilities of this fly are considered. The book is concisely written and beautifully illustrated by coloured plates.

Travellers' Esperanto Manual of Conversation: Esperanto—English. By J. C. O'CONNOR, M.A., Ph.D. London: Marlborough and Co. 1910. Pp. 78. Price, in cloth, 1*s.*—Judged by the number of text-books, translations, original works, railway guides, and business catalogues, including one of an important firm of English manufacturing chemists, that are now being issued in Esperanto it would seem that the international auxiliary language is making great progress. The "Travellers' Esperanto Manual" contains a large number of classified conversational sentences alphabetically arranged under various heads, the English with Esperanto translation being placed side by side on the same page. Tables of money, weights, and measures are also included. The type is clear and the size of the book is convenient for the pocket, but from the point of view of the tourist the book possesses a fault common to several compilations of a similar kind—namely, a want of proportion in the selection of phrases. For instance, it is quite unnecessary to give three variations of the common salutation "How are you?" in Esperanto, particularly as one of these for obvious reasons will never be employed by an Englishman because of its unlucky sound. Again, there is little difference, so far as the hungry traveller is concerned, between "Can you give me some breakfast?" and "I should like some breakfast." The repetition of phrases with similar meanings only serves to increase the bulk of the book and does not help the traveller when trying to make his wants known in the "kara lingvo." The vocabulary at the end of the book will be found very useful, and we note that it contains a number of words relating to motoring, photography, and other pursuits with a large technical phraseology. The preface states that the manual is designed to enable the tourist to make his way with ease on the continent without the trouble of acquiring any other language than his own, but, of course, this is only possible when the tourist has first put himself in communication with other "samideanoj" (esperantists) at the places he intends to visit.

JOURNALS AND MAGAZINES.

Edinburgh Medical Journal.—In the June number Sir George T. Beatson writes on malignancy in tumours of the female breast and the phenomena of recurrence, which may be attributable to onset of malignant change in portions of normal tissue left behind at operation; and Mr. Alexander Miles contributes an article on the treatment of acute gonorrhœal urethritis by passive hyperæmia, induced by a suction apparatus. Mr. David M. Greig records two cases of Volkmann's ischæmic contracture, and Dr. John Ritchie one of repeated relapses in a patient suffering from cerebro-spinal meningitis, who finally recovered satisfactorily. Dr. W. B. Drummond discusses the training of school teachers in hygiene; and some remarks by the late Mr. Syme on medical education, delivered in an address before the Royal College of Surgeons in 1863, are republished as being of interest in view of the dissatisfaction generally existing with regard to the medical curriculum.

Medical Chronicle.—In the June issue Dr. R. W. Marsden discusses the diagnosis and prognosis of pulmonary tuberculosis, emphasising the importance of hæmoptysis and of slight laryngeal affection with recurring hoarseness as early signs, and that of persistent tachycardia as a grave prognostic. Dr. E. B. Leech contributes some useful notes on various continental watering places.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

(1) "WELLCOME" BRAND TUBERCULIN; AND (2) "SOLOID BILE SALT AGAR-AGAR AND SOLOID NUTRIENTS.

(BURROUGHS, WELLCOME, AND CO., SNOW-HILL BUILDINGS, LONDON, E.C.)

1. Messrs. Burroughs, Wellcome, and Co. now prepare a series of tuberculins, specimens of which have recently been submitted to us. In the new tuberculin (W), whether human or bovine, the immunising constituents of the bacilli are retained, while the materials which hinder absorption and thereby tend to bring about local irritation and induration are removed. Tuberculin (W) is standardised to contain 2 milligrammes of dry bacillary substances per cubic centimetre. Weight for weight tuberculin (W) represents approximately five times the dose of tuberculin R. New tuberculin (W) is also issued in the form of a tabloid hypodermic product. The tubercle vaccine (bacillary) is similar to Koch's bacillary emulsion. Tuberculin for von Pirquet's reaction is issued also for use in both human and bovine strains, according to the nature of the infection suspected. 2. The Soloid Brand nutrient media show that ordinary cultures can be prepared in a dried state, in which they keep in good condition, regaining their original consistency and appearance on being re-dissolved in the requisite quantity of water. These products render it possible to prepare a tube or plate of the required media within an hour without laboratory or special apparatus. As examples we have received specimens of soloid bile-salt agar-agar (MacConkey), soloid bile-salt broth, and soloid nutrient agar-agar, nutrient broth, and nutrient gelatin. All these products are prepared with extreme care in the Wellcome Physiological Research Laboratories.

(1) APRICOT LIQUEUR (PRICOTA); AND (2) CRÈME DE MENTHE.

(HUMPHREY TAYLOR AND CO., BLOOMSBURY DISTILLERY, 45, NEW OXFORD-STREET, LONDON, W.C.)

1. Pricota is described as an apricot brandy liqueur. It has the very agreeable flavour of the apricot and affords altogether a pleasant tasting liqueur. We carefully examined the preparation for injurious substances but without a positive indication. In particular we searched for traces of hydrocyanic acid, but there was not the slightest evidence of the merest trace of that poison being present. Hydrocyanic acid is said to occur in certain liqueurs in which the seeds of the fruit are used to contribute flavour. Further analysis showed that Pricota contained 31 62 per cent. by volume of alcohol, the residue on evaporation (consisting almost entirely of pure sugar) amounted to 28·98 per cent.; the mineral matter amounted to 0·03 per cent. The excellent characteristics in general of this liqueur are proof of the fact that liqueurs can be made in this country which are not in the least degree inferior in quality to those made abroad. 2. The Crème de Menthe was a brilliant green fluid having a strong peppermint flavour and odour. According to our

examination, the colour is of a harmless kind, its spectrum being identical with that of chlorophyll obtained from spinach. The alcohol amounted to 33·81 per cent. by volume, the residue on evaporation (consisting chiefly of sugar) to 36·80 per cent., and the mineral matter to 0·13 per cent. The presence of aromatic oils justifies the use of this liqueur after meals, since these oils are soothing and give the effects generally described as carminative. There was no evidence of any impurities or objectionable ingredients being present.

SALUS WATER.

(CECIL SMITH, PRINSENGADE, 2B, CHRISTIANIA, NORWAY. AGENCY: E. WIESE & CO., BALLIOL CHAMBERS, 15, STANLEY-STREET, LIVERPOOL.)

Salus water is derived from an abundant spring at the Larvik Spa, which is situated on the Norwegian coast near the entrance to the Christiania fjord. The resort has a hydropathic establishment of some repute chiefly in the treatment of urinary disorders, gout, rheumatism, and catarrh. The Salus water is slightly saline and alkaline, is very palatable and fresh to the taste, and effervesces with carbonic acid gas. According to our analysis the water contains 1·78 grammes of mineral salts per litre, consisting chiefly of sodium chloride and the carbonates of the alkaline earths and soda. According to Professor E. Poulsson the spring is decidedly radio-active. There can be little doubt that the water is of value in cases in which a course of alkaline treatment is indicated; it serves excellently also as a table beverage.

LAK-CIT MILK FOOD.

(LAK-CIT LIMITED, 9, HARROW-ROAD, PADDINGTON, LONDON, W.)

Lak-cit is a practically dry powder prepared from modified cows' milk. It shows nothing wanting in regard to each kind of nutritive material normally present in milk. Our analysis gave the following figures: moisture, 2·90 per cent.; ash, 6·00 per cent.; protein, 28·22 per cent.; fat, 24·90 per cent.; and lactose, 37·98 per cent. The fat is in a partly free state, in spite of which the preparation gives a uniform mixture when made ready for use with water. One very important property in regard to lak-cit is that the casein is not rendered into large tough clots when the solution is made acid. This, of course, is an important point in connection with the feeding of infants. The preparation has evidently been dried by the aid of heat, since its solution did not give the Storch reaction indicating the presence of diastase. There is present a small amount of sodium citrate, which amongst other things serves as a corrective for milk dyspepsia.

LACTO-BACTERIA TABLETS.

(AN STAUFFER AND CO., ENGHIEN, BELGIUM. AGENCY: HENRY A. RILES, 28, QUEEN'S-ROAD, LOWER EDMONTON, LONDON, N.)

We found these tablets satisfactorily active in producing lactic acid in milk kept at blood heat. The increase of lactic acid amounted in 24 hours to about seven times the initial acidity. After that time a complete but somewhat irregular curd was formed.

SPIROSAL.

(THE BAYER CO., LIMITED, 19, ST. DUNSTAN'S-HILL, LONDON, E.C.)

Spirosal is described as the mono-glycolic ester of salicylic acid, and, according to our experiments, salicylic acid may be readily separated from the compound molecule. Spirosal, in fact, gives, when shaken up with perchloride of iron, the characteristic violet colouration which the free acid gives when similarly treated. It is marked, however, by the important property that its application produces no irritation, as is the case with certain other salicylic preparations. Spirosal occurs as an oily, colourless fluid, slightly soluble in water, but freely soluble in alcohol, ether, and chloroform, and to the extent of 1 in 15 parts of olive oil. It is intended for external application to the affected parts in rheumatism. It is free from odour, and therefore has not the objection which on that account is sometimes taken to oil of wintergreen. It is stated that clinical experience has shown that spirosal gives an adequate therapeutic effect. For use in general spirosal is diluted with alcohol.

STOMIKE COFFEE.

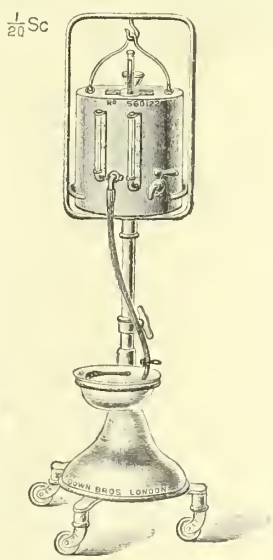
(LEWIS, RUSSELL AND CO., 18 AND 20, WESTGATE, BURNLEY.)

We are not aware in what way exactly this coffee has been treated, but it certainly is excellent coffee possessing the rich genuine aroma of the carefully roasted genuine berry. With the sample of coffee we received also a specimen of a material called "waste," which is described as having been "cleaned from the coffee by our process," and the smell of which was unpleasant. It would appear from this that the coffee has been submitted to a kind of scouring process which removes dross without impairing the attractive flavour of the berry. It is conceivable that coffee so treated is more wholesome than coffee not so treated. The claim at any rate is that it is "digested coffee." In proof of the cleansing process having no deteriorating effect upon the coffee we found the amount of caffeine present to be 1·50 per cent., while the fats and oils amounted to 14·40 per cent.

New Inventions.

CONTINUOUS PROCTOCLYSIS: A DESCRIPTION OF AN APPARATUS DESIGNED FOR ITS ADMINISTRATION.

THERE are two methods of administering continuous rectal saline with which I am acquainted—(1) the form advocated by Dr. J. B. Murphy[1]; and (2) the "drop" method. The following is a description of the apparatus which I have devised for the administration of continuous rectal saline injections, with due regard to the essentials enunciated by Professor Murphy. It consists of a metal can of 1½ pints capacity, the interior of which has been prepared so that the saline solution will have no corrosive action upon it. This vessel is surrounded by a hot-water jacket; the water jacket is protected by a thick layer of non-conducting materials. The whole is enclosed in a polished metal case, which is further protected by an outer covering of thick felt. On the front of the apparatus are two glass gauges. One communicates with the interior of the saline can and is graduated in half-pints, so that the amount of saline entering the rectum can be readily estimated; the other communicates with the interior of the water jacket. By means of it the jacket can be filled accurately without spilling. The capacity of the water jacket is 7½ pints, and it is filled by means of a funnel fixed on to the top of the apparatus. It can be easily emptied by the tap shown in the illustration. The aperture of the saline tank is large enough to admit the hand, so that it can be readily cleaned after use. It is closed by a metal lid which has a rubber core in the centre. Through this core a Fahrenheit thermometer inclosed in a metal case is fixed, so that the temperature of the saline in the reservoir can be easily noted. Both the indicator and the outlet of the saline tank can be removed for cleaning. The saline leaves the can through a delivery tube of three-eighths of an inch bore; this tube is 3 feet in length and is connected to a large rubber rectal tube by a glass junction. The apparatus is suspended on an adjustable stand mounted on ball-bearing castors so that it can be readily wheeled up to the bed side. Messrs. Down Brothers showed me a stand of their own design which



[1] Perforative Peritonitis, Journal of Surgery, Gynæcology, and Obstetrics June, 1903.

can be raised or lowered by turning a handle; this is an ideal one for the proper working of this apparatus. Once it has been correctly adjusted both the saline tank and the hot-water jacket can be replenished without interfering in any way with its proper working. The temperature of the saline solution and the water required to fill the apparatus is 110° F. when used without a constriction on the delivery tube. If a constriction on the delivery tube is used both the saline solution and the water must be at 212° F., and the constriction, whether it be screw clip or forceps, should be placed as near to the outlet of the tank as possible. The saline solution can will need replenishing every hour; this is no detriment, for in my experience patients who are given continuous saline are generally so ill that they require attention more often than that. The hot water in the jacket requires to be changed about every two or three hours; in any case it is not necessary to withdraw all of it. If three pints are withdrawn and replaced with hot the temperature can by this means be adjusted to the proper level. I abandoned the idea of using an electrical heater as the means of maintaining the temperature of the saline for two reasons. Electricity is unfortunately not installed everywhere, and the expense incurred by the current required to keep the apparatus in continual use is considerable. Hot water, on the other hand, can always be obtained. I have found that the "heat loss" of this apparatus amounts to less than five degrees an hour when used by Dr. Murphy's method; if a constriction is used on the tube the loss is much greater, since both the water and the saline have to be used at a very much higher temperature. Every endeavour has been made to make this apparatus as light and as portable as possible; it has been used by many members of the surgical staff of the General Hospital, Birmingham, and has given every satisfaction.

While this apparatus was in the manufacturer's hands a description of an excellent electrically-heated saline can, designed by Mr. H. J. Paterson, appeared in THE LANCET[2] which in that direction leaves nothing to be desired.

To Messrs. Down Brothers, my thanks are due for the admirable manner in which they have carried out my instructions, to whom at the same time I am indebted for several very valuable suggestions in its manufacture.

A. E. WILSON HIRD, M.R.C.S. Eng., L.R.C.P. Lond.,
House Surgeon to the Gynæcological, Ear and Throat, and Ophthalmic Departments, General Hospital, Birmingham, and late House Surgeon to the General Hospital, Birmingham.

METROPOLITAN HOSPITAL SUNDAY FUND.

UP to Thursday morning, June 30th, about £38,000 had been received at the Mansion House, the collections at the churches generally showing an increase. Among the amounts are:—

	£	s.	d.
St. Michael's, Chester-square	721	0	0
St. Jude's, South Kensington	329	0	0
Westminster Chapel	300	0	0
St. Mark's, North Audley-street	289	0	0
St. Columba's Church of Scotland	282	0	0
St. Nicholas', Chislehurst, with St. John's Mission	266	0	0
Sir Savile Crossley, Bart.	250	0	0
Theistic Church, Swallow-street (Rev. Charles Voysey)	204	0	0
St. James's, Piccadilly	181	0	0
Holy Trinity, Tulse Hill	152	0	0
St. Margaret's, Westminster	149	0	0
St. Michael's, Paddington	137	0	0
Brompton Parish Church	132	0	0
Westminster Abbey	124	0	0
St. Peter's, Vere-street	118	0	0
Rosslyn Hill Unitarian Church	115	0	0
St. Mark's, Hamilton-terrace	109	0	0
Christ Church, Crouch End	100	0	0
St. Stephen's, Wandsworth	94	0	0
Christ Church, Chislehurst	91	0	0
Regent-square Presbyterian	90	0	0
St. John's, Kensington	82	0	0
Brompton Oratory	82	0	0
St. Simon's, Upper Chelsea	74	0	0
Immanuel, Streatham	70	0	0
St. James's, Kidbrook	70	0	0
Holy Trinity, Eltham	65	0	0
St. Anne's, Soho	63	0	0
St. Paul's, Wimbledon Park	61	0	0
Lemsford Park Church	59	0	0
St. Michael's, Blackheath	59	0	0
St. John's, Bromley	59	0	0
St. Luke's, Redcliffe-square	55	0	0
Christ Church, Lee	54	0	0
Christ Church, Beckenham	52	0	0
Robert William Edwards Trust	52	0	0
In Memoriam S.M.G.S.	50	0	0
Hornsey Parish Church, with St. George's	50	0	0
Dutch Church, Austin Friars	50	0	0
Anonymous	50	0	0
St. James's, Hateham	50	0	0
St. John's, Putney	49	0	0
St. Matthias, Earl's Court	47	0	0
St. Augustine's, Grove Park	47	0	0
St. Stephen's, Hampstead, and Mission	47	0	0
St. Mary's, Plaistow, Kent	46	0	0
St. George's, Perry Hill	46	0	0
St. John's, Notting Hill	45	0	0
Dulwich College Chapel	44	0	0
St. Mary's, Hornsey Rise	43	0	0
St. Augustine's, Highbury	43	0	0
Holy Trinity, Upper Tooting	43	0	0
Grosvenor Chapel, South Audley-street	42	0	0
St. Peter's, Walton	41	0	0
Camden Church, Camberwell	41	0	0
Hayes Parish Church	40	0	0
St. German's, Blackheath	40	0	0
Ferme Park Baptist Chapel	39	0	0
St. Paul's, Harringay	39	0	0
Crouch Hill Presbyterian Church	38	0	0
St. John's, Hampstead	38	0	0
Bromley Congregational Church	38	0	0
Acton Parish Church and Mission	37	0	0
St. Mary's, West Kensington	37	0	0
Monken Hadley Parish Church	36	0	0
St. Andrew's, Totteridge	35	0	0
St. Mary's, All Saints' and Mission, Ealing	34	0	0
St. Paul's, Camden-square	34	0	0
Ascension, Blackheath	34	0	0
Heath-street Baptist Church, Hampstead	34	0	0
St. Paul's, Forest Hill	33	0	0
St. Peter's, Hersham	33	0	0
Battersea Parish Church and St. Mary le Park	32	0	0
St. George's, Tufnell Park	31	0	0
Pinner Parish Church	31	0	0
St. Mary, Barnes	31	0	0
St. Peter's, Fulham	30	0	0
Holy Redeemer, Stoke Newington	30	0	0
Islington Parish Church	30	0	0
Box outside Mansion House	30	0	0
St. Mark's, Surbiton	30	0	0
Westminster Cathedral	30	0	0
St. Thomas's, Telford Park	29	0	0
St. Andrew's, Whitehall Park	28	0	0
St. Andrew's, South Streatham	28	0	0
St. Andrew's, Upper Norwood	28	0	0
St. Matthew's, Redhill	27	0	0
All Saints, Leyton	27	0	0
St. Mary's, Putney	27	0	0
St. Simon's, Paddington	27	0	0
St. Andrew's, Alexandra Park	26	0	0
St. Olave's, Woodberry Down	26	0	0
Ewell Parish Church	26	0	0
St. John's, Lewisham	25	0	0
St. Paul's, Crayford	25	0	0
St. Anne's, Highgate	24	0	0
All Saints, Leyton	24	0	0
Park Chapel, Crouch End	24	0	0
St. Michael's, Stockwell	24	0	0
New Court Chapel, Tollington Park	23	0	0
St. Gabriel's, Cricklewood	23	0	0
St. Matthew's, Ealing	22	0	0
Paddington Congregational Church	22	0	0
St. Peter's, Clerkenwell	22	0	0
St. Mary Magdalene, Enfield	22	0	0
Jackson's-lane Wesleyan, Highgate	22	0	0
St. James's, Lambeth	21	0	0
Holy Trinity, South Wimbledon	21	0	0
Theydon Bois Parish Church	21	0	0
Farnborough Parish Church	21	0	0
Southwark Cathedral	21	0	0
In Memoriam Crosby Lockwood (S.L. and D.E.L.)	20	0	0

[2] THE LANCET, Oct. 9th, 1909, p. 107.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the executive committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on Friday, June 17th, Dr. F. de Havilland Hall being in the chair. The two most noticeable features of the year, so far, have been the comparatively small number of claims experienced as against the expectation, and the great increase of members wishing to secure a larger amount of sickness benefit per week. The fact that members should want to secure these larger amounts seems proof positive of their satisfaction and confidence in the society. That this is so is doubtless due to the prompt settlement of their claims and the large reserves which have been accumulated since the foundation of the society in 1884. A letter was read at this meeting from a member expressing thanks and gratification to the committee after an illness lasting 470 weeks, and for which he has received in sickness pay over £800. This is only one of many examples showing the great value of the society in cases of breakdown in health. All information as to the society can be obtained from Mr. F. Addiscott, secretary, 33, Chancery-lane, London, W.C.

THE LANCET.

LONDON: SATURDAY, JULY 2, 1910.

The Duty of the Public in Regard to the Tuberculosis Problem.

IT is now one of the most trite of commonplaces that tuberculosis is a preventable disease. It is also certain that the means of prevention are more definitely established and are more effective than the methods of cure, and yet a great majority of the public at large fail to recognise that the question of the stamping out of tuberculous disease is a matter personal to every individual, since all are, at some time or another, exposed to the risk of infection. In this matter therefore all can play a part, and it is the duty of every right-minded person to lend his aid in eradicating this devastating disease. The obligation of the medical profession to spread as widely as possible general information as to the nature of the disease, its causation and mode of spread, the conditions which favour its incidence, and those measures directed to its prevention, has been amply discharged. Opportunities are afforded almost daily for the acquisition of this necessary knowledge, and it can only be by the coöperation of the public that the crusade can be effectively carried to its destined successful conclusion. At the present time, under the auspices of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis, an earnest attempt is being made to educate all classes in the country in regard to these very matters, and its efforts should command the support, pecuniary and otherwise, of all who have the general welfare at heart. The Tuberculosis Exhibition started by the association has visited Whitechapel, Chelsea, Paddington, Marylebone, Walworth, West Ham, Barking, Bermondsey, and St. Pancras in the London district, and has also been to Oxford, Cambridge, Worcester, and Liverpool. In the course of its travels it has been visited by over 200,000 persons, without counting those who saw it while it was on view at the Imperial International Exhibition at Shepherd's Bush last year. At each centre popular lectures have been delivered, conferences have been held, and demonstrations have been given to indicate the objects of the movement and to explain the exhibits. This exhibition is now at Edinburgh, where it is to be open daily free of charge until Saturday, July 9th. At the same time the National Association is holding its annual meeting at Edinburgh, this being the first occasion on which it has been held away from London.

The success which has so far attended these efforts of the National Association has encouraged it to extend its work. With the object of raising funds for purely educational purposes a special appeal committee has been appointed, with the Earl of DERBY as chairman and the Duke of DEVONSHIRE and Mr. WALDORF ASTOR as joint honorary treasurers. The committee includes the names of Professor W. OSLER (Regius Professor of Medicine at Oxford), Sir FRANCIS LAKING, Dr. ARTHUR LATHAM, Dr. D. LAWSON, Dr. H. SPITTA, Mr. H. L. WOOLLCOMBE, Miss E. MCGAW, Mr. F. W. WAREHAM, and Mr. C. H. GARLAND. It is estimated that the direct loss to the country owing to the great prevalence of tuberculosis cannot be less than three millions a year, while the total direct and indirect loss cannot be less than eight millions. Assuming the correctness of these figures, everyone will agree with the contention of the association that it would be cheaper to the individual as well as to the State to prevent the spread and continuance of this disease. The medical profession have done and are doing everything that lies in their power to stamp out the disease, but their efforts, though not without success, must fail to be efficient so long as the great body of the public remain ignorant of the rationale of prophylactic methods. The appeal committee therefore asks for a sum of £5000 annually in order that the nation may be efficiently educated by means of travelling tuberculosis exhibitions, caravans with lantern slides, popular lectures, information bureaux, and the distribution of literature. The cost of fitting out an exhibition is £500, while the expenses of such an exhibition for a year are £600; a caravan exhibition costs £300, the yearly working expenses being £700; the cost of a lecture is £5, and a set of lantern slides can be obtained for £1. The committee appeals to all persons in every walk of life to assist it in raising the amount necessary for carrying on its great work, and in order that those of very limited means may not be prevented from actively joining in the campaign it is proposed to issue books of coupons for a penny collection. It is pointed out in the circular which the committee is issuing that while tuberculosis, which is infectious, kills as many persons as small-pox, typhus fever, scarlet fever, measles, diphtheria, enteric fever, dysentery, and whooping-cough do collectively, there is no public demand for action because the public does not know what the disease means, is not conscious of the terrible losses of life and money, and has not grasped the fact that consumption and other forms of tuberculosis can be stamped out. It is to be hoped that sympathy with sickness and suffering will cause a ready response to the appeal, and what sympathy does not do economy may effect. Poor-law institutions are spending annually £1,500,000 on the relief of consumption; the demand for £5000 to spend annually in the work of prevention is a modest insurance premium.

The main problem in the combat against tuberculosis is to arouse the nation from its apathy and indifference in the matter. If such a wastage of human life were caused by a useless war or by ever recurring yet preventable accidents, if such a pecuniary drain were caused by wasteful and unnecessary taxation, the collective national common-sense would forthwith set effective measures in train to end them; but because personal hygiene seems mainly in question the public ignores the matter or regards it as one for

the attention only of the State. It must not be forgotten that no central authority acts effectively until public opinion is ripe for or demands action. The prevention of infection from person to person, and the danger of infection from bovine tuberculosis through milk, meat, cheese, and by other channels, are now clearly established. The eradication of the bovine disease from our herds is an essential preliminary to the stamping out of the human disease, and though it entails expense and perhaps some individual hardship it will have to be faced sooner or later, and the sooner public opinion demands it the better. Again, the advanced consumptive must be prevented from spreading the disease by carelessness and by neglect of elementary precautions. If to effect this certain abridgements of personal liberty have to be enforced upon some of the careless and indifferent, it is not a heavy price to pay, and in the long run this may resolve itself into the education of the patient in his duty to his fellow man. Lastly, it must not be forgotten that the public not only have a duty to perform in assisting in the prevention of this disease, but they are also under certain moral obligations to the sufferers from this disease. To treat them as if pest-stricken and avoid or ostracise them is as unnecessary as it is cruel. Fate has already hit them hard and in common humanity everything should be done to soften the blow. Much has been done in the building and endowment of sanatoriums throughout the country, but much remains to be done. The problem of the after-care of those in whom the disease is partly or entirely arrested, the finding of suitable employment, the care of the family of those disabled and of those undergoing sanatorium treatment, are all urgent; but perhaps the most difficult of all, and the one for which at present there is least provision, is the management of advanced cases. The Poor-law infirmaries take some of these, but a large number have no option but to remain at home under circumstances highly unfavourable to themselves and to their relatives. It should not be forgotten that these chronic and more or less hopeless cases do not acquire the hopeful and optimistic tone of mind which is often popularly supposed to be a characteristic of the consumptive patient. They are too often keenly conscious of their own disabilities and of the black prospect before them; they appreciate most fully not only their own sufferings but also the deprivations to which their families are subjected and the adverse conditions under which they have to live. Often their refusal by some sanatorium or chest hospital makes them realise the hopelessness of their position and deprives them of the hope they had previously nourished. Their condition under existing circumstances brings home more strongly than any other to those working among the tuberculous poor the terrible hardships entailed by this disease. We welcome most cordially any measures calculated to bring home to the public their responsibilities in regard to tuberculosis, and to educate them as to its prevention and eventual eradication. We sincerely hope that the sum now appealed for by the National Association may be forthcoming, a result which the important conference now being held in Edinburgh should help to bring about.

THE Queen is graciously pleased to become Patron of the Chelsea Hospital for Women.

The Value of Heredity.

FOR many years a contest has raged as to the relative importance of heredity and education in the production of adult qualities; by heredity being understood all those qualities and capabilities which exist at the moment of birth, and by education all those external influences which are brought to bear upon the child from the commencement of his life. During past ages very different opinions have been held as to the relative importance of these two factors in the production of the individual. At one time heredity has been looked upon as of chief importance; at another, to education have been ascribed all the qualities, whether good or bad, possessed by the adult. Until a few years ago the value of education was considered to be of far greater importance than that of heredity; then the introduction or re-discovery of Mendelism had a considerable influence in increasing the claim of heredity to be the more potent factor; and now the criticisms of Mendelism have to be taken into consideration as well as the admitted importance of some of its tenets. When we consider the welter of literature dealing with theory or fact, that already existed before Mendelism appeared, the student of heredity may well feel scared at the amount of biology, philosophy, and mathematics which he must be able to appreciate if he is to be duly equipped for the discussion of the subject. This is good in that it proves that many acute and industrious brains are working in a common direction, but unfortunate in that the busy man may be turned aside, by sheer want of time, from considering so complicated and controversial a subject.

But some consensus of opinion will have to be arrived at if we are to flatter ourselves that our educational methods are being placed upon a scientific basis. If it be true that environment has more influence than heredity in determining the qualities of the adult, then it is to education we must look for the production in the future of a race fit for the high destinies of this country. If, on the other hand, heredity determines the good or bad qualities of the man, it is to heredity we must look for providing us with a population suited to our needs. The matter is indeed of vast importance, for it affects not merely the bodily health of the community, not merely the mental capacity of the population of the future, but the most important moral questions must depend upon a correct solution of this difficult problem. To every thinking man it will be clear that there is something to be said on both sides, but it is difficult indeed to determine how much should be credited to heredity and how much put to the account of training, though to the superficial politician the matter may seem simple. Education is credited by him with powers which unfortunately are altogether beyond it, and this belief in education is having at present, and in the future will assuredly have still more, influence on the legislation of this country. It behoves all who care for the welfare of the future population to weigh well the arguments brought forward by both sides of this controversy and to endeavour to come to a correct conclusion on the matter. That heredity has some influence

no one can doubt. Who can feel surprised that the son resembles his father? We all endeavour to trace in the daughter the lineaments of her mother. We are astonished if in a child qualities, whether of mind or body, manifest themselves which we have not known in his progenitors. If any trick or mannerism appears in a child we, even involuntarily, cast back and search for it in his ancestors. Should any abnormality of body exist—a hare-lip, a club-foot, a tuft of differently coloured hair—we are satisfied at once if we know that some similar abnormality, some such malformation, has occurred in the family of the father or mother. No fact is more certain, more strongly impressed on our minds, than that a tendency exists for a child to exhibit the physical, psychical, and ethical tendencies of his forbears. And this is an opinion not merely founded on popular prejudice, not merely the outcome of tradition, but an opinion strengthened, confirmed, and consolidated by the most careful statistical examinations of the histories of families, and little, if at all, weakened by the fact that as our pathology improves we have to take more and more particular diseases out of the directly hereditary category. The tendency of like to produce like is founded on fact. The more we examine into the records of families, the more carefully we investigate the histories which have been collected, with much cost of time and labour, the more we are assured that it is difficult to over-estimate the importance of heredity as a factor in the production of the race.

What, then, is to be said for education? What arguments can be brought forward which will establish its importance? Here, again, experience speaks with no uncertain voice. Education can do much. Many a puny child of the slums can by means of judicious feeding attain the stature and the build of the country child. The mind may be directed so that he who in the environment in which he is born would have developed into an uneducated member of the proletariat may become a man of letters or of science. He who would have readily developed into a criminal, a danger and an expense to the community, may often by due training develop into the benefactor of his race. From this point of view education appears to be everything and heredity nothing. Where shall we find the solution to this difficult problem? It is to be found in a careful consideration of the natural tendencies of the individual, and an examination of the possibilities of the child. We have no reason for thinking that the problem is in any way different, whether the body, the intellect, or the morals of the child are concerned. But it is undoubtedly easier to recognise deviations from the normal or from the desirable in the case of the body than in the case of the other qualities of a man. When we consider an individual case we see at once that children at birth do not start level in the race of life. Some of this difference, it is true, may be ascribed to the health of the mother before the birth of the child. Lack of food and excess of work during pregnancy cannot fail to influence for harm the unborn child, but the importance of these matters may easily be overrated, and even when we make full allowance for them we cannot fail to see that there is an innate difference between children at the moment of birth. The puny infant is not always the offspring of a badly-fed mother. No; we must look for the explanation of the differences which exist, not merely to the parents or to the grandparents, but to any of those further back in the genealogical table of the child for an explanation of its condition when first it comes into the world. There is no small danger to the community in the perpetuation of unsatisfactory strains, and in time to come it may be recognised how undesirable is the propagation of tainted individuals, whether the taint be physical, mental, or moral; but the present danger is certainly that we should generalise too largely upon facts hastily gathered or not gathered under comparable circumstances. The medical inspection of school children may place many problems in a more favourable situation for solution, and in this piece of legislation we have just the blend of general and individual investigation that ought to give trustworthy results.

Children under the Poor-law.

A CIRCULAR issued to boards of guardians by the Local Government Board, dated June 16th, is evidence of the intention of the central authority that the report of the Poor-law Commission shall not be without effect, even though the "breaking up of the Poor-law" may be postponed until, let us say, a more convenient time. It is also felt, no doubt, in official circles that, under the stimulus of the attention, directed towards them by the report, guardians will be ready to demonstrate their capacity for adoption of, and perseverance in, improved methods, and that until the old system has been given a fair trial under modern conditions, and has failed to stand the test, it may be unwise to initiate a new one. At the time when the Poor-law Medical Officers' Association is actually holding its annual meeting a widespread feeling of this sort is not without significance.

The circular in question is confined to recommendations as to the treatment of children under the Poor-law, and in order that its recipients may understand fully the nature of the movement in which they are asked to take part convenient charts are appended showing the development of the various methods now in use for the disposal of children who are directly under the care of the unions, as distinguished from those in receipt of outdoor relief. It is pointed out with regard to both classes in an early paragraph that the object to be kept in view is the bringing up of the children to independence of character and habits of industry, and that in the care of the children lies the most responsible and at the same time the most hopeful work of the guardians. With regard to those children to whom out-relief is given closer supervision is advised than has been the case in most unions, involving, if necessary, the employment of additional officers and particularly of women as visitors or assistant relieving officers; while it is pointed out that valuable information as to the welfare of children of this class may be obtained through the medical examination of those attending public elementary schools. As the medical inspection of school children has been delegated by the Board of Education to the sanitary authorities we have in this suggestion a practical proof that the linking up of the existing Poor-law with other branches of public service can

be effected. The gnardians are also advised to obtain, whenever it is desirable to do so, special reports with regard to individual children from their own Poor-law medical officer, paying to such officers a special fee when they are not attending a child in the course of their ordinary duties. It is mentioned that by arrangement reports should also be obtainable as to school progress from officers of the local education authority, and that in the case of the children being in need of medical treatment removal to a Poor-law infirmary may be desirable, or the exercise of the guardians' power to send a child to a particular institution such as their medical officer may recommend. The children who are not simply the subject of outdoor relief constitute a smaller class than those who are, and with regard to them, as is well known, the methods employed have altered considerably in the last half century. The report of the Royal Commission has recently recommended "that effective steps should be taken to secure that the maintenance of children in the workhouse be no longer recognised as a legitimate way of dealing with them," and the Local Government Board is emphatic in its request that in all cases suitable provision for children should be found outside the workhouse. The condition required here is not a new one; it already prevails in the majority of cases, and it is only urged that it should be rendered universal. The proportion of children maintained in workhouses has diminished (as one of the charts referred to shows) from over 80 per cent. in 1860–65 to less than 60 per cent. in 1890–95, and has since been reduced to a little over 35 per cent. in 1908, or 30 per cent. if children under three years of age are omitted, whose removal is not necessarily advantageous.

Attention is called to the need for the exercise of special care in the case of those under three years of age who, if it is not desired to separate them altogether from their mothers, must be kept in workhouse nurseries; and boards of guardians are reminded that the staff of the Local Government Board includes lady inspectors who are qualified nurses and whose advice will be available if the guardians should require it. With reference to the disposal of children of an age to be maintained outside the workhouse the Local Government Board adopts the opinions expressed by the Royal Commission, or rather points out that the Commissioners have endorsed the policy which the Board has inculeated and maintained. It declines to express any marked preference for the employment of district schools, scattered homes, grouped cottages, or boarding out, and quotes the views of the Royal Commission that "the truth lies with those who hold that more depends upon the administration than upon the system." This, indeed, may be said to constitute the main principle underlying the whole of the advice contained in the document under comment, a principle the soundness of which is beyond question. The machinery which the guardians have at hand is reasonably efficient for the performance of a task which all admit to be difficult and in which failure in any number of instances may easily be achieved. Careful administration, constant and effective inspection, unremitting attention and zealous coöperation of all employed are necessary if good results are to be attained with any degree of regularity. We have used the word machinery for lack of a better one, but parents with children receiving outdoor relief and those who have the care of the children of others in and out of workhouses are, in fact, no more machines than are the children themselves, and the fact of liability to vigilant inspection has quite a different effect in keeping their work "up to the mark" than is the case with "machines." Guardians, however, are in most cases as little wishful to waste the money of the ratepayers as they would be if it were their own; they are anxious to be useful and to demonstrate their usefulness, and they will no doubt loyally follow the advice given by the central authority. That authority at the conclusion of the circular referred to points to certain statistics of good results achieved in the education of children under the Poor-law in the metropolis, and claims that they fully justify the continued effort and the zealous care which the guardians and their officers have bestowed upon this most important and interesting branch of their work.

Annotations.

"Ne quid nimis."

THE BIRTHDAY HONOURS.

THE medical profession is well represented in the list of honours issued on the day set apart for the celebration of his late Majesty's birthday. One new medical Peer has been created, one Baronet, eight Knights, two Companions of the Bath, one Companion of the Star of India, one Companion of the Indian Empire, and one Companion of the Order of St. Michael and St. George, while the Kaisar-i-Hind Gold Medal has also been conferred upon two members of the medical profession. The Right Hon. Sir Walter Foster, who receives a peerage, is so well known in the world of general and medical politics that it seems almost unnecessary to recapitulate his claims to a seat in our hereditary senate. He was for nearly a quarter of a century professor of medicine in Queen's College, Birmingham; was for many years a Direct Representative of the profession on the General Medical Council; has been a powerful voice in the administration of the British Medical Association. On entering Parliament he was a practical success from the beginning of his career. For three years he acted as Parliamentary Secretary to the Local Government Board, and in that capacity proved himself an efficient public servant. Made a Privy Councillor at the beginning of Sir Henry Campbell-Bannerman's administration, he continued to sit in Parliament as an active Liberal. He recently resigned his safe seat for the Ilkeston Division of Derbyshire, and the honour which has been done him by his Sovereign was fully expected. Dr. Francis Henry Champneys, who has been made a Baronet, is the chairman of the Central Midwives Board, on which body he has sat continuously since its creation. His distinguished work in obstetric medicine is well known, while he is lecturer on midwifery and diseases of women and children and physician-accoucheur to St. Bartholomew's Hospital, his original school, having previously held the same posts at St. George's Hospital. Among the list of Knights is the name of Dr. Arthur Henry Downes, the Senior Medical Inspector for Poor-law Purposes to the Local Government Board, and his honour has been won by strenuous and devoted work. As the only medical man on the recent Royal Commission on the Poor-law, he showed in a practical way, by an independent memorandum, that he appreciated the tremendous importance of the issues involved alike from the public, the departmental, and the professional view.

Knighthoods have also been bestowed upon Mr. John Fagan, consulting surgeon to the Belfast Royal Hospital and to the Belfast Hospital for Sick Children, who was for many years inspector of reformatory and industrial schools for Ireland; Dr. George Hastings, a well-known West-end practitioner; Dr. Henry Simpson Lunn, one of the great pioneers of continental travel; Dr. David Caldwell McVail, Crown member for Scotland of the General Medical Council and an authority on medical politics and education; and Dr. Robert Michael Simon, physician to the Birmingham General Hospital. Surgeon-Lieutenant-Colonel Warren Roland Crooke-Lawless, C.I.E. (Coldstream Guards), surgeon to His Excellency the Viceroy of India, has also been made a Knight. Inspector-General of Hospitals and Fleets James Porter, C.B., Director-General of the Medical Department of the Royal Navy and honorary physician to the King, has been promoted to a Knight Commandersbip of the Order of the Bath; and Surgeon-General Arthur Thomas Sloggett, A.M.S., C.M G , Principal Medical Officer in India, and Surgeon-General Owen Edward Pennefather Lloyd, R.A.M.C., V.C., Principal Medical Officer in South Africa, have been made Companions of the same Order. Surgeon-General Charles Pardey Lukis, Honorary Surgeon to the Viceroy of India, Director-General of the Indian Medical Service, and an additional member of the Council of the Governor-General of India for making laws and regulations, has received a Companionship of the Order of the Star of India; and Dr. Aubrey Dallas Percival Hodges, Principal Medical Officer in the Uganda Protectorate, has received a Companionship of the Order of St. Michael and St. George in recognition of his services in tbe suppression of sleeping sickness. Colonel Roderick Macrae, I.M.S., lately Inspector-General of Civil Hospitals in Bengal, has received a Companionship of the Order of the Indian Empire; and Captain Robert McCarrison, I.M.S., Agency Surgeon at Gilgit, and Dr. Theodore Leighton Pennell, medical missionary at Bannu, North-West Frontier Province, have received the Gold Medal of the Kaisar-i-Hind. The list also includes tbe names of Colonel Andrew Clark, administrative medical officer of the 2nd London Division of the Territorial Force, and of Colonel Joseph Whitfield Blandford, administrative medical officer of the Northumberland Division of the Territorial Force, who have been respectively appointed surgeon and physician to the King. In the name of the profession we congratulate these gentlemen upon the well-deserved honours which they have received.

THE UNWASHED STRAWBERRY.

FRESHLY peeled fruits are probably aseptic, and in this category may be included such familiar examples as the apple, pear, peach, apricot, orange, and banana. The peel in these instances bas obviously no part in the dietetic quality of the fruit, and few persons, we imagine, are tempted to consume the protective coating; it has no attractive flavour, and it is commonly tough and indigestible. The strawberry, however, has no shield in the sbape of a peel, and it would be very surprising if the fruit as it reaches tbe consumer was free from external taint, considering that it is peculiarly liable to contamination. It matters little under what conditions the banana or the orange is picked and packed, because before these fruits are consumed they are skinned and hence the impurities due to handling or to insanitary packing or environment are, to a great extent, removed with tbe peel, though we say this with rcservations. The strawberry flourishes in a "bed"; it is within splashing distance of the fertilisers used to encouragc its growth and maturity; it is picked by hands not necessarily under sanitary control; and, lastly, in transit it may easily encounter surroundings which need no bacteriological proof to show them as hygienically objectionable. The strawberry should certainly be washed; the process is simple and need not in recognisable degree detract from the highly esteemed characteristics of the fruit, while the small attention which wasbing involves may likely enough reap a great reward in averting a disaster to health. This injunction is not so absurd or superfluous as some may think, when it is considered how liable the strawberry is to contamination. Most cleanly disposed people if tbey visited the strawberry fields in full process of picking would soon regard the washing of the strawberry before it came to the table or before they consumed it as imperative. Apart from the questionable cleanliness of the picker's person, it has to be remembered that the surface of the fruit is liable to be sticky, and therefore to hold on to any impurity with which it may come into contact. Further, the strawberry's exterior, in bacteriological parlance, affords an excellent nutritive or culture medium for organisms. "Never eat an unwashed strawberry" is therefore neither absurd nor unsound counsel, and tbose who think that to subject the fruit to such treatment would spoil its flavour are invited now, while strawberries are cheap and plentiful, to make the experiment.

"INFANT CONSULTATIONS."

IN the issue of the *Nation* for June 10th there appears an article from the pen of Dr. H. Ronald Carter which draws timely attention to the social and economic advantages of "infant consultations" as instruments for combating infant mortality. During recent years tbe spread of these institutions throughout London and the provinces is a hopeful indication that the public conscience has at last been aroused to a due sense of the importance of this national question. Following closely on Mr. Benjamin Broadbent's pioneer experiment in Huddersfield for the encouragement of careful motherhood, the St. Marylebone Health Society organised in the year 1906 a very complete system for the instruction of mothers and the care of infants. This system was a combination of official and voluntary service fulfilling, in fact, the desiderata since formulated for such institutions by Mrs. Sidney Webb—namely, "voluntary work in a municipal setting." On the executive committee of the St. Marylebone Society are lay, medical, and clerical representatives of all the local charitable and philanthropic institutions for the care of tbe sick and the tending of infants. The medical officer of health is the chairman of the society, and the official sanitary inspectors—all ladies, and now tbree in number—act hand-in-hand with the voluntary health visitors. All infants born in the district whose circumstances demand outside assistance are called upon at an early date by one of these officials, and in some cases expectant mothers are visited by voluntary workers and instructed in the more important details of infant management before the birth of the child. The cases are subsequently classified, and according to their needs referred to the supervision of voluntary health workers or to the more efficient medical service of the "infant consultations" which are worked in connexion with the society. These "consultations," which were the first of their kind in this country, were founded by Dr. Eric Pritchard at the St. Marylebone Dispensary in Welbeck-street in the year 1906, and the lines on which they have been run have proved so satisfactory and inexpensive that they have served as a model for the many institutions of a similar kind which have subsequently sprung up. Additional "consultations" were almost immediately started in North Marylebone in a modified form, in St. Pancras under the title of the "St. Pancras School for Motbers," in Birmingham as an Infants' Health Society,

in Kensington, Stepney, Greenwich, and at a dozen other important centres under various names. As supplementary to official inspection and voluntary home visiting the value of these "consultations" can hardly be exaggerated; the misfortune, however, is that fuller advantage is not taken of the opportunities they afford for the instruction of a larger number of better-class women, who might thus learn much that would subsequently prove of use to them if not in a public capacity at least in the bringing up of their own families. The economic side of these institutions is well worth consideration. Dr. Carter tells us that the whole cost of the "Consultations" in North Kensington, which provided for the instruction of 158 mothers in the year 1908 and of 138 mothers in 1909, could be covered by the annual expenditure of a ten-pound note, while the cost to the Health Society of instructing 1000 mothers in St. Marylebone has been in all very little more than £60; in fact, at the present time the expenses of the "consultations" at the St. Marylebone Dispensary lay no additional burden on this charity, for they are now self-supporting. The St. Pancras School for Mothers, which in addition to the "infant consultations" has several other departments, was maintained in the first year at a cost of £269, and in the third year at a cost of £580. The Birmingham society spent £105 during its first year in dealing with 204 new cases, and £91 during the year 1909 in dealing with 353 cases. It is probable that we have only seen the beginning of the development of this efficient and economical system for meeting an unnecessarily high infant mortality, and much is to be expected from the foundation of the new Society of Officers of "Infant Consultations" which recently held its first meeting in London at the St. Marylebone General Dispensary. The objects of this society are to promote the extension and efficiency of such institutions, the collection and exchange of statistical material, and the comparison of results and methods of infant feeding. The first general meeting will be held in October next, and honorary secretaries, to whom communications may be addressed, are Dr. H. Ronald Carter (11, Leonard-place, Kensington, W.), and Dr. J. Claypon (the Belgrave Hospital for Children). In connexion with the uses to which "infant consultations" may be advantageously applied, it may be mentioned that an interesting experiment is to be tried shortly in Hackney; this experiment is an attempt to combine under one roof in one of the poorest parts of the district an "infant consultation," a day nursery, a training home for domestic nurses, and a school for mothers. This comprehensive project, which is due to the efforts of the Woman's Industrial Association, is deserving of the fullest support, and will be watched with interest by all those engaged in solving the many problems connected with preventable infant mortality.

THE SURGICAL TREATMENT OF EXOPHTHALMIC GOITRE.

AMONG the many interesting papers and discussions at the recent annual meeting of the Canadian Medical Association at Toronto, by no means the least interesting was the discussion opened by Dr. S. P. Beebe of New York on exophthalmic goitre.[1] The diversity of opinions on every point connected with this disease is so great that it is not surprising that it appears to be vain to seek for unanimity in treatment. Although it is by many admitted that exophthalmic goitre is probably the result of an excessive or abnormal secretion of the thyroid gland, there are still many who consider that the disease is entirely nervous in origin. The very name of the disease varies in different countries, but fortunately the descriptive title of exophthalmic goitre is steadily gaining ground. No little doubt seems to exist as to the exact definition of the disease. While some insist on the presence of the three cardinal symptoms—enlargement of the thyroid, protrusion of the eyes, and increased rapidity of the pulse—others are content to include under the name of exophthalmic goitre cases which exhibit only two of these signs, or even only one. The results of treatment cannot satisfactorily be compared if differences of opinion exist as to the cases that are to be included in the disease, and this is of particular importance when the effects of surgical treatment are considered. The rapidly fatal result which has followed in some cases of excision for Graves's disease is very remarkable whatever may be its explanation, and many surgeons hesitate to incur the risk of such a result unless the condition of the patient is very severe. Dr. F. Shepherd of Montreal considered that surgeons should undertake the treatment of exophthalmic goitre at an early stage of the disease, as these cases are then much more amenable to surgical treatment. Those surgeons who include cases where the signs are not well marked or even absent are much more in favour of operative treatment than are those who limit the name of exophthalmic goitre to those cases where all the cardinal signs are to be observed. The discussion at Toronto was undoubtedly very instructive and formed a material addition to our knowledge of the current opinion on many points connected with this disease.

[1] THE LANCET, June 25th, 1910, p. 1787.

THE GERMAN MEDICAL CENSUS.

IN accordance with a decision passed by the Federal Council in April last year a general census of the entire *personnel* of the medical and sanitary services in the German Empire was taken on May 1st, 1909. A preliminary report of the result obtained has now been published by the Imperial Board of Health, to which has fallen the task of compiling the material collected. The preceding census of this nature took place on April 1st, 1898, and in the following *résumé* the figures in parentheses refer to the census of 1898. The total number of qualified medical men in the German Empire was found to amount to 30,558 (24,725). Of these 211 were homœopathic doctors, against 240 in 1898. No less than 5912 specialists were returned, of which the majority, 4146, dealt solely with their own special branch of medicine, whereas 1766 also attended to general practice. Women doctors numbered 85, 33 of whom were engaged solely in institutes. Unqualified persons dealing with the professional treatment of sick persons were found to number 4468 (3059); among the 3146 male persons of this class were 40 physicians with foreign qualifications, and of the 1322 females 14 were qualified outside the German Empire. Qualified dental surgeons numbered 2667, which means about double the number returned in 1898—viz., 1299. The same increase was also observed in the case of the unqualified dentists, the number of which has arisen from 4376 to 8546. As regards the midwives their number shows but a slight increase—from 37,025 in 1898 to 37,736 in 1909; this means 5·94 to every 10,000 inhabitants; the proportion has dropped from 6·83 per 10,000 souls, the figure for 1898. On an average every German midwife attends to 54·8 births; curiously enough, the same average as existed at the time of the previous census. But the greatest increase is to be found in the ranks of persons who professionally in some capacity or another attend to the sick. In 1898 this class was represented by 29,577 persons, or 5·46 per 10,000 of the population, whereas now it embraces 68,818 persons, or 10·83 per 10,000 of the empire's population. The increase in the male element is very striking, the sexes being represented as follows: male, 12,881 (3150); female, 55,937

(26,427); formerly to every male nurse there were 8·39 female nurses in 1898, whereas now the number has fallen to 4·34. On the other hand, the proportion alters when we consider their relative spheres of occupation: of the 20,026 persons of the above class not engaged solely in nursing work in hospitals and similar institutes, only 897 were males and 19,129 females, while the remainder, 48,792, were engaged in some sort of institution. The census also included a return of masseurs and of persons engaged in disinfection work. The masseurs numbered 1498, the masseuses 1723, out of a total of 14,789 persons engaged in work of the above nature. As the question of limiting dispensing to pharmacists, as in Germany and elsewhere on the Continent, is occasionally broached in Great Britain, it is interesting to learn that there is in Germany very nearly one pharmacy (exactly 0·96) for every 10,000 inhabitants, the total, including branch establishments, being 6127. The increase in the population of the German Empire is, indeed, very plainly reflected in the increase of pharmacies, which are only concessioned to keep pace with the growing population, for in 1895 there were 966 less than in 1909. To the above number must be added 587 (533) dispensaries belonging to general practitioners, who obtain this right in the event of the nearest pharmacy being some considerable distance away, the population being not sufficient to warrant even the establishment of a branch.

PATHOLOGICAL FUNNY FELLOWS.

Jack Spratt, Hans Wurst, Pickel Herringe, who is a Dutchman, and a host of others like them are all fictive creatures more or less noted for gluttony and obesity, but pathology plays no part in their characteristics. Hans Trapp or Drabb is rather sinister and John Bull not very bright of understanding, but neither is the victim of disease, though John is certainly rather huge in girth. It has been left to the modern Italians, the compatriots of Lombroso, to evolve Cretinetti, who figures in kinematograph shows as "Foolshead." This creation of the modern Italian folk-mind is far from pleasant and furnishes food for thought. His antics are mostly brutish, often malevolent, and just such as one would expect from a myxœdematous subject. We trust his vogue will not spread among the Latin nations. Nor would it be necessary to mention him here were we not being perpetually confronted by sensational stories of Italian degeneracy, some of which were detailed in a recent contribution to THE LANCET on the subject of epileptic outbreaks among soldiers. Cretinetti is a species of scientific conception, while Hans Wurst and the rest of the northerners belong to the realm of ancient folklore and are probably descended from early Scandinavian demigods snch as Loki. Cretinetti belongs to the family of Punch, himself an Italian, and a heartless and murderous hunchback in puppet shows, though not in literature. For Punchinello, now at any rate, shares the glamonr of the Scandinavians and is bathed in their aura. He has long ago ontlived his deformities. In England he is the soul of honour as represented in the pages of his own journal. It would be interesting to note all the Punches and Jack Spratts of all nations. They throw light on national habits and character. The Chinese must possess some delightful creatures of this kind. Here and there, there are local ones, some of whom are pathetic, almost tragic. Such an one is the Alsatian Hans im Schnogeloch, Hans of the Gnat-swamp, a district near Strasburg. This Hans, a man of substance and fine physique, to judge of him by Theophile Schuler's well-known picture, was devoured by a spirit of discontent, which drove him over-seas and brought him back, after shipwreck, to die in poverty where before he had lived in comfort. He personifies the spirit of a little nation doomed to a restless unhappiness. The Irish should be able to parallel him. Hans, without doubt, had a bee in his bonnet, but we prefer him to Cretinetti, and are almost inclined to rank him in the family of Saul of Israel. In the Isle of Wight, again, there are Sal Hatch and Kit Mullett, the latter a lady of weak intellect and boundless immodesty, who showed her "b—m to a dead robin, and cried because he would not look at it." Every countryside, indeed, must have its Hans or its Sal. These types attain their apotheosis in the glorious Wise Men of Gotham, whose illogicality was such as to qualify them for a lunatic asylum had such institutions existed among our Saxon forefathers. Their descendants' name is legion.

THE AMENDMENT OF THE MIDWIVES ACT AND THE SOCIETY OF APOTHECARIES OF LONDON.

THE Society of Apothecaries has addressed a memorial to the Lord President of the Council upon the subject of the Midwives Bill, 1910, drawing attention to various points in the Bill which, it is suggested, stand in need of amendment. It is in the first place urged that, before the Privy Council takes any effective action in reference to abolishing the power of appointment of a representative on the Midwives Board by any body or person, the body or person in question should have the right of being heard on the matter before the Council by counsel and witnesses if necessary. It is further suggested that payment of the travelling expenses of the members of the Board should be made obligatory, and, in fact, assimilated to the similar provisions in the Medical Act, 1858. In Clause 8 of the Bill, containing provisions as to the suspension of midwives, the Society has suggested a clearer definition of the powers of the local supervising authority with a view to obtain unity of practice throughout the country. The Society further recommends that Clause 11, which provides for notification of birth by a midwife who has not given to the local supervising authority the notice provided by Section 10 of the Midwives Act, 1902, and where a medical practitioner is not present at the birth, should be omitted. In Clause 17, dealing with the payment by the guardians of fees of medical practitioners called in on the advice of midwives, the Society has urged that payment should be made to the practitioner not only where he attends the mother but where in case of urgency the newly-born child requires medical assistance—a most important addition.

DEATH FROM INJECTION OF COCAINE INTO THE URETHRA.

SEVERAL cases of death after the injection of cocaine into the urethra in ordinary doses for the production of anæsthesia have been recorded. The rules for this procedure, therefore, appear to require revision or some safer drug should be used. The latest case is recorded in the *Journal of the Royal Army Medical Corps* for May by Captain A. D. Jameson, R.A.M.C. A soldier had a urethral fistula secondary to a stricture 3 inches distant from the meatus. An attempt was made to dilate the stricture with metal bougies, but it was found to be very sensitive. Four days later another attempt was made to pass a bougie after injecting into the urethra a little of a 10 per cent. solution of cocaine, the urethra being compressed between the finger and thumb behind the stricture. The solution of cocaine was not retained, but allowed to escape when the syringe was removed. After five minutes the stricture was found to be still sensitive, and more cocaine was injected in the same manner. Three minutes later, while the stricture was being dilated, the patient's colour was noticed to be very bad, and a convulsion lasting half a

minute occurred. The pupils were widely dilated, the pulse was imperceptible, and the forehead was covered with sweat. Artificial respiration was commenced, strychnine and brandy were injected, and an electric battery was used, but the patient never rallied. The necropsy showed nothing important except a few cauliflower vegetations on the mitral valve, which, however, acted perfectly. The solution of cocaine had been in use for a fortnight. The amount retained in the urethra must have been very small, as when the pressure was removed after an injection its walls came together again and the fluid was expelled. In Dr. Dixon Mann's "Forensic Medicine" two cases are quoted of sudden death from injection into the urethra of a drachm and 20 minims respectively of a 4 per cent. solution of cocaine. However, these were the only fatal cases in a series of several thousands. In another case recently recorded in this country death occurred after the injection of 30 minims of a 10 per cent. solution of cocaine. Three cases of dangerous symptoms after the injection of 20 minims of a 10 per cent. solution have also been reported. Most authorities say that a 20 per cent. solution of cocaine may be swabbed on a mucous membrane, and in Caird and Cathcart's "Surgical Handbook" it is stated that 2 drachms of a 5 per cent. solution may be injected into the urethra with safety. Captain Jameson refers to another case mentioned to him by a brother officer in which death followed the introduction of a small amount of a 10 per cent. solution into the urethra to facilitate the use of the urethroscope. But although he has for years been in the habit of applying a 10 per cent. solution of cocaine to mucous membranes for small operations he has never before seen any toxic effects.

ANNUAL EXHIBITION AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

FOR many years past it has been customary to place the specimens recently added to the Museum of the Royal College of Surgeons of England on exhibition during the election to the Council. This year the election falls on Thursday, July 7th, on which day and on Friday, the 8th (from 10 to 5), and on Saturday, the 9th (from 10 to 1), these specimens will be open for inspection. Visitors will find the exhibition for the present year well worth a visit. The specimens, some 350 in number, give a concrete representation of the various lines of investigation which are now being pursued by medical men. Particular attention has been paid to the addition of specimens which illustrate general pathological processes—hypertrophy, atrophy, degeneration, necrosis, repair, inflammation, and infective diseases—because the section of the Museum in which these specimens will be placed, that of general pathology, is at present being greatly extended. Those interested in the evolution of surgical instruments will have an opportunity of examining the outfits of Chinese, Japanese, and Fijian surgeons, as well as surgical needles used by John Hunter, a surgical cabinet made by Sir William Ferguson, and outfits of resuscitation instruments used at the end of the eighteenth and beginning of the nineteenth centuries. The additions to the teratological series are chiefly illustrative of human malformations, and include a remarkable series from Egypt illustrating irregularities in the union of the atlas to the skull. These were presented by Professor Elliot Smith. Dissections have been added to illustrate the condition of the Wolffian remnants in the broad ligament at various periods of life. The new specimens which have been prepared or presented to illustrate comparative physiology include dissections of the circulatory organs of the seal and other aquatic mammals, the mechanism of mammalian mastication and of digestion. The additions to the human osteology series are numerous and include representations of the various remains of paleolithic man found recently on the continent and in England. Visitors will also have an opportunity of examining the new odontological room, opened in December last, and a number of additional minor collections recently added to the Museum. A new guide to the Museum has been prepared for the convenience of visitors and will be published at an early date.

ACUTE ŒDEMA OF THE LARYNX DUE TO THE ADMINISTRATION OF ETHER.

ACUTE œdema of the lungs is a rare but recognised danger of the administration of ether, but œdema of the larynx appears to have escaped notice. In the *Boston Medical and Surgical Journal* of June 2nd, Dr. N. R. Mason and Dr. H. J. Inglis have reported the following case. A woman, aged 25 years and in her first pregnancy, was in good health, but was annoyed by inability to breathe through her nose and resulting sleeplessness. There were hypertrophic rhinitis and naso-pharyngitis, and cauterisation of the turbinals was performed. The larynx was normal. Labour took place at term. After 15 hours the os was nearly fully dilated, but progress was unsatisfactory. Ether was given, and after half an hour full anæsthesia was induced, and a low forceps operation was performed. Extraction was difficult in consequence of the large size of the child. Several vaginal lacerations were sutured with catgut. The period of full anæsthesia was about one and a half hours and about half a pound of ether was used. The patient took the ether badly from the first, becoming somewhat cyanotic and breathing with difficulty. The pulse rose to 150 and was of only fair quality. During recovery from the ether she coughed considerably and complained of sore-throat. Delivery took place at 6.25 P.M. At 10 P.M. she coughed occasionally and the pulse was 116, but the general condition was good. At 2 A.M. there was distinct difficulty in breathing and she complained of mucus in the throat. The dyspnœa gradually increased. At 5.30 P.M. on the following day there was interference with both inspiration and expiration, although the breathing was not stridulous. At frequent intervals there were sharp attacks of spasmodic coughing with expectoration of a little viscid mucus which left the patient weak and striving eagerly for air. She was aphonic. Laryngoscopic examination showed that the aryepiglottic folds, arytenoids, and commissure were much swollen and of a light pinkish colour. The epiglottis was involved to a less degree. The vocal cords were partially abducted and their movements were restricted, the left being almost stationary. Through the opening between the cords the tissues below were seen to be pale and swollen to such an extent that the stenosis was chiefly sub-glottic. Morphine and atropine were given subcutaneously, an ice collar was applied, and an adrenalin spray was used. A spray of creasote almost immediately relieved the distressing cough. Preparations were made to perform tracheotomy if necessary. During the evening several attacks of dyspnœa occurred, during which the pulse rose to 160 and its quality became very poor. Later, soreness over the upper chest was felt. After midnight the secretion from the throat became thinner and more profuse, and she became more comfortable. The improvement continued, and on the evening of the following day the symptoms had largely subsided. There was slight dyspnœa for another day, and two days later the aphonia began to diminish. After this recovery was rapid. In the absence of other ascertainable cause, and in view of the fact that signs of laryngeal irritation began with the administration of ether and persisted

until the onset of the dyspnœa, the œdema was attributed to the ether. Considering the irritating action of ether on the respiratory mucous membrane, it is surprising that the larynx, which is more exposed to the drug than the lower parts of the tract, should not more often show signs of irritation.

IS OPERATION ESSENTIAL IN ALL CASES OF EXTRA-UTERINE GESTATION?

IN describing this week some cases of extra-uterine gestation Dr. T. B. Broadway puts the question, "Should cases of extra-uterine gestation be operated upon at once, or should rest be tried and abdominal section done when the acute stage has passed?" This is a question which cannot be answered in a dogmatic manner. In the first place, cases of extra-uterine gestation differ very largely in their characters and in their dangers, and while it may be quite a safe and indeed an advisable procedure to leave a case of encapsuled peritubal hæmatocele without operation, any delay to open the abdomen in the case of rupture of a tubal pregnancy may well lead to the death of the patient. Undoubtedly at the present time, in view of the excellent results obtained by abdominal surgery, and following the sound surgical rule to cut down upon the bleeding point, practically all surgeons open the abdomen immediately when they have made a diagnosis of a ruptured tubal pregnancy, or when they recognise an extra-uterine pregnancy before rupture or in the later months. The chief matter of dispute is as to the treatment of a definite case of peritubal hæmatocele when it is recognised as such and when, as it usually does, it follows a tubal abortion. Should such a case be operated upon or may it be watched with a very fair prospect that the swelling will become absorbed and the patient make a complete recovery without running the risk of an abdominal or vaginal section? It would be easy, and indeed it has been done, to adduce statistics supporting both views, and it is also easy to bring forward reports of cases in which either method of treatment has ended in disaster. In attempting, however, to form a judgment upon what is admittedly a very disputable point, the cautious surgeon will consider not only the exact pathological condition from which his patient is suffering, but also all the other circumstances of the case. There are, of course, a certain well-defined number of cases in which from the severity of the hæmorrhage, from the presence of suppuration, or for some other good reason it is essential that an operation should be performed; but, on the other hand, there are also a large number of cases in which the patient is at the time she comes under observation not suffering any grave ill-effects from the presence of a large collection of blood within the abdomen. Here a decision has to be come to taking into account very carefully, not only the present, but also all the future possibilities of the condition. In these days, in which an increasing number of abdominal sections is being performed every year, it is well to remember that not every patient who has been dismissed as well by her surgeon is for ever immune from any trouble incidental to the operation she has had performed. Any practitioner of experience could relate cases where the after-effects of even a simple abdominal section have been far from satisfactory, and no one would deny that if a woman with an intraperitoneal hæmatocele can recover without the necessity for any operation, that is the best result which can be desired. But here we are at once met with the argument that although these patients recover, they do not recover so completely as those who have had the blood removed by operation, and that they are very likely to suffer some disability in after years from the remains of the hæmatocele. Such cases, however, may be capable of the explanation that there was something more than merely blood present, as, for example, in the case recorded by Kretschmar, where at a laparotomy undertaken 13 years after the probable date of its death the bones of a three months old fœtus were found in the abdominal cavity. We must further bear in mind that the average length of time required for the complete absorption of an intraperitoneal hæmatocele is about four months, a very long period for a working woman to be laid aside. Then, again, it must be remembered that even when the tumour has been entirely, or almost entirely, absorbed the patient is not necessarily cured; she may suffer some disability from the presence of the diseased tube or from adhesions. The question is, indeed, not one to be answered hastily; the outlook as regards the recovery and safety of the patient is so evenly balanced in many of these cases that it must be decided after a very careful weighing not only of the exact condition present in the abdomen but also of the physical state of the patient, of her surroundings, and of her social position. Probably for many years to come the adherents of the non-operative method of treating these cases—that is to say, cases in which immediate operation is not indicated from the severity of the symptoms—will be as numerous as the adherents of the school who maintain that all the patients should be operated upon at once, no matter what the circumstances in which they may be placed.

CHEMICAL IMPOSSIBILITIES.

IN proprietary medicines chemical formulas are frequently used to indicate the chemical composition. While in the case of a definite chemical substance such as phenacetin the practice is a desirable one, there have been many instances of the misuse of chemical symbols for the purpose of lending an undeserved scientific appearance. At the recent annual meeting of the American Pharmaceutical Association, Mr. W. A. Puckner, of the laboratory of the council on chemistry of the American Medical Association, gave several interesting examples of this form of trickery, whereby certain products have been made to assume an atmosphere of respectability quite out of keeping with their true character. Another class of fake formulas which shows the inability of exploiters of a certain class of nostrums to tell the truth in a plausible way is that class which fails to obey the law of even atoms. Thus, a certain "cure" was said to contain "a new compound derived from a union of hydrocarbons" having the formula $C_{27}H_{17}O_2$. To a chemist such a formula is sufficient evidence of the nature of the stuff, for it is one of the many "chemical impossibilities" that have been, and are still, sold at a price greatly in excess of their actual cost. In devising an awe-inspiring chemical formula with which to embellish advertising matter it is a common performance to select one that is known but which cannot exist in the mixture which is stated to contain it. Rather, again, than acknowledge that their preparation differs from a horde of others only in name, some promoters have exercised considerable ingenuity in devising ways to make a claim of novelty appear true. In many cases the expedient has been adopted of adding together the formulas of the several constituents of a mixture, thus hiding the nature of the preparation. This trick is often still further complicated by an error, intentional or accidental, in adding the formulas together. Another form of deception consists in assigning chemical formulas to impure substances. Thus a preparation containing two substances was given a chemical formula, which was only abandoned when it had been shown that the product did not contain the amount of one element required

by the formula. It is possible that in some cases preparations are wrongly described through sheer ignorance rather than a desire to mislead the purchaser. But, whatever may be the cause, the evil is a common one, and it requires a considerable amount of chemical knowledge to detect the various guises in which deception may appear.

SLEEPING SICKNESS IN THE KATANGA COUNTRY.

Dr. F. O. Stohr, who was formerly a member of the medical staff of the Union Minière, in the Congo Free State, and who was for a time attached to the Bukeya sleeping sickness lazaret, determined on completion of his contract with the mining company to make a tour on his own account in the Katanga country, which lies to the extreme east of the Congo State, not far from the frontier of Rhodesia. The fourfold object of this tour was to map out systematically the limits of Glossina palpalis; to secure patients for treatment with atoxyl; to see how far removal of infected or threatened villages to sites free from tsetse fly was a practicable measure; and lastly, to make one or two clearings with a view of obtaining information as to their value and uses. The results of this tour have been embodied in a pamphlet which Dr. Stohr has published entitled, "Notes on Human Trypanosomiasis in Katanga." In this he gives two maps on which he has shown the areas in which G. palpalis was found and where sleeping sickness had appeared. His efforts to obtain patients for treatment with atoxyl were not very successful. The natives were frequently found to be frightened at the sight of the inoculating needle and were inclined to beat a hasty retreat as soon as it was produced. It was, moreover, a new phenomenon to them to meet with a disinterested stranger who was ready to give them medical treatment free of charge. As is common enough elsewhere, these natives of Katanga placed no value on that which was offered to them for nothing. Generally speaking, the people were apathetic on the matter of the prevention and cure of sleeping sickness in their district. From Dr. Stohr's observations it would appear that the Congo Administration had not followed the advice of its medical expert advisers, though in some cases the local officials had done what they could to act upon the suggestions given. Along the Dikulwe River and its tributaries sleeping sickness had been allowed to spread unchecked. Up to the present time the villages on the Upper Dikulwe have not become infected, but those on the river below Kabangu were badly involved, and there had been many deaths. With regard to removal of villages to fly-free areas, Dr. Stohr found that many of the natives were not unwilling to be moved, but as they have no initiative they need to be told by those in authority not only when to go but also where to go. In this respect also the Congo Administration seems to have neglected its obvious duty. Because either he does not understand, does not believe, or because he is lazy the average native will not take the trouble to search for G. palpalis. As regards the utility of clearing riverside areas Dr. Stohr came to the conclusion that "clearing or no clearing, a village is not safe where there is G. palpalis, unless the people are periodically examined." It is easy as a rule, he says, to examine medically most of the inhabitants of a village, but experience has shown that there are always some persons who, intentionally or otherwise, escape the examination, whether it be made early or late in the day.

WE much regret to learn of the death of Mr. Charles Ralph Keyser, surgeon to the Cancer Hospital, London, which occurred at sea. Mr. Keyser was a brilliant surgeon and but 36 years of age.

POOR-LAW MEDICAL REFORM: WHAT IT SHOULD AIM AT.[1]

BY MAJOR GREENWOOD, M.D., LL.B.

WHEN I had the honour of addressing you at our meeting in Hull in 1908 we were all aware that a change in the present Poor-law was not vaguely threatened, and with that change the fortunes of our service must necessarily be largely implicated. An important Royal Commission was then sitting and minutely investigating every detail of our present system. As we had many grievances, we were naturally not without hope that our position in the future would be improved, and that when every investigation had been made our service might be freed from many of the burdens and difficulties that for so long had oppressed it, and that it might be enabled to take up its true position as the natural guardian of the destitute sick poor of the nation.

At our meeting last year the Royal Commission had made its report, and the critical position of our service became very evident. While most of us had been dreaming of reform it was revolution that had been organised. In the paper I read before you in the Guildhall, London, I endeavoured to show how profoundly our service was threatened by either of the rival reports, and in the time that has elapsed since then I have seen no reason for modifying the views I expressed on that occasion. On the contrary, it has seemed to me that the danger is far wider and more extensive than I at first thought, for the harm likely to be caused by the carrying out of the medical proposals of either the Majority or Minority Commissioners is one that not only threatens to disintegrate our service but to bring about in addition ruinous changes on the whole profession of medicine. It is to this last aspect of the case I would particularly draw the attention of all Poor-law medical officers. The great majority of us are part-timers. The emoluments we derive from our offices are altogether insufficient for our livelihoods, and most of us rely, like our outside brethren, on private practice. As far as we are concerned, then, we cannot afford to entertain some of the propositions that have been put forward from influential quarters. We do not desire a service in which the conditions are to be essentially those of a whole-time service, even if our remuneration is to be based on a somewhat more liberal scale than the present. However favourably we might be regarded by the State, it is highly illusory to imagine for a moment that our salaries as whole-timers would better our present positions. The almost certain result would be that the greater number of us would be compelled to retire from the service and that our places would be occupied by younger men who might regard as satisfactory payment which seems to us altogether inadequate. We are strongly of opinion that it is better for the poor, for the public, and for ourselves that whatever service is organised to attend to the medical needs of the destitute it should be, as far as possible, *a part-time service*. For the country as a whole a strong and independent profession of medicine is of vital importance, and the tendency that has grown up in some quarters to endeavour to promote a general nationalisation of medicine on the lines of our public educational system is one that, in my opinion, needs only to be mentioned to be condemned.

While there continues to exist an independent profession, and likewise not an altogether pauperised public to support it, it will be more satisfactory for the sick State poor to be treated by the same doctors as the rest of the community, and not to have their medical care delegated to juniors and beginners, and this is impossible under any scheme of whole-time State service. For the medical profession it is equally important. Already it is only too well known to us how our legitimate practice has been more and more entrenched upon and undermined by the multiplication of means for the free treatment of all the poorer classes, and a system of part-time Poor-law medical officers who have to rely on their private practice almost as much as other practitioners would be far the best means of checking the inevitable loss that is

[1] An address delivered at the annual meeting of the Poor-law Medical Officers' Association on July 1st at Halifax.

constantly accruing to the profession. A unified medical service, chiefly composed of whole-timers, would increase, not lessen, this loss and would strike a blow at private practice throughout the length and breadth of the land.

I would respectfully commend this side of the question to all the general practitioners of the country, some of whom would seem to think that in our objections to certain schemes put before us we are thinking only of our own selfish interests. I think it would be a bad day for all if either the medical proposals of the Majority or Minority were to be forced upon us. Happily, there is a *tertium quid*, a happy mean, which may possibly lead to a better settlement of this difficult question. I allude to the proposals of Mr. Booth, one of the ablest of the Commissioners, supported by the only representative of our profession who had a seat on that Commission, Sir Arthur Downes. He is the only member in whom we can have entire confidence, as possessing real knowledge of the merits and demerits of the present Poor-law Medical Service. According to the proposals of Mr. Booth and Sir Arthur Downes a reform, and not a break up, of the present system is contemplated, and for that reason the proposals are far more practical and offer a much greater chance of success.

As far as could be judged from the abortive debate that occurred in the House of Commons last April, when the Prevention of Destitution Bill was talked out, it would appear that in the present divided state of opinion in the country on this question no revolutionary scheme would have much chance of success. For any practical change in the present Poor-law therefore it seems to me highly desirable that efforts should be made towards compromise, and that reforms based on our present system should be attempted, rather than the introduction of new principles which, however fascinating they may appear in the eyes of a certain class of reformers, are only based on theories and hopes—hopes, according to the opinion of one of the most authoritative journals of the public lay press, contrary to all practical experience. Whether an inordinate increase in more or less gratuitous medical attendance on all poor persons is good for the nation is at least a question that admits of much difference of opinion; that it is not good for the medical profession I have no hesitation in affirming, and I trust I shall be supported in this view by the bulk of the general practitioners of the country without much difference of opinion. Assuming then that reform should follow the lines laid down by Mr. Booth and supported by Sir Arthur Downes, I propose to consider briefly certain changes that might be made with advantage without threatening a revolution. I do not for a moment wish it to be thought that they sum up all the reforms that are desirable; in fact, I have no doubt that there are others that might easily be formulated and that we might readily agree to. But I think, as an association representing the Poor-law Medical Service, and seeing that the whole of that service has been consulted by us, as far as is possible, we are entitled to lay down certain principles with which our proposed reforms should not conflict. Certain resolutions will be laid before you this afternoon which have been formulated from answers received from an inquiry made to every member of the outdoor Poor-law Medical Service.[2] You have all had printed copies of these resolutions, and you will be invited to confirm them this afternoon.

In the first place, then, although we rightly object to the Poor-law Medical Service being amalgamated with the Sanitary Service and swallowed up in it, I see no reason against a proper coördination between the two services. I approve also of the principle of rendering to Cæsar the things that are Cæsar's, and therefore could not argue against the transference to the sanitary authorities of the administration of the Vaccination Acts. In their hands also should be all the public institutions dealing with the treatment of infectious disease. Such disease may, and should, be treated on different principles to those whereby ordinary disease is dealt with, and the public safety does demand that tests and safeguards, which are necessary for protecting the pockets of the ratepayers when the latter class of disease is treated at the public expense, shall not hamper the immediate and efficient dealing with dangerous epidemic disease. For a similar reason in the same hands should be placed the registration of births and deaths. On the other hand, old age pensions should be part of our Poor-law or public assistance system and should not depend on abstinence in the past from Poor-law relief. If we take the case of two brothers over 70 years of age, one receiving the present old age pension and the other the same weekly payment from the guardians as outdoor relief, it is impossible, in my opinion, to draw any logical distinction between the public relief given in the two cases, and most inequitable to consider one more deserving than the other. A large amount of the overlapping so frequently complained of in the reports of the Commissioners is, in my opinion, due to the faulty way in which legislation has dealt with certain social problems. In consequence of our present Poor-law system having got a bad name, instead of attempting reform, an endeavour has been made to mitigate the evil by creating new Poor-law machinery under another name. To do away with the stigma of pauperism is the almost universal argument in favour of these new creations. It is urged that Poor-law work, when done by a Poor-law authority, carries with it an inevitable stigma, but that when done by another authority that stigma promptly disappears. This argument may satisfy some people, but it can hardly be expected to satisfy all. A certain number may think, not unreasonably, that this stigma is the inevitable consequence of accepting any personal State aid at the expense of the taxed industry of others, which it is ordinarily considered to be the duty of the individual to provide for himself. I think the Majority Commissioners are quite right in recommending that some of our recent legislation should be repealed, and that when we have a properly organised Poor-law, the provision of school dinners, and the medical attendance on school children should be part of the function of that authority. That is an obvious and practical way of getting rid of much of the overlapping complained of, and the increased work thrown thereby on the Poor-law Medical Service would not be objected to if properly considered by increase in the salaries of Poor-law medical officers.

Next, with regard to increased coördination of the Sanitary and Poor-law Medical Services. Much more might be done even now under our present organisation than has hitherto been attempted. The medical register of the district medical officer, at all events in large towns, is always open to the inspection of the medical officer of health, and attention might be given by the former to the recording of the sanitary condition of the homes where domiciliary work was being carried out. Sanitary inspectors, again, in the course of their daily work might take cognisance of cases of illness not under medical supervision and might report the fact to the Poor-law authority. In the matter of tuberculosis a coördination has already been established, and since 1879 there has been the same with regard to all, or any, of the purposes specified in Section 134 of the Public Health Act of 1875. All cases of phthisis are promptly recorded and notified to the sanitary authority, and before long, no doubt, the same will be done in the case of whooping-cough and measles. Dealing with purely Poor-law medical reform certain grievances must under any circumstances be redressed. The provisions of the Metropolitan Dispensaries Order must be applied to the country generally. All drugs and medical appliances required for the treatment of State patients must be provided by the State. There must be a revision of the scale of extra payments for special operations, and the performance of these by district medical officers in rural districts and at a distance from Poor-law hospitals must be fostered and encouraged in every way. There must be no difficulty in obtaining the services of an anæsthetist, and reasonable fees for assistance in operations must be allowed to all Poor-law medical officers. There must be no obstacle, as at present, to prevent the prompt attendance of the district medical officer in midwifery cases. He must no longer be dependent on the relieving officer as to whether he is, or is not, entitled to his fee. If in his official capacity he has attended on a poor lying-in woman, a reasonable fee must be guaranteed to him, it being left to the Poor-law authority to recover the fee, or part of it, at a later period if the financial position of the husband warrants such recovery.

If reforms based on some such policy as this be carried out in our present Poor-law Medical Service, it might be made sufficient to meet all the needs of the destitute sick poor of the community, and might do good work under any Poor-law authority Parliament in its wisdom might think advisable to

[2] THE LANCET, March 5th (p. 670), and May 7th (p. 1292), 1910.

create. It might do so even under such an authority as that proposed by the Majority Commissioners, or, better still, under an "*ad hoc*" authority on the lines of Mr. Booth's proposals. I only protest against the policy of the Minority Commissioners, the "break-up system," and I do so because I believe that, if attempted, it would largely fail in accomplishing even its professed objects; that by largely familiarising the whole community with the idea of State assistance, it would tend to the destruction of individual independence and thrift; and that by greatly curtailing the field of private practice among the poor, it would be ruinous to a large number of the members of our profession.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

The 15 h.p. Charron Car.

THE 15 h.p. Charron car should be well known to the medical profession. It is introduced by the London Motor Garage Co., Limited, of 33-37, Wardour-street, W., and can be supplied by them either on the hire-purchase or maintenance agreements already referred to.[1] I recently spent a day in examining and testing one of these cars, and my experiences may be useful to readers of THE LANCET.

The chassis is designed on popular and up-to-date lines, bnt a number of modified minor features have been embodied. These, with the accuracy and care that an inspection shows must have been taken in assembling, account fully for the satisfied reports that all owners seemingly give. The frame is of pressed steel and the standard length from the dashboard to the end of the frame is 8 feet 6 inches, which is well adapted for both a two-seater or a small landaulette. The chassis is likewise turned out with 9 feet 2 inches and 9 feet 10 inches lengths to order, so practically any kind of body can be fitted, though for usual professional needs the standard measurements are ample.

Casting the cylinders separately as compared with *en bloc* construction is a matter on which manufacturers have different opinions, but the general tendency seems to be for the "all in one" as used on this type. The engine bore is 80 millimetres and the stroke 120 millimetres. This gives a horse power that is quite sufficient to take a car with an ordinary load anywhere that a horsed vehicle can go, and to a large nnmber of places that a horsed vehicle would find impossible. The rating for taxation, which is calculated by the bore on the Automobile Club formula, is 15·8 h.p.; that is, the tax for the medical motorist is £2 2*s*. From the way in which the car behaved I should say it was a very good 15·8 h.p., for it climbed hills with a landaulette body and with five occupants in a quite satisfactory way. The valves are all situated on one side, and the springs holding them down are easy to get at. Plates, held in position by thumbscrews, cover in the valve-stems and lifters. This arrangement is similar to what is adopted on the Napier car; it is certainly an advantage, as it keeps dust out, and in addition detachment is easy. The crank shaft runs in three white metal bearings of ample size. An oil-tank is fitted under the bonnet on the driver's right of the engine, and a pump driven off the two-to-one shaft maintains the circulation of the lubricant through a drip-indicator on the dashboard, and thus to the various points of the motor. Water cooling is by thermo-syphon, and the pipes are set so as to ensure adequate circulation round the cylinders, without the possibility of an air lock. The radiator is, as on the Renault car, behind the engine. Cooling is also helped by a fan. Petrol is fed by gravity from a tank beneath the front seat, and a petrol filter is interposed in the supply pipe at an accessible spot under the front foot-boards.

The carburettor will appeal to all motorists; it is simple and yet efficient—merely a float chamber into which the filtered petrol enters from underneath. A tube projects at right angles, and into this the jet is screwed. Over the jet is a choke-pipe, in the expanded upper portion of which is an automatic air inlet, and the usual pedal-controlled butterfly valve, through which the mixture, after dilution, passes to the chamber over the inlet valves and thus to the cylinders. The advantage is that, as on the new Darracq, the jet can be removed for cleaning in a second without having to dismantle anything, there being only the hexagonal end to unscrew. Ignition is fixed. This is now the usual practice with makers of small cars. Perhaps a variable ignition may enable an expert to occasionally get more out of his engine, but in cars like the one under consideration I believe it is admitted that the resulting increase in simplicity and the absence of additional parts fully compensate for the want of ignition timing. The magneto fitted is the Bosch DU4 type, which is as efficient and satisfactory as any on the market. It is placed right in front of the engine, driven by the usual dog clutch, and held in its bed by an easily detachable steel strap. A refinement is an earthing switch in front under the frame, so in starting the current may be "shorted," while a good swing is given to the engine, thus avoiding all possibility of a back fire. When the hand quadrant control on the dash board is shut the electricity is also cut off from the sparking plugs. This is of use when descending hills with the clutch in, and the engine in gear; a safe though perhaps a noisy method, but one that is at all events healthy for the brakes.

A push-forward quadrant and lever on the side of the car controls the three forward and reverse gear. The clutch is of the leather-coned type, slotted for gradual engagement. The gear-box is fitted with ball-bearings, and covered with a felt-lined casing, thus conducing to silence. The top speed is a direct drive, the first motion shaft being made solid by the engagement of an internal toothed pinion. From the gear-box the transmission is by propeller shaft to the crown wheel on the differential sleeve of the live axle. A universal joint is fitted at the gear-box end and a sliding one at the other extremity. The brakes are of the internal expanding variety; the hand-controlled working on drums fixed to the driving wheels, and the foot brake operating on a drum on the cardan shaft. A useful detail is the provision of an easily-got-at adjustment for taking up wear—a time and temper saver not to be found on all cars. The control is by the ordinary foot pedal, operating a valve on the inlet pipe. A hand-controlled lever working on a quadrant on the dashboard also regulates the throttle, and can be employed when starting the engine. This lever too, when completely shut, earths the electricity. The rear springing is by three-quarter elliptic and the front by semi-elliptic springs, which make the car a particularly easy-riding vehicle.

The car sent to me was fitted with a landaulette body, with a front glass and an extension over the driver, and for this, as subsequent events showed, I had reason to be grateful. It had a comfortable roomy body, and with five occupants, including myself, I found it to fulfil all the usual needs of a medical man. It took all the hills ronnd Woolwich, and I think they are as bad as can be found anywhere. It could do a fair 28 to 35 miles an hour on the flat, it ran easily, and as far as I could make out would average 23 to 24 miles to the gallon of petrol. It certainly struck me as a car that would be reliable, and not likely to give trouble in the running. The gear ratio, too, seemed excellent, and permitted of most hills being taken on the second speed; in fact, it was only on hills of one in seven or one in eight that the first speed was needed. A short round demonstrated that the car could be easily started, which was rendered easy and safe by the earthing switch near the handle; that the clutch engaged sweetly and without a jerk; that the gears could be changed noiselessly, and that either set of brakes would hold the car on a stiff gradient in both directions.

We then decided to venture on a long run. Soon we had crossed Blackheath, down the hill, where we once more tested the brakes. Then we went through the traffic of Peckham and Camberwell, by Wandsworth, Kingston, Hampton, Staines, Windsor, Maidenhead, and so to Henley. The way the car went on the road on the top speed made me consider it a particularly pleasant one to drive, and impressed me with the advantage of an engine with a long stroke. On feeling the radiator after this run of some 50 miles I found I could easily bear my hand on it, a proof that the thermo-syphon cooling was effective. On restarting the weather changed, and I was afforded an opportunity of comparing the running in the morning over dry roads with that over the wet heavy ones in the afternoon. It seemed to make little difference. The car was nearly always on top gear, and we ran on to Oxford, and then round by

[1] THE LANCET, April 2nd (p. 948) and 23rd (p. 1158), 1910.

the High Wycombe road back for home, with the rain descending in torrents. This made me regret that I had not brought some "Glasso" to apply to the front glass screen; it certainly would have prevented the clouding which almost made us brave the furious rain and drive with the screen up. Near Shotover Hill, where Milton's grandfather was underranger, we were hailed by a passing car, but thinking it merely was a police trap warning we proceeded, and, in fact, we came to the conclusion that on that road it was the correct thing for everyone to shout something at a passing inoffensive car. At Wheatley Bridge, in the district of Waterstock, near a sign-post showing the way to Waterperry, we had the explanation, and nearly had to pay dearly for our disregard of warnings. The road became wet, then a river, and well justified the name of the vicinity. Finally, the water reached the foot-boards, and the fly-wheel was revolving half under water. Then with land within sight the engine stopped; water had entered the make and break of the magneto, and the engine was sucking water up the choke pipe in lieu of petrol. Even a Charron car will not go under such conditions. Luckily, help was at hand, and by the aid of a horse we once more reached terra firma. The amazing fact was that as soon as the water was run out of the shield, and the cap over the magneto make and break was taken off and the parts were dried, the engine started and was none the worse for its bath. Apparently, as a result of the heavy rain, the river Thame had overflowed. We got off luckily, but we saw some other cars that had not been as fortunate and were delayed by ignition worries. Still, we escaped these troubles and proceeded home at a good speed, very well satisfied with the performance of the 15-h.p. Charron car.

This car certainly seemed to me an ideal one for the medical motorist. Possibly from the view of some other small cars the price may not seem strikingly low—chassis £310, landaulette £525. However, a close acquaintanceship with the actual machine will, I am sure, show that the figure charged by the makers is thoroughly justified in the value obtained by the purchaser.

Clouding of Glass Wind Screens.

Since writing in THE LANCET of May 28th on this subject I have received from Messrs. Brown Brothers a sample of "Glasso," a preparation for obviating this inconvenience. It is a sort of cream which, after the glass is cleaned and polished dry, should be applied thinly with a circular motion, and, after being well rubbed in over the whole surface, should be polished off with a soft dry cloth. It is, when thus used, absolutely transparent. From my experience with it in wet weather I am of opinion that it does what is claimed for it by the makers—namely, it prevents the glass from becoming clouded. I have likewise found it efficacious for laryngeal mirrors.

The Care of the Hand-worked Tyre Pump.

In order to keep the piston of the tyre pump air-tight the pump has to be periodically dismantled for greasing of the leather washers. To save doing this, a little hole can be drilled in the barrel above the piston and the washers kept oiled by occasionally injecting a few drops of oil in this orifice. Among others, Hills, the Dunlop, the "Duco," and the Lucas "King of the Road" deserve mention. The latter consists of two barrels, one within the other. The up stroke compresses the air from the larger barrel into the smaller and the down stroke further compresses the air and forces it into the tyre. On this pump, too, an oil hole is provided for the lubrication of the leather washer, as mentioned above. Pump connexions are frequently a trouble. The "Push-on," sold by Messrs. Brown Brothers, and the "Universal," by Messrs. Gamage, are useful, as with them screwing is not needed; merely pushing them on makes an air-tight connexion with the valve. Pumps are certainly worthy of a little care, for it is indeed a true aphorism that—"A good pump and a used pressure gauge mean a small tyre bill."

A Useful Reference Catalogue.

Messrs. Brown Brothers, Limited, have just published their 1910 Motor and Tool Catalogue. It is a work of nearly 700 pages, and even compares favourably with the useful and voluminous price lists issued by surgical instrument makers to the profession. What they are to the medical man, this is to the motorist. A copy will be sent to any motorist on applying to the above firm.

EPSOM COLLEGE.

ANNUAL GENERAL MEETING.

THE annual general meeting of the governors of Epsom College was held at the office, 37, Soho-square, W., on June 24th under the presidency of Sir Henry Morris, Bart., the honorary treasurer. He was supported by a large number of governors, including Sir William S. Church, Bart., Sir Constantine Holman, Surgeon-General Sir Lionel Spencer, Dr. Robert Boxall, Mr. J. Paul Bush, C.M.G., Dr. Francis Charlesworth, Mr. Andrew Clark, Dr. W. Collier, Dr. Charles Drage, Dr. J. P. A. Gabb, Dr. Clement Godson, Dr. L. Grant, Dr. F. de Havilland Hall, Mr. H. W. Kiallmark, Mr. H. E. H. Matthews, Mr. John H. Morgan, C.V.O., Mr. W. A. Propert, Dr. Guthrie Rankin, Dr. St. Clair B. Shadwell, and Mr. Percival Turner.

The report of the scrutineers showing the successful candidates for pensionerships and foundation scholarships as under was read:—

PENSIONERS.

	Votes.
1. Bury, Fanny H.	8081
2. Ryan, Caroline R.	4617

FOUNDATION SCHOLARS.

1. Haythorne, Edmund	8984
2. Lightfoot, Harold P.	8279
3. Beasley, P. Bernard C.	7970
4. Steele, Basil L.	6791
5. Keay, Melville L.	5835
6. Senior, Geoffrey	5748
7. King, George	5346

The SECRETARY reported that as an additional vacancy for a foundation scholarship had arisen since the voting papers were printed, the Council would admit, under By-law 24, Cecil A. Lawrence, the first of the unsuccessful candidates, at their meeting immediately after the annual general meeting.

The CHAIRMAN reported that the Council had sent an address of condolence on the lamented death of King Edward VII. to His Majesty the King and to Her Majesty Queen Alexandra, and called upon the Secretary to read the acknowledgment of the address to the King from the Home Secretary.

It was resolved that the Earl of Rosebery, the President of the College, should be asked to approach His Majesty the King with the request that he would be graciously pleased to succeed the late King as Patron of the College.

The resolution as to the adoption of the report for the past year was moved by the CHAIRMAN, who referred to the large sum of money that had been expended on the new buildings and other improvements at the College, and stated that further expenditure will be necessary when funds are available to erect an isolation building for the reception of patients suffering from any infectious disease, in order that the sanitary and hygienic arrangements at the College may be more complete, especially when there is an epidemic of any infectious disease. He further stated that it was desirable that structural alterations should be made whereby a suitable entrance to the quadrangle from the grounds of the College could be provided. He observed that the recent additions to the buildings and the other improvements were not a new feature in the administration, but were a continuation of the policy which had been followed since the year 1887, when Sir Constantine Holman was elected treasurer. He referred in detail to these additions and improvements, and in complimenting Sir Constantine Holman on the great progress that was made during the 19 years he held the office of treasurer, the chairman said the meeting would be glad to learn that the total of Sir Constantine Holman's collection for the Royal Medical Foundation Fund had just reached the sum of £10,000. He was sure that the meeting would agree with him that these achievements were not only a splendid piece of work for a friend of the College, but were also a most brilliant record for any treasurer to be able to show. In referring to the general work of the school, the chairman said that although the boys were successful in their sports they were not satisfied with their pavilion. The Council were consequently being frequently reminded by satirical comments in the *Epsomian* that a new pavilion in the playing fields was necessary, not only for the comfort of the boys, but also as a

suitable place in which to show hospitality towards those guests who came in friendly rivalry to play matches against them. However, the Council had no funds to meet the expense of such a building; and it would be very gratifying to the boys, as well as to those who had the interests of the boys at heart, if some generous friend of the College would come forward with a donation for the express purpose of providing a new pavilion.

The report of the Council stated that the receipts under the various headings of subscriptions, donations, bequests, dividends, and school account showed a slight increase, with the result that there was a small surplus on the year's revenue. The Council were grateful to the honorary local secretaries and other friends of the College, to whose untiring efforts the increase in the receipts from subscriptions and donations was due, and, whilst cordially thanking them in the name of the governors, they would earnestly solicit their continued efforts, in order that there might not be a falling off in the receipts from these sources during the current year. In spite of past contributions to the Endowment Fund, it was necessary to emphasise the fact that a sum of nearly £5000 must be obtained by annual contributions if the Council were to continue to maintain the full number of 50 pensionerships and 50 foundation scholarships. The extension of the buildings and the various improvements at the College had been completed at a cost of close upon £20,000. These, whilst allowing of an extension and improvement of the old chemical laboratory and theatre, included a new building providing further class-rooms and a room for day boys, together with the "Markham Skerritt" laboratories, which are well equipped for the teaching of physics and biology; a new gymnasium, fitted up with all requisite modern appliances; new music-rooms for class teaching, and a concert hall; a new carpenter's workshop; a new armoury for the rifles of boys belonging to the training corps for officers; a block of buildings containing a new box-room, a new lavatory, and an extension of the latrines; the provision of a hot-water supply, together with heating by the "Reck" circulator system, throughout the College; the extension, levelling, and asphalting of the College quadrangle; and a covered way which goes round the quadrangle and connects all the buildings.

The report further pointed out that since the last annual general meeting the munificent legacy to the endowment fund of £51,076 5*s.* 4*d.*, under the will of the late Dr. Henry Fearnside, had been received. The approximate income which will be derived from this legacy is £1690 a year, and it was very largely owing to this fact that the Council decided, on the recommendation of the Works Committee, and after most deliberate and careful consideration, to proceed with the extensive and much-needed additions to the College buildings. A considerable part of the money required for these extensions had been temporarily advanced by the bankers, and the Council were hopeful that help would be forthcoming so as to enable them to expedite the repayment of this loan. There were on the books of the College 48 ordinary pensioners, 9 "Pugh" pensioners, 10 "France" pensioners, 14 "Da Silva" pensioners, 3 "Morgan" annuitants, 5 "Highett" pensioners (of whom 2 receive £30 a year and 3 receive £10 a year), 1 "R. R. Cheyne" annuitant, and 3 "Brodie Sewell" pensioners The election that day would bring the number of ordinary pensioners up to 50.

The report concluded with the honours of the year, which are as follows:—The Anstie Memorial Scholarship was awarded to J. A. Davies; the Da Silva Exhibition to C. K. Bowes; the Doncaster Gift Scholarship to R. A. F. Eminson; the Forest Exhibition to C. A. Mallam; the Haviland Exhibition to W. R. Wilson; the Jenks Memorial Scholarship to P. D. Scott; and the Harvey Owen Scholarship to R. H. Leigh. The hospital scholarships were awarded as follows:—St. Bartholomew's, R. H. Simpson; Charing Cross, T. W. Pailthorpe; King's College, R. H. Leigh; London, H. G. Winter; St. Mary's, D. R. Alexander; Middlesex, C. E. Procter; St. Thomas's, O. D. Brownfield; University College, and the Carr Exhibition which goes with it, J. H. Sewart; and Westminster, J. S. Ranson. Thirteen boys passed the whole or a part of the first examination for medical degrees of the University of London, 10 boys passed the matriculation examination of the same University, 9 boys gained the higher certificate of the Oxford and Cambridge Schools Examination Board, and 25 gained the lower certificate.

The CHAIRMAN drew attention to the number of boys in the school—namely, 287—and stated that this was a larger number than that reported last year, which was itself a record number. The resolution for the adoption of the report was seconded by Mr. PERCIVAL TURNER and carried unanimously.

Mr. Purnell Purnell having been elected a Vice-President of the College in recognition of his having collected the sum of £1000 towards the funds of the Royal Medical Foundation, and formal business matters having been transacted, a vote of thanks to the chairman, which was proposed by Sir WILLIAM CHURCH and seconded by Surgeon-General Sir LIONEL SPENCER, brought the proceedings to a close.

THE LONDON COUNTY COUNCIL AND MEDICAL AFFAIRS.

School Inspection and Medical Treatment.

THE London County Council on June 21st resumed the consideration of the annual estimates and disposed of them after sitting continuously for 14 hours. There were many attempts to secure larger sums for medical treatment and public health administration, but the Finance Committee was obdurate and none of the supplemental estimates asked for were carried. Mr. Jephson moved for an additional £5000 in order that dental treatment might be proceeded with immediately. Mr. Cyril Jackson, the chairman of the committee, in reply, said that an exhaustive report on the whole question was now under consideration by a subcommittee. Inquiries had been made amongst the hospitals and dentists, and they had almost complete information as to the dentists who would be prepared to undertake treatment either in their own or in school surgeries. The scheme would be working before Christmas, and £1000 provision money had been put down in the estimates. The next amendment urged that the present "inadequate arrangements with the hospitals" should be supplemented by an additional expenditure of £5000, and this led to a long debate in which school clinics were strongly advocated. Several speakers spoke warmly on the difficulty of carrying out treatment satisfactorily under present arrangements. Mr. Jackson granted that the medical inspection scheme required to be supplemented, and said he would like to have a "flying squadron" of doctors who should see urgent cases with a view to immediate treatment. As to clinics, he said that 30 hospitals, "carefully selected, as they were, for position," must be more effective than 12 clinics.

The Asylums Committee's Report.

The Asylums Committee's estimates next came to be dealt with, and Sir John M'Dougall took the opportunity of urging that the scheme for the mental hospital should be pushed forward more expeditiously. He was informed that the difficulty of finding a site still stood in the way. At a late hour the often-postponed report of the Asylums Committee with regard to the establishment in London of a receiving house for the early treatment of the insane was reached. The committee asked the Council to reconsider its decision to limit the scheme to one receiving house only, but the Finance Committee strongly opposed any extension, and the *status quo* was maintained.

More Frequent Examination of Epileptic Children.

On June 29th the Education Committee considered a report by a subcommittee as to the need for more frequent examination of children in the schools for the mentally defective. The report stated that the regulations of the Board of Education provided that examination by a suitably qualified medical man must be made at least once a year in order to ascertain whether any of the children were fit to attend an ordinary school, or whether any were so defective as to be incapable of profiting by education of any kind. The parent, however, was entitled to claim re-examination of a child every six months, and this period had been set up as the standard period of re-examination although it had never been attained in fact. The number of children presented for examination with a view to admission to special schools during 1909 was 7479, and the number of children actually in the schools in December of that year was

6389. Owing to the considerable increase in the numbers it was only possible to provide on an average for examination once in 12 months. A prolonged and thorough examination, taking half an hour or more, would enable an almost certain diagnosis of a child's condition to be made, but the extended time would add considerably to the cost, and if each child admitted were re-examined within three months 231 additional visits would be necessary—practically the work of a half-time officer. The subcommittee was of opinion that more frequent examinations were desirable and recommended that two additional quarter-time assistant medical officers (education) should be appointed for the purpose. This was agreed to.

Board of Education's Criticisms.

The Board of Education has drawn the attention of the London County Council to the number of medical examiners approved from time to time under the Elementary Education (Defective and Epileptic Children) Act, 1899, and has suggested the desirability of permanent, rather than temporary, officers for the purpose of the Act. The Board added that in its opinion the Council would do well to consider the question of organising the arrangements for the diagnosis of defective children, and other work in connexion with special schools as a special branch of the school medical service; that in view of the exceptional character of the work it would be a distinct advantage to intrust it to selected members of the permanent staff; and that *prima facie* the arrangement by which a number of officers of the temporary staff are employed appeared to be of doubtful expediency. The Board pointed out that these officers, under the terms of their appointment, devoted only a very small portion of their time to special work (at most two and a half hours a week); that they might be associated only for a limited period with school medical work, either in ordinary or special schools, and be replaced, after a short experience, by other officers new to the work. Such an arrangement appeared to the Board to involve a risk that the efficiency of this branch of the school medical service might suffer.

The subcommittee's reply to these criticisms was that of 13 medical men actually engaged in the examination of special school children 10 were permanent officers, while the other 3 were responsible for open-air schools—institutions only existing during part of the year.

Medical Treatment in Greenwich.

The Education Committee has accepted an offer from the governing body of the Miller General Hospital, Greenwich, to provide treatment for one year for 500 children suffering from affections of the eye and 500 suffering from ear, nose, and throat ailments, in addition to the 50 ringworm cases for which provision has already been made at the hospital. The terms were similar to those agreed upon in the case of other hospitals.

MEDICINE AND THE LAW.

The Dublin City Hospital for Diseases of Skin and Cancer.

THE affairs of the Dublin City Hospital for Diseases of Skin and Cancer, which have been in Chancery since 1907, came under judgment in one of the Dublin courts the week before last. An action was brought against the committee of management by Dr. George B. White, surgeon to the hospital, with whom another plaintiff was associated, the action being relative to a contract between Dr. C. M. O'Brien, physician to the hospital, and the hospital committee; the contract related to the use and working of the Finsen lamp and X ray apparatus in the hospital. The contention of the plaintiffs was that the contract in question was an illegal one. The case appeared before the court on two occasions in May last, when suggestions for a friendly settlement were made and accepted. Mr. Justice Ross was accordingly appointed arbitrator. In giving judgment, he said that after a careful study of all the documents connected with the case he had arrived at the conclusion that although the original arrangements made with Dr. O'Brien might have seemed satisfactory in the existing circumstances, time had shown that they were not so. Mr. Justice Ross stated that he had gone through the accounts, which showed that there was a deficiency of funds for the working of the Finsen and X ray apparatus. He alluded to the obligation which the hospital was under to Dr. O'Brien, and added that he did not think he was treating him harshly in deciding that he must pay £280 and his own costs in the proceedings. He gave this judgment on the understanding that the apparatus and instruments belonged to Dr. O'Brien. He judged the committee to have made considerable mistakes, but on taking into consideration the fact that he was offering judgment upon the affairs of a charitable institution he decided that their costs should be paid out of the funds of the hospital. Finally, whilst not justifying the action of the plaintiff, he allowed him his costs from the hospital funds also. His lordship prefaced his judgment with the remark that "this is the only institution in Ireland where the Finsen light is used for hospital purposes for the treatment of the terrible disease of lupus, which was supposed to have been an incurable disease before it began to be very successfully dealt with in this hospital." Neither statement is quite accurate. A Finsen lamp has been employed in the Royal City of Dublin Hospital since 1902. The Skin and Cancer Hospital, however, was the first institution in Ireland to use this apparatus, hence, doubtless, his lordship's error. He hoped that subscriptions to the hospital—which have been withheld during these proceedings—may be again forthcoming since a satisfactory agreement has been arrived at.

The Sale of Poisons under the Pharmacy Acts, 1868–1908.

At the Kingston-on-Thames county court an important decision was recently given by his honour Judge Harington in a case in which the Pharmaceutical Society were the plaintiffs and the defendant was William Nash, an assistant in the shop of his father, James Nash, who carries on business as a florist and nurseryman at Wimbledon under the title James Nash and Sons. The plaintiffs sued the defendant for a penalty under Section 15 of the Pharmacy Act, 1868, alleging that he had sold poisons in contravention of the section, he not being "a duly registered pharmaceutical chemist or chemist and druggist." The facts were not in dispute. James Nash, the father, held a licence under Section 2 of the Pharmacy Act, 1908, permitting him to sell poisons of the character mentioned therein. This is the section which made an important alteration in the law with regard to poisons by enacting that the provisions of the Pharmacy Act, 1868, shall not apply "in the case of poisonous substances to be used exclusively in agriculture or horticulture for the destruction of insects, fungi, or bacteria, or as sheep-dips or weed-killers, which are poisonous by reason of their containing arsenic, tobacco, or the alkaloids of tobacco, if the person so selling or keeping open shop is duly licensed under this section by a local authority." The defendant, William Nash, who was not so licensed, sold to a representative of the Pharmaceutical Society a bottle of insecticide which was proved on analysis to contain as an ingredient 133 grains of nicotine. The father was not present when the son sold the insecticide. The defence turned upon the question whether as a matter of law the licence held by the father enabled the son, as his assistant employed by him in his business, to sell the poison. His honour in delivering a written judgment, pointed out that the question for him to consider was the interpretation to be put upon the words "the person so selling," and said that he could not think that it was the intention of the legislature to relax the public safeguards in connexion with the sale of poisonous substances. The Act of 1908 only enabled persons other than those permitted by the Act of 1868 to sell poisons under regulations equally stringent with those prevailing under the older Act, the restrictions being that the person selling must be licensed by the local authority. He referred to two decisions, The Pharmaceutical Society *v.* The London and Provincial Supply Association (Appeal Cases, 857), and The Pharmaceutical Society *v.* Wheeldon (24 Q.B.D. 683). These decisions made it clear that in an action under Section 15 of the Pharmacy Act, 1868, the Society were entitled to recover when an assistant not qualified under that Act sold a poison on behalf of a duly qualified employer. Mr. Justice Hawkins, one of the judges who decided the appeal in the second case referred to, said that the Act was passed to protect the public and that the whole object of it would be "frittered away" if an unqualified assistant were to be allowed to sell poisons under it, not being on each occasion under the personal supervision of his employer, or of a qualified assistant. The case of The Pharmaceutical Society *v.*

White (1901, Q B. 601) had been referred to for the defence. The judge pointed out that it was distinguishable because in that case there was a finding of fact that the defendant was not the seller of the poison within the meaning of the section, but was in the position of canvasser for a company with authority to receive money on their account, and that all that the Court of Appeal held was that there was evidence upon which this finding might be based, so that it could not disturb it. With regard to a point raised under Section 17 of the Pharmacy Act, 1863, his honour was of opinion that the section did not apply. This is the section which prescribes the conditions under which a person qualified to sell poisons under that Act is to conduct the sale of them, and the words sought to be made use of in favour of the defendant were those which state that "for the purposes of this section the person on whose behalf any sale is made by any apprentice or servant shall be deemed to be the seller." Judge Harington referred to a passage in the judgment of Lord Selborne in The Pharmaceutical Society *v.* The London and Provincial Supply Association, in which his lordship said that this, beyond all doubt, naturally implied a special construction for the purpose of the particular section referred to, and not a construction to be extended to sales generally when mentioned in other sections of the Act. In conclusion, the learned county-court judge found for the plaintiffs, the Pharmaceutical Society, for the amount claimed (£5), but on the application of the defendant's counsel granted leave to appeal. A somewhat similar case has just been heard with a like result in the City of London Court.

Looking Back.

FROM

THE LANCET, *SATURDAY*, June 30th, 1832.

ERGOT OF RYE.

Though the ergot of rye, as far as I can learn, has never yet been made use of as a poison, yet there is no argument but it may be applied to that purpose, either intentionally or unintentionally. That it possesses poisonous properties cannot be doubted, when we have once beheld the remarkable effects which a very small quantity of it has in exciting the action of the uterus, as such therefore it is only a mark of prudence if we make every discovery in our power of the various tests and re-agents which it may possess, and thus prepare ourselves for any evil that may occur. The ergot of rye is but of late introduction into practice; consequently it is yet imperfectly known; but we have every reason to suppose, that as it becomes more common, recourse will oftener be had to it as a means of committing suicide. Opiates formerly were never used as poisons, because the world was almost unacquainted with them; but now, when they are known to every one, they are as often used for destroying life as any other drug. Such being the case, is there not every likelihood that the ergot of rye, at some future period, will be taken with the same design, and thus require the means of discovering what it really is before a court of justice? I will now proceed to examine it. Caustic potash has a very singular effect upon the tinct. secal. cornut. The following are the items:—to about half a drachm of water add two or three drops of the tincture of the ergot of rye, then let fall into the mixture three or four drops of caustic potassa, and it instantly assumes the colour of cape wine, lighter or darker, according as there is more or less of the tincture made use of. Apply this, in a test-tube to the flame of a spirit lamp, and after it has boiled for about half a minute or less, nay, sometimes before it has reached the boiling point, reddish woolly flakes, according to the colour of the liquid, not unlike the detonating cyanate of silver, begin to make their appearance, moving about the fluid, and as it cools falling to the bottom. The stronger the mixture, the more flakes are produced; and the deeper the colour, the redder the precipitate. This is a very delicate test, and however lightly the tincture may be diluted, providing enough of the alkali is added, the flakes are very perceptible. But the effects of this test do not entirely rest here. The change which the potash produces on the diluted tincture, in turning it from a nearly colourless liquid to the clear shade of the best cape wine, is not of the least consequence, and though it alters the colour of almost all tinctures more or less, yet none of them are so powerfully affected as this; add to this, heat strikes it still deeper. Nitro-muriate of gold, after standing for some time, throws down a cloudy yellow precipitate from the tinct. secal. cornut.[1]

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

Borough of Leicester.—The Registrar-General estimates the population of this town at 244,255, and this figure has been taken by Dr. C. Killick Millard as the basis of his annual statistical calculations. He thinks, however, that this estimate may be 14,000 above the real figure. The general death-rate has shown a very notable decrease from the quinquennial period 1872–1876, when it was 25·18 per 1000, to 1902–1906, when it was only 14·18. For the last three years the average death-rate was under 13 per 1000, a rate which is one of the very lowest amongst the great towns. The cancer death-rate, as has been the case in so many other places, shows a marked increase, and deaths from this cause now amount to 6 per cent. of the total deaths at all ages. Of the total number of deaths which were caused by cancer, 8 per cent. were at ages under 40, 38 per cent. at ages 40 to 60 years, and 54 per cent. at over 60 years. Infantile mortality shows a hopeful decline, the rate having been 126·6 per 1000 births during 1909. In the quinquennium 1892–1896 the rate was 194·4 and in 1902–1906 158 1. Dr. Millard believes that the milk depôt, the visits of health visitors, and the conversion of pail-closets to water-closets have all aided in bringing about this diminution, and he thinks that the fall in the birth-rate, by rendering infant life more precious, may have also exercised a good effect in this connexion. Observations as regards small-pox in Leicester are always of interest, but there is nothing of note to chronicle for 1909, there having been no deaths from this disease in Leicester during the last five years. In 1909 there were but 660 vaccinations registered. There were 1768 cases of scarlet fever notified in the year under review, but the prevailing type was so mild that the fatality-rate was only 1·3 per cent. Dr. Millard discusses the prevalence of scarlet fever in Leicester in past years; and he arrives at the conclusion that, although the disease has been much more prevalent during the past five years than in the previous quinquennium, if the comparison be carried back for the whole of the 30 years during which notification has been in force in the borough, the disease in relation to the population has been no more prevalent than in earlier years. It is necessary, however, to explain that prior to 1900 a local Notification Act was in force, whereby only the first case occurring in a house had to be notified. Consequently, the figures for the earlier years denote the number of infected *houses*, whereas since that date they included the number of infected *persons*. In order, therefore, to make the later years comparable with the earlier an allowance for "secondary" cases has been made, and on the assumption that these "secondary" bore in earlier years the same ratio to primary cases as they have borne within recent years the conclusion referred to above has been come to. Dr. Millard regards these conclusions as rather disappointing having regard to the great efforts which have been made to check the spread of the disease. It may be added that in 1909 65·9 per cent. of the cases notified were removed to hospital. In the case of diphtheria the percentage of cases isolated at the hospital was 59·3, but in this disease Dr. Millard regards the chief advantage of the hospital as the better treatment which the patients can receive. He does not apparently attach much value to such an institution from the point of view of checking the spread of the disease. In his experience the disease in non-epidemic times is not very infectious and shows but little tendency to spread, and during 1909 a second case occurred in the same house in only 5 per cent. of the cases. With reference to measles, the Leicester practice as regards exclusion from school is as follows. The actual sufferers are not allowed to return to

[1] Excerpt from account of "New Tests for Oxalic Acid, Tartar Emetic, Opium, the Ergot of Rye, &c. By John S. Hiley, Esq., Elland."

school for four weeks, and the children below Standard III. are kept from school until two weeks after the onset of the last case, whilst the children in Standard III. and upwards, provided they have already had the disease, are allowed to continue at school. The voluntary notification of pulmonary tuberculosis has been in force in Leicester since October, 1902, and Dr. Millard is, it seems, satisfied with the results. There are 16 beds available at the isolation hospital where the open-air treatment is carried out. The patients are allowed to remain from one to three months, and in special cases longer. No charge is made for the first month, but after that the usual charge is 10*s.* per week. The immediate results are naturally good; the symptoms diminish or disappear and the patients put on weight. But as regards the permanent results, it is difficult to judge from the selected cases, of which details are alone given. Dr. Millard observes that the disappointing side of sanatorium treatment is the number of cases which rapidly go down-hill on returning to their old environment. Cases are not, however, wanting, he adds, where the improvement gained proves lasting or even permanent, and the patient is able to resume his or her ordinary occupation. But it would nevertheless have been instructive had the after-results been given in full and the cases for each year arranged in the manner recommended in the Local Government Board report. Under the Midwives Act the midwives are inspected at the town-hall, the midwives being offered the choice of alternative days for attendance. The Notification of Births Act, 1907, has not yet been adopted, but the system of voluntary notification of births attended by midwives is working well and during 1909 there were 1990 notifications received. Some interesting figures are given in the report as to the cost per head of maintenance in hospital. Such cost amounts in Leicester to 15*s.* 3*d.* per patient per week, a figure which is only approached by Birmingham and Cardiff at 16*s.* 1*d.* and 16*s.* 4*d.* respectively. At Newcastle-on-Tyne the cost reaches 46*s.* 1*d.*, and at the Fountain Hospital of the Metropolitan Asylums Board 71*s.* 6*d.* The differences are so material that we are led to wonder whether the same items are included in every case. But probably this point has been duly ascertained. The medical officer of health includes in his report a reference to the Leicester municipal golf links, which game is, in his opinion, an ideal one from a health point of view. It is amusing to find this matter coming within the scope of the annual report of a medical officer of health, but we take no exception to it or to the memoranda on the ventilation of places of public worship, which also finds a place in this report. Leicester is one of the 13 centres in the country which has provided a crematorium wherein its ratepayers and, for a higher fee, others may have their bodies speedily resolved into their simple constituents. Last year 19 bodies were cremated in Leicester, and an interesting feature is that this number included four members belonging to the working classes.

The Borough of Ipswich.—This town, which has now a population of 75,000, has for a long time manifested an unenviable notoriety in the matter of enteric fever prevalence, but during recent years such prevalence has evinced a marked decrease. This decline is attributable by Dr. A. M. N. Pringle, the medical officer of health, mainly to the substitution of the water-carriage system of excrement disposal for the conservancy system which has gradually taken place since the year 1894. It appears (*a*) that when there were many privies there was much enteric fever; (*b*) that during the same time there were marked epidemic fluctuations; and (*c*) that when the privies fell in number below 2000 the epidemic fluctuations ceased, and a marked diminution in the number of cases of enteric fever took place. A considerable number of cases were also attributed to cockles collected from the polluted foreshore. A similar fall in enteric fever has also taken place both in Birmingham and Leicester, in both of which towns a rapid process of conversion has been in progress during recent years. In Nottingham, on the other hand, where the conservancy system still largely obtains, the decline in the enteric fever prevalence has been but slight.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 77 of the largest English towns 8110 births and 3633 deaths were registered during the week ending June 25th. The annual rate of mortality in these towns, which had declined in the six preceding weeks from 13·8 to 11·1 per 1000, did not exceed 11·2 in the week under notice. During the first 12 weeks of the current quarter the annual death-rate in these towns averaged only 12·9 per 1000, and in London during the same period it was so low as 12·4. The lowest recorded annual rates of mortality during last week in these 77 towns were 5·1 in Walthamstow, 5·3 in Hornsey, and 5·7 in Burton-on-Trent; the rates in the other of the 77 towns ranged upwards to 16·0 in Liverpool, 16·4 in Wallasey, 17·2 in Ipswich, and 19·0 in Merthyr Tydfil. In London the recorded death-rate last week was so low as 10·5 per 1000. The 3633 deaths registered last week in the 77 towns showed an increase of but 42 upon the low number in the previous week, and included 352 which were referred to the principal epidemic diseases, against numbers declining from 425 to 356 in the four preceding weeks; of these 352 deaths, 134 resulted from whooping-cough, 94 from measles, 69 from diarrhœa, 25 from scarlet fever, 17 from diphtheria, and 13 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·1 per 1000, against 1·2 and 1·1 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Croydon, Willesden, East Ham, Walthamstow, Brighton, or in 16 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·8 per 1000 in Tynemouth, 3·3 in Manchester, 3·7 in West Bromwich, and 5·2 in South Shields. The fatal cases of whooping-cough in the 77 towns, which had declined in the four preceding weeks from 159 to 113, rose again last week to 134, and caused annual rates equal to 1·5 in Manchester and Salford, 2·2 in South Shields, 2·5 in Stockport, and 2·8 in Tynemouth. The 94 fatal cases of measles showed a further decline from the numbers in recent weeks, and were fewer than in any week since the end of March; the highest rates from this disease last week were 1·3 in Merthyr Tydfil, 1·5 in Bootle, 1·6 in Barrow-in-Furness, and 1·7 in South Shields. The deaths attributed to diarrhœa, which had steadily increased in the five preceding weeks from 32 to 75, declined again to 69 last week, but showed a marked excess in West Bromwich. The 25 deaths from scarlet fever showed a slight further increase upon recent weekly numbers, and included 3 both in Manchester and Sheffield and 2 in Norwich. The fatal cases of diphtheria, which had been 26 and 30 in the two preceding weeks, declined to 17 last week, and were fewer than in any previous week of this year. The 13 deaths referred to enteric fever included 5 in Manchester and 2 in Preston. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital further declined last week to 1353, and were fewer than at any time during the last six months; 187 new cases of this disease were admitted to these hospitals during last week, against 203, 181, and 166 in the three preceding weeks. The Metropolitan Asylums small-pox hospitals contained 3 patients on Saturday last. Of the 983 deaths registered in London during last week 131 were referred to pneumonia and other diseases of the respiratory system, and were 18 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 24, or 0·7 per cent., of the deaths registered in the 77 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, Stoke-on-Trent, and in 55 other smaller towns; the 24 uncertified causes of death in the 77 towns last week included 5 in Hull, 4 in Liverpool, 3 in Birmingham, and 2 in Wolverhampton.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 920 births and 434 deaths were registered during the week ending June 25th. The annual rate of mortality in these towns, which had been equal to 14·3, 14·2, and 13·9 per 1000 in the three preceding weeks, further declined to 13·3 in the week under notice. During the first 12 weeks of the current quarter the death-rate in these towns averaged 15·5 per 1000, and exceeded by 2·6 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 10·6 in Greenock and 11·2 in Aberdeen and in Perth, to 13·8 in Leith and 19·9 in Dundee. The 484 deaths from all causes in the eight towns during last

week showed a further decline of 19 from the numbers in recent weeks, and included 61 which were referred to the principal epidemic diseases, against 50, 59, and 42 in the three preceding weeks; of these 61 deaths, 17 resulted from diarrhœa, 12 from measles, 11 from whooping-cough, 9 from scarlet fever, 8 from diphtheria, and 4 from "fever," but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·7 per 1000, against 1·1 in the 77 English towns; the highest rates from these diseases in the Scotch towns last week were 3·3 in Paisley and 3·4 in Dundee. The 17 deaths attributed to diarrhœa in the eight towns exceeded the number in the previous week by 2, and included 9 in Glasgow, 3 in Dundee, and 2 in Paisley. The fatal cases of measles, which had been 20, 13, and 15 in the three preceding weeks, declined to 12 last week, of which 4 occurred both in Glasgow and in Dundee and 3 in Paisley. The 11 deaths from whooping-cough showed, however, an increase upon recent weekly numbers, and included 7 in Glasgow and 3 in Dundee. The 8 deaths referred to diphtheria also showed an increase, and included 6 in Glasgow; and the fatal cases of scarlet fever, which had been but 5 and 2 in the two previous weeks, rose to 9 last week, of which 5 occurred in Glasgow and 3 in Edinburgh. Of the 4 deaths referred to "fever," 2 cases of cerebro-spinal meningitis were returned in Glasgow, and 1 of enteric both in Edinburgh and Paisley. The deaths referred to diseases of the respiratory system in the eight towns, which had been 82, 67, and 56 in the three preceding weeks, rose again to 61 in the week under notice, but were 3 below the number in the corresponding week of last year. The causes of 21, or 4·3 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 539 births and 396 deaths were registered during the week ending June 25th. The mean annual rate of mortality in these towns, which had been equal to 17·8 and 18·9 per 1000 in the two preceding weeks, declined again to 17·9 in the week under notice. During the first 12 weeks of the current quarter the annual death-rate in these Irish towns averaged 20·5 per 1000, whereas the mean rate during the same period did not exceed 12·9 in the 77 largest English towns and 15·5 in the eight principal Scotch towns. The annual death-rate during last week was equal to 15·5 in Dublin, 20·9 in Belfast, 18·5 in Cork, 12·0 in Londonderry, 19·1 in Limerick, and 19·5 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 17·9 per 1000. The 396 deaths from all causes in the 22 town districts last week showed a decline of 22 from the number in the previous week, and included 50 which were referred to the principal epidemic diseases, against 55 and 68 in the two preceding weeks; these 50 deaths in the Irish towns were equal to an annual rate of 2·3 per 1000, while in Belfast it was so high as 5·5; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·1, and in the eight Scotch towns 1·7 per 1000. The 50 deaths from these epidemic diseases in the Irish towns last week included 39 from measles, 4 from diarrhœa, 3 from whooping-cough, 3 from "fever," and one from diphtheria, but not one either from scarlet fever or small-pox. The fatal cases of measles in the 22 towns, which had increased from 33 to 52 in the four preceding weeks, declined again last week to 39, of which 36 occurred in Belfast and 3 in Londonderry. The 4 deaths attributed to diarrhœa included 3 in Belfast and 1 in Dublin; and the three fatal cases of whooping-cough also showed a decline from recent weekly numbers. The three deaths referred to "fever" included one from typhus in Dublin and 1 from enteric both in Belfast and Limerick. The deaths in the 22 towns referred to pneumonia and to other diseases of the respiratory system, which had been 78 and 62 in the two preceding weeks, rose again to 72 last week. The causes of 13, or 3·3 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent., and in the eight principal Scotch towns it was equal to 4·3 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: J. C. Ferguson, to the *Crescent;* H. Clift, to the *Venerable;* C. S. Facey, to the *President*, additional, for temporary service at the Admiralty Recruiting Department. Staff-Surgeons: L. S. Whitwam and C. A. G. Phipps, to the *Pembroke*, additional, for disposal. Surgeons: A. B. Marsh, to the *Vivid*, additional, for disposal; W. Mearns, to the *Redbreast;* and J. McA. Holmes, to the *Actaeon.*

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel George J. Coates, half-pay list, retires on retired pay (June 25th, 1910).

Lieutenant-Colonel M. W. O'Keefe, Senior Medical Officer at Rawal Pindi, has, on promotion, been appointed Inspector of Medical Services at the War Office, and proceeds home to take up the appointment. Colonel M. W. Kerin, at present Officiating Principal Medical Officer of the 8th (Lucknow) Division, will rejoin the Bareilly and Garhwal Brigades as Principal Medical Officer on relief by Surgeon-General J. G. MacNeece from Malta. Lieutenant-Colonel R. Caldwell, Sanitary Officer at Wynberg, has been transferred to Pretoria. Lieutenant-Colonel T. Du B. Whaite, from Canterbury, has been posted to Woolwich. Lieutenant-Colonel H. P. G. Elkington has been appointed to Buttevant. Lieutenant-Colonel R. J. Geddes, D.S.O., has been appointed to officiate as Principal Medical Officer of the Jubbulpore and Jhansi Brigades. Major J. Thomson has been transferred from Pretoria to Harrismith for duty at the Station Hospital. Major H. G. Martin, from Agra, has taken over command of the Station Hospital at Lebong. Major M. MacG. Rattray, from Gravesend, has been appointed to Brighton. Captain J. W. H. Houghton, from Queen Alexandra's Military Hospital, London, has been transferred for duty to the Cambridge Hospital at Aldershot. Captain C. G. Browne has been appointed a Specialist in Dermatology and Venereal Diseases to the 8th (Lucknow) Division. Captain O. W. A. Elsner, on arrival in South Africa from Dublin, has been posted to Pretoria. Captain C. Scaife, from Khandalla, has been transferred to Colaba and appointed Specialist in the Prevention of Disease for the Bombay Brigade. Captain H. C. Hildreth, from Maymyo, has been posted to Dublin District. Captain G. A. Kempthorne, from Lahore, has been appointed to Dalhousie for the summer months. Captain R. J. C. Thompson has been transferred from Pretoria for duty in Egypt. Captain J. P. Lynch, on completion of a tour of service in Burma, has been appointed for duty at the Station Hospital, Ranikhet. Captain P. Dwyer has arrived home on leave from India. Captain M. J. Cromie has received three months' extension of his leave, on medical certificate. Lieutenant G. S. Parkinson, from Belfast, has joined for duty at Athlone. Lieutenant F. B. Dalgliesh, on arrival in India from the Royal Victoria Hospital at Netley, has been posted to Poona. Lieutenant H. V. B. Byatt has been transferred from Poona to Khandalla for duty at the Station Hospital during the summer months.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel F. W. Gee, Staff Officer for Medical Mobilisation Stores, 8th (Lucknow) Division, has been granted one year's extension of the tenure of his appointment. Lieutenant-Colonel A. L. Duke has been appointed Administrative Medical Officer of the North-West Frontier Province, vice Lieutenant-Colonel G. W. P. Dennys, appointed Principal Medical Officer of Aden Brigade. Lieutenant-Colonel H. Greany has arrived home on leave. Major C. E. Williams, Sanitary Commissioner of Burma, has been granted 15 months' leave home. Major S. A. Harris, from the United Provinces, has been appointed to officiate as Sanitary Commissioner, Burma. The services of Major S. Browning-Smith, Chief Medical Officer in Charge of Plague Prevention in the Punjab, have been replaced at the disposal of the Home Department of the Government of India. Major W. D. Hayward has been appointed

to officiate as Medical Storekeeper at Calcutta. Major R. G. Turner, Civil Surgeon at Gonda, has been transferred as Civil Snrgeon of Cawnpore, vice Major W. Young, who has been granted leave from India. Major J. W. Watson, Bombay Presidency, has arrived home on leave. Captain H. W. Pierpoint, Officiating Civil Surgeon at Chanda, has been appointed to the Executive and Medical Charge of the Chanda District Jail. Captain N. S. Simpson has been appointed Officiating Medical Officer in Charge of the First Battalion 9th Gurkha Rifles. Captain W. P. G. Williams has been posted to the Madras Presidency for employment in the Jail Department. Captain A. W. M. Harvey has been appointed Officiating Medical Officer in Charge of the 31st and 32nd Mountain Batteries, Royal Artillery. Captain C. A. Sprawson, Captain E. A. C. Matthews, Captain J. E. Clements, Captain J. A. Cruickshank, and Captain H. D. Peile have arrived home from India on leave.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned to be Lieutenants (on probation):—Claude Johnson (dated May 25th, 1910); John Ronald Rigden Trist (dated May 30th, 1910); and Thomas Alexander Weston (dated May 31st, 1910).

TERRITORIAL FORCE.

Royal Army Medical Corps.

Eastern Mounted Brigade Field Ambulance: Supernumerary Lieutenant Meredith S. Doubble is restored to the establishment (dated March 1st, 1910).

1st Highland Field Ambulance: Major Francis Kelly, from the 2nd Highland Field Ambulance, Royal Army Medical Corps, to be Lieutenant-Colonel (dated May 22nd, 1910).

5th Southern General Hospital: Major Bonner H. Mumby to be Lieutenant-Colonel (dated June 25th, 1910).

For attachment to Units other than Medical Units.—James Taylor Rogers MacGill, to be Lieutenant (dated March 23rd, 1910). Edmund Litchfield Anderson (late Lieutenant, 9th Battalion, The King's (Liverpool Regiment)), to be Captain (dated April 7th, 1910). John Graham to be Lieutenant (dated May 7th, 1910). John Goss to be Lieutenant (dated May 10th, 1910). Surgeon-Major Harry Poole Berry, from the 4th Battalion, The Lincolnshire Regiment, to be Major, with precedence as from Sept. 13th, 1902 (dated June 25th, 1910).

Attached to Units other than Medical Units.—Lieutenant Antony A. Martin to be Captain (dated Oct. 10th, 1909). Captain Herbert S. Oliver to be Major (dated Feb. 24th, 1910). Lieutenant John M. Bowie to be Captain (dated May 1st, 1910). Captain David M. Macdonald resigns his commission (dated June 25th, 1910).

THE BIRTHDAY HONOURS.

The full list of Birthday Honours for the medical profession will be found on page 40 of our current issue. In the Services Inspector-General of Hospitals and Fleets James Porter, C.B., Director-General of the Medical Department of the Royal Navy, has been promoted to a Knight Commandership of the Order of the Bath; and Surgeon-General Arthur Thomas Sloggett, A.M.S., C.M.G., Principal Medical Officer in India, and Surgeon-General Owen Edward Pennefather Lloyd, R.A.M.C., V.C., Principal Medical Officer in South Africa, have been made Companions of the same Order. Surgeon-General Charles Pardey Lukis, Director-General of the Indian Medical Service, has received a Companionship of the Order of the Star of India, and Surgeon-Lieutenant-Colonel Warren Roland Crooke-Lawless, C.I.E. (Coldstream Guards), has been made a Knight. Colonel Roderick Macrae, I.M.S., has received a Companionship of the Order of the Indian Empire; and Captain Robert McCarrison, I.M.S., Agency Surgeon at Gilgit, has received the Gold Medal of the Kaisar-i-Hind. Colonel Andrew Clark, administrative medical officer of the 2nd London Division of the Territorial Force, has been appointed surgeon to the King; and Colonel Joseph Whitfield Blandford, administrative medical officer of the Northumberland Division of the Territorial Force, has been appointed physician to the King.

MEDICAL EDUCATION AND THE ARMY.

In distributing the prizes to the students at St. Thomas's Hospital on June 23rd Sir Alfred Keogh, K.C.B., said that the fact that a student had gained a prize was no indication whatever of how he would do later in life. It only indicated ability and a capacity for work. The London schools were unrivalled anywhere as far as the education of their students in clinical work was concerned, and the provincial schools were also doing splendid work, particularly in the preliminary education for the profession. After leaving his college, however, the Scottish student got abreast, if not ahead, of his English *confrère* in later years. This Sir Alfred Keogh attributed to the Scottish system of preliminary instruction, and in the army the man who had been a Scottish student often succeeded best, not because he was a Scotsman, but because his preliminary scientific training enabled him better to keep abreast of medical progress.

GENERAL ASSEMBLY OF THE ORDER OF ST. JOHN OF JERUSALEM IN ENGLAND.

The annual General Assembly of the Order of the Hospital of St. John of Jerusalem in England was held at St. John's-gate, Clerkenwell, on June 24th, Lord Knutsford, the Chancellor, presiding. The election of the Duke of Connaught to the office of Grand Prior was announced and favourable reports of the continued progress of the Order and its various departments were submitted. A statement was also made showing the coöperation afforded to the War Office scheme for the formation of voluntary aid detachments. During the past few months over 30,000 persons have passed through the classes instituted by the ambulance department, this number being in addition to the general work carried on by the St. John Ambulance Association.

THE BRITISH RED CROSS SOCIETY.

At a meeting recently held at Ottery St. Mary (Devon), under the presidency of Major R. Coleridge, detachments for men and women of the British Red Cross Society were formed, with Mr. F. P. Bartlett, M.R.C.S. Eng., and Mr. A. L. Fielding, L.R.C.P. Edin., L.R.C.S. Edin., as medical officers. The commandant of the men's detachment (Colonel Scholes) stated that this was the first men's detachment formed in Devonshire.

THE TERRITORIAL FORCE ASSOCIATION FOR DEVON.

Earl Fortescue presided at a meeting of the Territorial Force Association for the county of Devon which was held at Exeter on June 15th. It was decided to represent to the War Office that the grant of £25 which was allowed for the office of administrative medical officer for the Wessex division (Surgeon-Colonel J. Raglan Thomas) was quite insufficient, and to recommend that the Government grant should be raised to £100.

The 4th Southern General Hospital (Territorial Force) will carry out their annual training at the Military Hospital, Devonport, from July 9th to 23rd.

Correspondence.

"Audi alteram partem."

A MARINE FLOATING LABORATORY FOR THE STUDY OF TROPICAL MEDICINE.

To the Editor of THE LANCET.

SIR,—I notice in your columns that a proposal is afoot for the establishment of a School of Tropical Medicine in Calcutta. All students of the subject must wish such a scheme every success and hope to see it carried into effect, for the benefit to India would be incalculable, and not to India only, but to all countries waging war with tropical disease. It has occurred to me that at this time I may, possibly with advantage, again press the claims of what I believe would be an even more useful institution. As a direct result of the usefulness of our small floating laboratory on the Nile I wrote as follows in the introduction to the third report of these laboratories:—

> Indeed, I may perhaps be pardoned if I here state my conviction, already recorded elsewhere, that in the teaching of tropical medicine in Great Britain what may be called a marine floating laboratory would be of the utmost service. Every year I am inundated by appeals for material for teaching purposes from England, Scotland, Ireland, the United States, and various parts of the continent. It is noteworthy that amongst the institutions which apply are the two great English Schools of Tropical Medicine at London and Liverpool, and it is evident that even the latter school, despite its

numerous and valuable research expeditions, cannot obtain all it requires for the instruction of its students; hence I believe the difficulty might be solved by the provision of a well-equipped laboratory on board a vessel of from 800 to 1000 tons burthen. Such a ship would be able to visit any portion of the globe, could ascend large navigable rivers, and would be the means of bringing back a store of most valuable material both for museum and teaching purposes. It would be the duty of whoever was placed in charge to conduct abroad the best students in tropical medicine of any year. Participation in such an expedition would be the prize of diligence and ability, and in such a laboratory both tutorial and research work could be conducted during the voyage. Doubtless a certain number of graduates would welcome the opportunity for such a course of study, as opportunities would be afforded for visiting tropical hospitals and laboratories in different countries. If properly approached I believe those in charge of such institutions would be glad to assist in every possible way, and they might be repaid by demonstrations of new technique and interesting specimens. These institutions are often in cities on or near the sea, as, for example, Calcutta, Bombay or Madras, Cairo, Alexandria or Leopoldville, Hong-Kong, Rio de Janeiro, Manila, and so on. It is on the littorals of tropical countries that dengue, yellow fever, and other important diseases occur, and in the event of epidemics the infected places might be speedily visited and perhaps materially aided and benefited, while at all times the collection of specimens bearing on tropical medicine would form a most important duty. Specimens could be brought back in good condition, diseases studied on the spot, and parasites, especially blood parasites, observed in a living state. It will be at once apparent that such a laboratory ship could be utilised for the study of zoology, especially economic entomology, botany, geology, and hygiene, all subjects more or less intimately connected with tropical medicine.

The *Challenger* Expedition is still remembered. This scheme would provide for a kind of perpetual *Challenger*, and would, I think, challenge comparison favourably with any existing method of giving instruction in diseases of the tropics. It seems to me that it is largely a question of money, for difficulties as regards stability at sea, which are important in connexion with microscopic and other delicate work, might possibly be surmounted by the application of the principles of the gyroscope. I commend this idea to the consideration of those responsible for the teaching of tropical medicine to students in temperate climates.

Little or no notice has been taken of the suggestion save by some of the colonial newspapers, an enterprising firm of shipbrokers, and by the late and lamented Professor Cunningham of Edinburgh, who saw at once the great possibilities of such a laboratory and the opportunities it offered for the study of anthropology and comparative anatomy, subjects not so closely allied to tropical medicine as those above cited. That the arguments advanced were sound has again been recently proved.

Dr. C. W. Daniels writes me from London thanking me for specimens of the parasites of quartan malaria, and stating that their stock of slides exhibiting these organisms is well-nigh exhausted. Dr. J. W. Stephens writes me from Liverpool in the same strain as regards *Leishmania donovani*. But I think even more of the clinical opportunities than the pathological. How often does one hear a medical man in the tropics exclaim, "I am sure I don't know. I have never seen a case." Moreover, it is a great matter to observe cases under conditions in which they naturally occur. A case of sleeping sickness in London may give very little idea of the same disease as it occurs in Uganda; a case of blackwater fever in England may differ very considerably from the same dreaded complaint on the West Coast. There is a vast deal in environment, in tropical conditions, a vast deal to note both as regards symptoms and treatment. Think how tropical hygiene might be studied by those fortunate enough to travel in such a vessel. The ordinary medical man at home, however he may read and re-read the excellent manuals on tropical sanitation which now exist, has, I am convinced, but a vague idea of the conditions which obtain in tropical countries and the problems to be faced. The work must be learned practically after the theoretical foundation is laid, but I submit that the student should have this practice, not the man who comes out to take charge and who, without it, will lose time—valuable time which spells human lives. I write with some experience and because I am conscious of mistakes made and opportunities lost solely from lack of experience. That our English Schools of Tropical Medicine have accomplished a great deal I would be the last to deny. They have been a boon to mankind, but if, under the control of the Colonial Office, a marine floating laboratory was affiliated to these schools their usefulness would be increased four, ten, a hundred-fold. Apart from anything else, what a link such a laboratory would be in binding together the Mother country and her colonies in humanitarian bonds, in establishing relations between schools at home and their *alumni* working in the dark places of the earth! The thought is a fascinating one, but it is chilled by the bogey of expense. Still money is found, rightly and readily found, for polar expeditions. Valuable though these may be, can they for a moment compare, as regards benefit to mankind, with repeated expeditions of the kind outlined? Emphatically no. Even in their scientific aspect I do not believe they can serve so useful a function. It is the beginning of a new reign. Is it too much to expect that some of our wealthy philanthropists may mark the occasion by the gift of such an institution? Its value is not to be reckoned in money, but in health and energy and human lives and the spread of knowledge, and the forging of yet another link between Britain and her children. I am, Sir, yours faithfully,

ANDREW BALFOUR.

Wellcome Tropical Research Laboratories, Gordon Memorial College, Khartoum, June 2nd, 1910.

SOME MEDICAL ASPECTS OF PROPOSED POOR-LAW REFORM.

To the Editor of THE LANCET.

SIR,—In a leading article in your last issue under the above heading you say in reference to some remarks of mine which draw a distinction on principle between public services, such as the Sanitary, which are primarily for the good of the community, and only secondarily for that of the individual, and the Poor-law, which are primarily for the good of the individual, that you cannot appreciate the distinction: "The actual attendance of the Poor-law medical practitioner affects the individual precisely as does that of the public vaccinator."

I should have thought that the distinction generally was clear and well defined. On the principle that *Salus republicæ summum jus*, the State may insist on acceptance by the subject of services which are necessary for the public welfare, and rightly does so without regard to the wishes of the individual who may not even be benefited directly by them. It is otherwise where the services are primarily for the good of the individual. Such services may be also for the well-being of the community in a certain sense, but they cannot be made compulsory without tyranny. The burden, too, of the provision must be considered. As the expense of these services has to be met by the forced contributions of *all*, only the provision of those services coming under the former category has an absolute right to be paid at the public cost. The only justification for the provision of the latter services at the public cost is when they are restricted to a certain class who labour under some necessity not shared by the rest of the community, which may be a sufficient reason for allowing it a special privilege—that is, the granting of such services should be subject to a "test."

The distinction seems to me clear in the instance you quote. The district medical officer, acting for the community, offers his services, which may be *legally* declined by the individual. The public vaccinator likewise offers his services, but these may not be *legally* refused—i.e., if refused without good reason the State punishes the recalcitrant individual. Why is there this distinction, if it is not because in the latter case it is the welfare of the State that is imperilled, and in the other only that of the individual? Where so important a principle as *compulsion* intervenes between these two classes of services, I think I may fairly claim that the distinction I draw is a valid one. I am aware that the Minority Commissioners desire to obliterate this distinction and to apply compulsory methods at the present time unlawful. They are logical in this respect, as nearly all sanitary enactments are compulsory, and as they propose to make the Poor-law a department of public sanitation the methods of the latter require to be adopted. When this is done, no doubt, all *practical* distinction will become obliterated.

Again, you say that as, according to the intentions of both the Majority and Minority Commissioners, "there shall be an important increase in the amount of work done by the medical profession as a whole among the working classes, and also that the increase shall be paid for in part or wholly out of public moneys," it can hardly bring about disaster to the medical profession. Is this sound reasoning? It appears to me that, even granting all the above, the last state of the profession *might* be worse than the present. Let it be granted there is a considerable increase of medical work among the working classes, and that a considerable amount is paid for out of public moneys, I see no reason for admitting

that the aggregate of all professional receipts from the working-classes under these conditions, together with all the public moneys, must necessarily exceed that now received by the medical profession from the working classes. There are many factors to be considered in such a problem. The extra work found for the profession is intended to destroy much of their present work, for its professed object is to *prevent* disease. If it did not succeed in this it might none the less disorganise a good deal of work that at the present time is fairly remunerative. The multiplication of medical officials under the Minority recommendations, or the enormous increase of contract work under those of the Majority Commissioners, would certainly not make private practice more profitable. It might not unlikely result in levelling down all medical practitioners to, say, a modest income of £200 per annum. There may be some who would not consider such a result disastrous for the profession, but I am not one of them. No doubt there is a class of private practitioners, who would be practically independent of all such changes, whose incomes would not be appreciably affected thereby. There need be no disaster for them, but this class is unfortunately very small when compared with the bulk of the medical practitioners of the country.

I am, Sir, yours faithfully,

MAJOR GREENWOOD.

Hackney-road, N.E., June 25th, 1910.

IS APPENDICITIS CONTAGIOUS?

To the Editor of THE LANCET.

SIR,—I have been interested in reading Dr. Donald Hood's letter in THE LANCET of June 11th in which he asks the question, "Is appendicitis contagious?" I am inclined to answer this question by stating that appendicitis is not of itself contagious, but that the condition of mucous colitis which is so often associated with it, and so frequently overlooked, may be more or less infectious, and in my opinion it is this disease which has led to the large number of cases of appendicitis in the Farnham district which have been commented upon by the medical officer of health. Nearly two years ago I pointed out the relationship of mucous colitis to appendicitis and pericolitis,[1] and subsequent experience of a considerable number of cases of colitis has given me stronger evidence of the close association of the two conditions. Our knowledge of the surgery of the appendix has become very complete, yet the condition of mucous colitis which may lead up to appendicitis is not sufficiently understood and recognised by the majority of practitioners and some operating surgeons. I make this statement in no egotistical spirit, and with no feeling of disrespect, for little has been written or taught about the subject, and it is new to many, as it was to me a few years ago. Nowhere in Europe, excepting Plombières and Chatel Guyon, is there gathered together such a number of cases of colitis for treatment as at Harrogate, and the fact of these coming from all parts of the world is proof that this disease is very widespread, and gradually becoming better recognised. I have not infrequently heard it said by medical men and patients that everyone passes mucus, which is quite true, but mucus, when normally secreted, should be invisibly mixed with the fæces, but when it is seen in any quantity, except after some strong purgative, it is abnormal, and usually constitutes the condition of mucous colitis. I embrace in the term "mucous colitis" that morbid condition of the mucous membrane of the colon in which the predominating feature is the passing of mucus in the stools, most frequently the result of catarrhal inflammation. Inasmuch as the mucus is seen sometimes in viscid masses or ropy strings, and at other times quite membranous and occasionally as casts of the bowel, some have given the name of "membranous colitis" to the latter condition, but the membranous is merely an extension of the mucous form of colitis.

Any source of irritation may bring about colitis, and undoubtedly irritating articles of food assist considerably, and a doctor who traces his colitis to a dust storm in Egypt suggests dust irritation as a cause. It may be in some cases a contributory factor, for we know how dust affects the conjunctiva of the eyes of the motorist, but in by far the largest number of cases constipation is a prominent feature, and is probably the exciting cause. A localised or general catarrhal inflammation may be set up affecting the cæcum or the whole colon and the appendix may become involved by extension of the inflammation. At the present time I have several cases of mucous colitis under treatment which have been operated upon for appendicitis. They all give a history of having suffered with constipation and of having passed mucus before the appendicular attack, and in all probability if the colitis had been successfully treated no appendicitis would have occurred. Sir Frederick Treves, whose name will be always associated with the appendix, fully realised that colitis was the chief cause of failure to relieve symptoms when removal of the appendix was unsuccessful. At the present time I have a lady operated upon by him 11 years ago for appendicitis who states that she had been constipated and passing mucus ten years before the operation, and she has been suffering the same symptoms ever since. In her case the appendix was diseased, but the colitis unrelieved.

Mucous colitis is no new disease, but seems to be more prevalent than formerly. It seems to run in families and is frequently associated with some gastric disorder and, as in the case of gastric disturbances which I have shown before in these columns,[2] it is usually those of a nervous temperament who are affected, and in both conditions external temperature is a contributory factor in their development. I have reason to think that soil has some influence, for there is an association between the two conditions asthma and colitis, and I have two cases at the present time who suffer with asthma and are better on a gravel soil. It attacks the young as well as the old, and at a meeting of the Medical Society of London some time ago Dr. F. J. Poynton quoted three cases of young children, aged respectively 18 months, 2 years, and 2½ years, who had been operated upon for appendicitis following colitis. The symptoms of colitis may simulate very closely those of appendicitis, and cases are operated upon in which the appendix is found afterwards to be normal, and in my opinion it is safer removed, although it may not have shown any acute morbid changes.

But it is, however, the family doctor, more than the consultant, who can throw light upon the history and prevalence of the disease, and a practitioner who consulted me last December concerning the treatment of his own colitis made the following interesting statement of his experience. He practises in a small seaside town, which, for obvious reasons, shall be nameless, and he tells me that a large proportion of his patients pass mucus with the stools. I have recently communicated with him, and he writes: "I believe there is something in the locality or atmosphere which makes it so common here, but yet, on the other hand, I believe it is common elsewhere but overlooked. I had it myself, and that is why I am probably up against it more than I should otherwise have been, for until I noticed my own case the trouble here had not been noticed by me. I find that men, women, and children—even babies—suffer from this trouble. I believe that it is often overlooked, and that if the other doctors here and elsewhere looked for it they would find it extremely common. This statement I make from the large number of cases I get of people from London and elsewhere who send for something else, and upon inquiry as to the bowel condition I find an enormous percentage have suffered, and are suffering, from mucous colitis. My own small son has just returned from the Midlands with a very bad attack; he has repeatedly had them here, and many children I attend suffer in the same way. I am certain that it runs in families, and not only in families but in members of the same household and community, pointing rather to some infection. My wife, myself, and my young son have all suffered from it. I find it much more common after winds and cold damp weather, the winds preceding attacks being East, N.E., and S.W., which latter are very cold here. The neurotic theory I cannot accept, for just now I have our butcher (one of the finest specimens one could meet in any country, and otherwise as sound as a bell) laid up with a bad attack, and I get policemen, soldiers, postmen, railwaymen, &c., all the same, and there is not much kudos to be got by the navvy, railway porter, or soldier out of nerves." In acknowledging this communication I inquired if there was much appendicitis in this particular district, and the reply I received was as follows: "No; these cases don't have true appendicitis,

[1] Brit. Med. Jour., July 11th, 1908.

[2] THE LANCET, April 14th, 1906, The Influence of the Nervous System and External Temperature upon Certain Circulatory Changes Concerned in the Etiology of Catarrh, Ulcer, and Simple Dilatation of the Stomach.

though I am well aware that the appendix is removed on the supposition that this is the cause of the pain and symptoms, and the other condition of mucous colitis is either overlooked or counted secondary to it. I, myself, have removed years ago several appendices which were to all naked-eye appearances normal, and then we wondered afterwards where the symptoms typical of appendicitis arose. Now, I am convinced they are simulated by this condition—catarrh of the colon—and a great many cases are primarily colon catarrh with spread of the mucus into the appendix."

The experience of another practitioner whom I know as having carefully watched cases of colitis, is very interesting. He practises in the Farnham district which, as stated by the medical officer of health, has an alarming increase in the number of cases of appendicitis. He tells me that colitis is fairly common in his practice, and gives a striking example of its association with appendicitis as shown in the following cases which were under his care:—

E. C., aged 12 years, who had suffered from colitis for several months, had an attack of appendicitis which lasted five days, then resolved. Six months later another attack of appendicitis, very acute; operation by Mr. Edmund Owen 48 hours after first symptoms showed themselves; gangrenous appendix; died 24 hours after operation.

H. C., aged 10 years, suffered from colitis, had an attack of appendicitis; operation within 18 hours of initial symptoms by Mr. Edmund Owen. Large swollen appendix containing small stercolith was removed; uninterrupted recovery.

S. C., aged 8 years, suffers from colitis. These are the only three children of a mother who suffers from colitis.

My own experience of colitis being possibly infectious is limited, but in the discussion on colitis at the Medical Society last March I stated I believed that there was some evidence that it was so. I have at the present time in two instances both husband and wife under treatment, one of the two husbands having been operated on for appendicitis. Not long ago I received a letter from the doctor of a patient, who was here for colitis and whose appendix had been removed, telling me the aunt of the patient had developed the disease, and asking if it was infectious. The two lived together alone. Three attendants who give the intestinal douches at the Royal Baths have suffered with colitis insomuch that I have insisted upon formalin being added to the ejecta before their examination takes place. It is more than probable the bacillus coli is the active organism in bringing about the disease in certain circumstances of the individual. That treatment by high irrigation is most successful there can be no doubt, and I would strongly suggest that this should be done at home if a visit to a health resort cannot be accomplished. This, however, without every effort to overcome constipation afterwards will not avail for long, and the diet must be free of everything which may irritate the sensitive mucous membrane. In conclusion, my impression is that if chronic constipation and its attendant colitis were better recognised and treated we should hear less of appendicitis, but I entirely agree in urging the question of pure food as a preventive measure.—I am, Sir, yours faithfully,

ALFRED MANTLE, M.D. Durh., M.R.C.P. Lond.,
Consulting Physician to the Royal Halifax
Harrogate, June 18th, 1910. Infirmary.

To the Editor of THE LANCET.

SIR,—I notice with great interest Dr. Donald Hood's thesis in THE LANCET of June 11th last, stating that in his opinion appendicitis is contagious. Dr. Hood does not state whether he refers to the simple, specific, or the malignant variety.

Perhaps one may be permitted briefly to refer to some of the many points connected with appendicitis which tend to prove the contagious theory of this disease untenable, at all events at present. 1. No single case of appendicitis has yet been shown to be directly attributable to contagion. 2. No pathogenic micro-organism has yet been demonstrated capable of reproducing appendicitis. 3. In appendicitis there is sufficient evidence present to account for the disease, whatever the degree or variety; amongst the commoner causes being concretions, foreign bodies, kinks, herniæ, volvuli, intussusception, injury, extension of inflammation, worms, parasites, &c.

The occasional apparently endemic or epidemic nature of appendicitis appears to me to be due to one or more of the following causes: (*a*) The strenuous life with its sequelæ, including most varieties of indigestion and bowel irregularity; (*b*) predisposition, both hereditary and acquired; (*c*) disregard of the rules of dietetics and hygiene in persons predisposed to the disease; (*d*) disregard of the early warning physical signs and symptoms cardinal to appendicitis; (*e*) muscular exercises at all ages when the appendix region is the seat of early inflammation; (*f*) appendicitis is more frequently diagnosed (both as to the degrees and varieties of this highly protean disease) than formerly.

I am, Sir, yours faithfully,
London, W., June 18th, 1910. F. G. LLOYD.

ALCOHOLISM AND OFFSPRING.

To the Editor of THE LANCET.

SIR,—As there appears to be some misapprehension on the subject, may I point out that in the recent investigations of Miss Elderton and Professor Karl Pearson the alcoholism referred to as existing in the parents is evidently not the chronic intoxication which has been commonly supposed to be a cause of filial degeneracy? In Miss Elderton's memoir, when the parents are described as alcoholic it merely means that in the opinion of the social workers "they are drinking more than is good for themselves or their homes." That this is not quite the same thing as suffering from chronic poisoning is shown by the fact that in one of the two series of statistics used in the memoir—a report by the Charity Organisation Society on an elementary school in Edinburgh, specially selected for its "widely representative character"—over 64 per cent. of the boys are said to have alcoholic fathers and over 34 per cent. alcoholic mothers. Even in the wildest excesses of the teetotal imagination it has hardly been asserted that alcoholism is prevalent anywhere on the scale suggested by these figures. It may be further noted that in Miss Elderton's memoir no reference is made to the very important question whether the parents' "alcoholism" existed prior to the birth of the children. An inquiry working on data of this sort, however interesting it may be in other respects, does not seem to be quite accurately described as a study of the influence of parental alcoholism. I am, Sir, yours faithfully,

June 25th, 1910. W. C. SULLIVAN.

OVARIAN DERMOIDS AND THE RESULTS OF THEIR RUPTURE.

To the Editor of THE LANCET.

SIR,—In an annotation in THE LANCET of June 25th, under the above heading, you state that "the after-histories of cases in which cysts have ruptured into the peritoneum are always interesting." I hope, therefore, that the notes of the following case will prove so.

On April 2nd, 1909, I saw, with Dr. L. K. Harrison of Leicester, an unmarried girl, aged 24 years, who nine hours previously had a sudden attack of acute pain in the abdomen with vomiting. The pain gradually got worse and the patient developed signs of acute general peritonitis. There was nothing in the anamnesis of any value in making a diagnosis. The abdomen was very rigid and tender; liver dulness was present. The lower abdomen was opened in the median line, when the peritoneal cavity was found full of caseous lumps floating in slimy, grumous, slightly blood-stained liquid containing hair and some bony fragments, which had evidently come from a large multilocular ovarian dermoid on the left side which had ruptured. This was removed with the left tube and the abdominal cavity was wiped out and irrigated. The right ovary was slightly enlarged but was not interfered with. The abdominal wall was completely closed in layers. Recovery was rapid and complete, the wound healing by first intention. I saw her again with Dr. Harrison on Sept. 6th, 1909; she had been quite well since the operation until the last few days, when she noticed slight difficulty and pain with micturition, and two days previously she had acute pain in the lower abdomen and back. The abdomen was rigid and tender and a small elastic nodule was felt at the bottom of the scar, another just to the left of the scar, and a larger indefinite mass beneath the middle of the left rectus muscle. Per vaginam, a hard, tender mass was felt in

Douglas's pouch. The girl was in great pain, the temperature being 101° F. and the pulse 110. Under ether the old scar was excised and the nodule was found to consist of soft vascular growth which extended into the abdominal cavity so much and was so vascular that nothing further was done, the wound being closed. After this the patient went rapidly "down hill" and died on Nov. 2nd.

A piece of the growth was sent to the Clinical Research Association, who reported: "This growth must be malignant, but its exact nature is rather doubtful. The outstanding characters of it are those of an embryoma, such as would arise in the ovary and produce secondary growths. It is composed of masses of cells in a delicate stroma, with gland-like spaces here and there dilated by solid ingrowths. There are no epithelial 'pearls' and the structure does not resemble an ordinary carcinoma or sarcoma."

I am, Sir, yours faithfully,

Leicester, June 26th, 1910. F. BOLTON CARTER.

THE ADMINISTRATION OF ANÆSTHETICS AND THE V-SHAPED UPPER JAW.

To the Editor of THE LANCET.

SIR,—I would suggest that all anæsthetists before administering an anæsthetic should examine the mouth of their patients, not for the presence of false teeth, but in order to see whether the upper jaw is properly formed, as in all cases of V-shaped upper jaw and arrangement of teeth there is certain to be trouble with the breathing when the early stages of insensibility are reached. In the worst cases, which are not infrequent, the administration of the anæsthetic has to be stopped and the mouth opened with a mason's gag to get the tongue forward. This, hurriedly done, and with some force, is apt permanently to loosen some of the side teeth. Were a well-made broad prop used in these cases to keep the mouth open, and carefully placed between teeth able to bear the pressure, the tongue could be easily got at, and the anæsthetist, forewarned, would no doubt adopt other measures of a precautionary nature during the administration, about which he is much better informed than, Yours truly,

JOHN FAIRBANK,
Consulting Dental Surgeon, Charing Cross Hospital.

George-street, Hanover-square, W., June 18th, 1910.

THE SANATORIUM TREATMENT OF PHTHISIS.

To the Editor of THE LANCET.

SIR,—Four years ago you published a letter from me on the above subject drawing attention to the extravagant waste of money on the erection of permanent buildings for the treatment of consumption. I then ventured to suggest that if the advanced cases were properly isolated and cared for we would, in another 25 years, hear very little of this fell disease. It appears to me that it would be as logical to say that mild cases of scarlet fever, typhoid fever, and diphtheria should be removed to isolation hospitals, but all severe cases of these diseases must be treated at home, as it is for us to continue our present attitude in the treatment of phthisis. Firstly, only "suitable cases" are admitted into our sanatoria. By "suitable cases" are, I understand, implied such cases as show the early stages of phthisis, and if I may be allowed to extend this interpretation, such cases as would with proper care and treatment almost certainly get well at home. All these cases are of low infectivity. Secondly, all "advanced cases" are rejected. "Advanced cases" are, I suppose, those who have cavity formation, free expectoration, and are of poor vitality—in fact, all the cases of high infectivity. We therefore have the position clearly defined for us—namely, that all cases of mild phthisis, with good chances of recovery, may be admitted into a sanatorium; but all cases with advanced disease—those, in other words, who are the greatest danger to the community—must remain at home and continue to spread the infection.

A remote member of the profession such as I am should not, perhaps, have expected that any notice would be taken of my former letter, but when a giant like Sir James Barr voices a similar expression of opinion, as he did at the Tuberculosis Exhibition held in Liverpool last week, then I am encouraged to return to the attack. Sir James Barr said: "There was no necessity for any more public sanatoria. The results had not been at all commensurate with the expense. But what was really wanted were homes for the dying where advanced cases could be well cared for and kept from infecting others." I welcome this statement and cordially agree with every word of it, and I would even go further and say that I am convinced that were such a system adopted many of the, at present, rejected cases might recover and become useful citizens instead of being sent home to die and infect others.

I have no desire to belittle any good that may have been accomplished by present-day sanatoria, but I have good reason to believe that many cases have been admitted into these institutions and have soon returned home as "cured of phthisis" when there was reasonable doubt that any tuberculosis existed at all. This is a great question and shonld be discussed. I hope I shall not again find myself in a lone furrow, bnt even if I do I will again venture to trespass on your columns.—I am, Sir, yours faithfully,

BOUVERIE F. P. MCDONALD, M.D. Edin.

New Brighton, Cheshire, June 20th, 1910.

MEASLES AND THE POST-OFFICE AUTHORITIES.

To the Editor of THE LANCET.

SIR,—Your correspondent Dr. S. R. Collier is most nndoubtedly wrong in saying that actual contact is necessary for the spread of *infectious* disease as distinguished from contagious disease. With a professional experience of over 50, and as a medical officer of health for over 30 years, I can recall many instances of scarlet fever and measles having been introduced into a house by a person coming from an infected one and not having the disease. Small-pox is notoriously conveyed by the air alone. Medical men do not introduce infectious disease into their own or other peoples' houses owing very much to the fact that, as a rule, they are only a short time with the patient, and their clothes, &c., do not become impregnated; but I remember a painful case in which a doctor had two patients living only a short distance apart, one a case of confinement, the other scarlet fever, and one morning he visited both cases, and unfortunately the scarlet fever first, the result being that the lady died from puerperal septicæmia. Many years ago I had measles introduced into my own house by an old nurse coming from an infected house. This is not very likely to occur now, but before the days of local boards and district councils it was not so very uncommon. But I repeat most emphatically that actual contact is *not* necessary for the spread of infectious disease, especially small-pox, scarlet fever, measles, and diphtheria.

I am, Sir, yours faithfully,

WILLIAM G GROVES,
Woodford Green, June 22nd, 1910. Medical Officer of Health.

To the Editor of THE LANCET.

SIR,—In his letter under the above heading Dr. Nash observes that it is quite a common practice nowadays to permit children over seven years of age who have previously had measles to attend school even if living in an infected house. May I suggest that this common practice, which apparently has the sanction of the educational authorities, is one which may not infrequently be responsible for the spreading of infection? For, apart from the fact that it is by no means uncommon for children to have a second attack of measles, there is the fact that in the poorer and more crowded districts of large towns, where epidemics of measles are rife and the mortality most high, the two forms of measles—viz., morbilli and rubella—are synonymous terms to the minds of the parents of these children, and it appears to me a highly dangerous practice to allow children of an infected family who on the mere statement of parents, as ascertained by the school teacher or inspector, have had *some* form of measles, to attend school and so become a focus for the spreading of infection.

I am, Sir, yours faithfully,

June 28th, 1910. ROBERT A. FRYER.

A UNIQUE OBSTETRICAL EVENT.

To the Editor of THE LANCET.

SIR,—The interesting paragraph in the Vienna letter in THE LANCET of June 11th headed "A Unique Obstetrical Event" reminds me of Dr. Whaley's case,[1] although this was a case of a monocephalic iliadelphic monster and not a case of twin-sisters. A woman, with one head and one body, was double from the waist downwards; she had two navels, two external genital organs, and four legs; she could walk on the two external legs only, the two internal ones being too small and too short. She married and became pregnant in her left side. Owing to some dangerous symptoms, and fearing the pelvis would be too contracted, Dr. Whaley had a consultation with Dr. Haden and Dr. Aldridge. They decided to induce premature labour at three and a half months. The patient recovered perfectly.

I am, Sir, yours faithfully,

Geneva, June 15th, 1910. A. CORDES, M.D. Paris.

INTENSE PIRQUET'S REACTION WITH ULCERATION CURED BY HORSE SERUM.

To the Editor of THE LANCET.

SIR,—This case became available just too late to be added to my paper which you published in THE LANCET of June 25th on the treatment of ulcers by horse serum. It illustrates not only the arrest of auto-cytolysis by the antitryptic power of normal horse serum, but also a complication of Pirquet's reaction of which I have seen no record.

The patient was a well-nourished child, aged 2½ years, who for four weeks had had slight fever and a doughy abdomen, probably due to tuberculous peritonitis. The cuti-reaction was tested with undiluted old tuberculin, as my honse physician, Miss S. E Buyers, who has had considerable experience of this test, found that negative results were unduly frequent with the 25 per cent. dilution. The response was very violent, though with no indication of septic invasion. In a week an ulcer was visible which on the fourteenth day had raised edges and a diameter of 18 mm. The base was polished and showed no sign of granulation or attempt at healing. It seemed, in fact, a sluggish, spreading cytolytic ulcer of the forearm of unusual type. On the sixteenth day horse serum was applied locally on gauze. On the eighteenth day granulations were visible, and on the twenty-first day there was an ingrowth of healthy skin from the edges, and healing became well established.

Incidentally I may add that we have tried the Moro's tuberculin ointment test somewhat extensively in the Children's Hospital here and have abandoned it owing to the rarity of positive reactions as controlled by Pirquet's test.

I am, Sir, yours faithfully,

Hull, June 25th, 1910. FRANK C. EVE.

ATROPINE IN THE TREATMENT OF TETANUS.—We published an annotation on this subject in THE LANCET of May 21st, 1910, p. 1430. We said we had received a letter giving an account of two cases of tetanus from Dr. R. F. Secoresto of Barbados. We should have said "from Dr. R. F. Licorish, of Barbados." Our correspondent's signature was not at all legible, and the local list in the Medical Directory gave no clue. We much regret the error, but are relieved to learn from Dr. Licorish's humorous letter of expostulation that we are by no means the only persons who, failing to decipher his signature, "have played havoc with the name again and again."

[1] American Journal of Obstetrics, 1888, p. 1265.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.—A Vacation Course will be held in connexion with this College from Sept. 12th to 23rd inclusive. The course will include demonstrations on recent clinical methods, demonstrations of groups of selected clinical cases, clinical lectures and lantern demonstrations, and clinical consultations. The inclusive fee will be 2 guineas. Full particulars may be had from the Dean at the Prince of Wales's General Hospital, N.

THE HOUSING PROBLEM AT LIVERPOOL.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Liverpool, June, 1910.

LIVERPOOL, as already explained,[1] has laid out broad thoroughfares and planned residential quarters in the midst of uninhabited fields, and this was done long before the Town Planning Act was promulgated. Such promptitude was the result of a reaction against the abominable state of things which had been allowed to grow up in the city without any check or interference. With the development of the cotton manufactories in Lancashire, Liverpool, as the port where the cotton from America was landed, grew in importance. The need for cheap manual labour in the docks increased in due proportion, and then narrow streets with courts and alleys, cellar dwellings, and back-to-back houses were built as near as possible to the water's edge for the use of all these poorly paid casual labourers and dockers. To this must be added the fact that some 80,000 Irish who fled from the potato famine in 1845 landed and settled in Liverpool *en bloc*, accounting for a very large Irish colony which still remains in the city. Of course, when they arrived, penniless and starving, from their famine-stricken country, they had to accept the worst paid work, and indeed they did not possess the technical knowledge necessary to earn anything above starvation wages. All this contributed to create the slums for which Liverpool became unfortunately celebrated. These were the classic haunts of typhus fever; the home of drunkenness, immorality, and crime; and the cause of an appallingly high death-rate. Every backyard in the districts inhabited by the labouring class was built upon, as well as every green space. Nothing was done practically to control these building operations. In 1846, the year following the Irish invasion, a law was enacted with the following title: "An Act for the Promotion of the Health of the Inhabitants of the Borough of Liverpool, and the Better Regulation of Buildings in the Said Borough." Beyond the closing of a few cellar dwellings the Act effected very little real improvement, and the same may be said of a similar Act passed four years earlier. The first measure of genuine use was passed in 1854, under which it became an illegal act to construct any more houses of the worst type. But the speculators in slum property had foreseen this legislation and had erected thousands of the vilest court dwellings just a year or two before such structures were pronounced to be illegal. In the first instance nothing could be done by which existing insanitary property might be removed; the new legislation only sought to prevent the increase of existing evils. Ten years had to elapse before an effective law dealing with the past could be added to that which dealt with the future. This is a strange commentary on the legislation of a practical people. Here were slums with a death-rate of 60 per 1000 per annum. They were veritable hot-beds of zymotic disease, especially of typhus fever. These slums constituted centres of physical and moral contamination for all, and not only for the numerous seafaring population attracted to the port. Yet, instead of at once taking in hand the existing mischief, the law was directed only against evils which might possibly come into being at some future day. We are only told by the law of 1854 that in future labourers' dwellings must be built on a better plan.

How the Slums were First Attacked.

After this pronouncement ten years elapse, each with its swollen death-rate due to the typhus-stricken slums, and at last a law is enacted which does deal, not with grievances that may arise, but with the monstrous conditions actually prevailing. The Liverpool Sanitary Amendment Act of 1864 gave the corporation of Liverpool extensive powers for the acquisition of insanitary property, and was a very advanced piece of legislation, at least for those days. Much of the re-housing of Liverpool has been carried out under this Act, and it has proved a most useful measure. The means of procedure established by this law were as follows. The Act specifies certain sort of houses which the medical officer of health, if he thought proper, might condemn as unfit for human habitation. In that case what is called a "presentment" was made to the grand jury at quarter

[1] THE LANCET, June 18th, 1910, p. 1718.

sessions. The owner of the property was summoned to make what defence he could, but if, in spite of this, the grand jury agreed that the houses were not fit for habitation, the town council was empowered to pull them down and to purchase the land if the owner was willing to sell. Fortunately, in practice the owner in almost every case was willing to sell his land, and when this was purchased by the town council care was taken that only suitable cottages were built on the site where the old slums stood. Nevertheless, the re-housing was not successfully managed at first. Private speculators undertook to build upon the cleared land, but the rents charged in the new dwellings thus erected were much higher than those paid for the old houses. Consequently the old tenants could not return but went to further overcrowd such slum tenements as had not yet been demolished. This extra overcrowding was possible as the insanitary property was only pulled down gradually. In 1864 there were 22,000 houses that could be condemned as unfit for human habitation, and by the year 1883 only 7000 of them had actually been so condemned and demolished. But there had been other influences at work besides the legal action of the corporation. Railways, industrial enterprises, owners of warehouses and offices for various businesses were bidding for some of the land where the insanitary houses stood, and the owners of the latter found it more profitable to sell out. Some 40 per cent. of the unhealthy buildings which the local authority should have caused to be condemned under the Act of 1864 were sold to railway companies and business firms. The new owners pulled down the slum dwellings and replaced them by business premises. But as it was not their duty to re-house the dispossessed inhabitants the overcrowding of such poor tenement dwellings as still remained available became even more intense.

The Slow Process of Reconstruction.

The local Act of 1864 possessed one serious defect which interfered especially with plans for rebuilding. It only dealt with absolutely insanitary houses, and not with an area. Thus there might be in a street or area a few houses which, not being unfit for habitation, could not be condemned or dealt with in any way. These few houses might be so placed as to prevent the widening of some thoroughfare and the laying out advantageously of the cleared area. This difficulty, however, ended with the adoption of the Housing of the Working Classes Act of 1890, which authorises the compulsory clearing of a whole area even when the buildings are not all insanitary. In 1902 a house-to-house inspection was made and it was then found that 9943 houses still remained that could be condemned under the old local Act, and this though the corporation had dealt with about 8000 such houses and some 4000 more had been purchased to provide sites for business premises. Some years later application was made to the Local Government Board for a loan so as to effect further demolitions, but the Board inquired whether the tenants who had been turned out of the condemned dwellings were provided with other homes. Though the Local Government Board only required that such accommodation should be provided for 50 per cent. of the disturbed tenants, it was found, as the result of an inquiry made in 1899, that 3056 persons had not been able to secure tenements. Therefore the Local Government Board made it a condition before sanctioning any further loan that provision should be made for these dispossessed tenants. Thus, but only gradually and at a comparatively recent date, has the policy of re-housing become an integral part of the policy of dealing with insanitary areas. The first result of pulling down unhealthy houses was to make matters worse by increasing the overcrowding of the houses that remained. Then the builder would not, and did not, rebuild on the sites rendered vacant the sort of dwellings to which the old inhabitants could return. Yet the corporation itself during the first 21 years since the passing of the Act of 1864 only built one estate. This is known as the St. Martin's Cottages. They contain 124 tenements and were opened in 1869. The second municipal building, the Victoria-square Dwellings, were not opened till December, 1885, and they contain 270 tenements. The rents vary from 1*s.* 9*d.* per week for one-roomed tenements to from 4*s.* 9*d.* to 5*s.* 6*d.* for three-roomed tenements. The process of building municipal tenement houses began, it will be seen, very slowly. It may be said that it took 20 years to get fairly under way, but now it is going forward without let or hindrance and no one challenges its wisdom. Indeed, it is not a question of choice. No one will undertake the work, so it must be left undone or the corporation must do it. The last published figures as to the accommodation provided by the corporation are dated Dec. 31st, 1908. There were then 15 blocks or estates, which comprised in all 193 one-room tenements, 1017 two-room tenements, 779 three-room tenements, 178 four-room tenements, in all 2170 separate tenements. Of these, and at the above date, 2092 were occupied. There were 5295 rooms, 5020 rooms being inhabited by 7782 persons, which gives an average of 1·55 per room. There were also 20 shops. If every inch of available room in these tenements was occupied it is calculated that they could hold 10,590 persons, but there is always a small number of tenements unoccupied; and, fortunately, the tenants do not always crowd their habitations to the utmost allowed.

Rents and Poverty.

In all such enterprises a municipality is faced by a dilemma. Either a good class of tenants is accepted at competition rentals, and then the income will suffice to gradually refund the capital expenditure and yield a profit, or else the best tenants will be systematically excluded and their offers of higher rent rejected. The latter is the only course possible if public health is the object in view. When a slum is pulled down its dispossessed inhabitants have to be re-housed, and this cannot be done on commercial lines. The corporation of Liverpool has fully realised this fact and repudiates all idea of housing slum dwellers at a profit. The 5 per cent. philanthropists had already made the attempt and signally failed. They have abandoned the field, and local private enterprise will not touch the situation—for they understand. The bulk of the men with whom the corporation of Liverpool has to deal, when attempting to solve the housing problem, are labourers, generally dock labourers. There is a floating population of some 20,000 to 30,000 dock labourers at Liverpool and the docks provide work for 15,000 to 18,000. It is true that the historic dockers' strike won for them the "dockers' tanner"; and if they could get five or six days' work a week they would be fairly well off, but two days' work a week is the more general average. The docker will earn 10*s.* in two days, and be searching and waiting in vain for work during the remainder of his time. A single man earning an average of 10*s.* a week cannot do more than take a one-room tenement and pay 1*s.* 9*d.* rent per week. If he is married then his wife must work, and she will have to work the whole of the week for 8*s.* to 10*s.*; thus the joint earnings produce scarcely £1 on which, perhaps, to rear a family. And £1 a week is comparative affluence for this class. According to the opinion of some of the Poor-law guardians there are several thousand families in Liverpool who subsist on 10*s.* a week. 15*s.* to £1 is the exception rather than the rule among the labouring classes and poorer sections of the working class. Such poverty tends to the creation of slums and it is useless to expect anything but the very lowest rents from these ill-paid workers. Thus the weekly rent of the municipal tenements has been fixed at 1*s.* 9*d.* for one room to 5*s.* 6*d.* for the largest tenement provided. But any number of well-paid skilled artisans and some shop assistants or clerks would be glad to pay a higher rent than this for the accommodation provided. All such applicants are and must be systematically refused.

Re-housing the Slum Dwellers.

To be accepted as a tenant of the municipal dwellings it is necessary to show that the applicant inhabited a house that was demolished by the sanitary authority, or had been proceeded against in consequence of living in insanitary conditions, or had been turned out of a cellar dwelling. These conditions qualify for admittance; after that the tenant must pay the rent and so far keep sober as not to create any disturbance. So great are the advantages of being a municipal tenant that several persons have deliberately overcrowded their homes or elected to reside in cellar dwellings in the hope of being proceeded against by the sanitary authority and of thus qualifying themselves for admission as tenants in the corporation or municipal tenements. It is said that those who have reached the lowest depth of misery have lost all ambition and are incapable of making any effort to raise themselves. The experience acquired in Liverpool does not

confirm this pessimistic view. On the contrary, the municipal tenements are the scene of a veritable process of resuscitation. The fact should be obvious to the most casual visitor. If it has not received more notice this is simply due to the circumstance that very few people know or can be brought to believe that the inmates of these smart, clean, bright-looking houses are the very same people who used to dwell in the old crime-besmirched, fever-stricken slums which were till recently the shame of Liverpool. The effect produced has been twofold. First the slum dwellers have been reformed by being allowed to live in the model tenements built for them on the same spot, and secondly the surrounding houses which have not been pulled down have improved. Where these are let out for lodgings a local law compels their registration. At first it was necessary to give 250 cubic feet of space to each tenant. Then this was raised to 300, then to 350, and the rule now is that there must be 400 cubic feet per adult and 200 cubic feet for every child under 10 years of age. To see that this law is enforced the sanitary inspectors made, in 1907, 22,982 night visits to the houses which are sub-let. This resulted in 962 convictions for overcrowding, or 4·18 convictions per 100 visits. In 1909 the number of night visits was 23,534, and of convictions 576, a percentage of 2·44. The percentage of convictions during the present year only amounts to 2 per cent. on the number of night visits made. Thus in four years the proportion of convictions to visits has been reduced by one-half.

The Resuscitation of the Submerged.

This means the raising up of entire districts, and these the very worst districts in Liverpool. It means an improvement along the entire line—less crime, less drunkenness, less immorality, less dirt, and less disease. Here are some figures which were given by the head constable to Mr. Fletcher T. Turton, F.S.I., the deputy surveyor. Taking as an example an infamous area quite near to the centre of the town, it had a population of 1393 inhabitants before any demolition was effected. Between the years 1894 and 1904 all the houses were pulled down and rebuilt. The newly constructed dwellings contain a population of 1246 persons. In this particular area there were in 1894 27 prosecutions for drunkenness, ten for assault, and 25 for other offences, making a total of 62 prosecutions during the year. In 1904 when the area was rebuilt, and inhabited, as we see, by nearly the same amount of persons, there were five prosecutions for drunkenness, none for assault, seven for other offences, giving a total of only 12 prosecutions.

Another most encouraging feature in these municipal tenements is the fact that the occupants realise that it is a great privilege to dwell in them. They therefore make extraordinary efforts not to forfeit this advantage. In spite of their extreme poverty they contrive to pay the rent; more than 90 per cent. of the rent due is collected and this compares very favourably with any class of tenantry. Then they take pride in their rooms; the door-knockers and the brass round the letter-box are polished with jealous care; the windows are kept clean, and even the poorest manage to get a little bit of white window curtain. All this is of the utmost importance, for such are the symptoms of self-respect, of a newly developed love of home and an orderly existence. It is the first dawn of refinement and cleanliness which, when properly encouraged, may with its rays pierce the gloom of even the most abject poverty. In regard to the health of these people in their new surroundings, Dr. E. W. Hope, the medical officer of health of Liverpool, says in his last annual report that the mortality from pulmonary tuberculosis in the municipal dwellings, notwithstanding the deplorable history of the occupiers, only amounts to 1·35 per mille in 1907–08. This figure is lower than that of the city taken as a whole, and very much below that of the districts in which the dwellings are situated. These statistics demonstrate the improvement achieved in general sanitation as well as in regard to the special disease mentioned. Of course, the tenants of the municipal dwellings are closely watched, they are reproached when found to be exceptionally untidy, and all kinds of measures are taken to encourage the spirit of emulation, so that there shall be rivalry in cleanliness and general smartness of appearance. Life is changed for these people, new-found ideals are engendered, and what used to be the most forlorn and downcast class in the city, a class as abject as any to be found in the kingdom, is awakening to splendid hope, born in the midst of its better surroundings.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The St. Mary's Hospitals.

THE St. Mary's Hospitals, the result of the amalgamation of the old St. Mary's Hospital with the Southern Hospital, whose aim—the treatment of the diseases of women and children—was similar, are not in a good financial position. The constituent hospitals were almost at opposite ends of the town, so that their patients came from different districts, but it was thought well that they should join forces, and through the generosity of the late Mr. Manasseh Gledhill a new hospital was built in the Oxford-road, very near the ground on which the new Royal Infirmary now stands, at a cost of £50,000. But at present the hospital cannot be opened for lack of funds. To justify the opening an assured income of £5000 is needed. At the annual meeting Dr. (now Sir Alfred) Hopkinson made a strong appeal on behalf of the hospital, and Sir F. Forbes Adam announced that the surviving trustee of the Gledhill estate had offered £5000 to defray the cost of furnishing, so that the public was only asked to provide sufficient for the upkeep.

Fatal Accident to Dr. Alfred Francis Thompson.

Dr. A. F. Thompson, senior anæsthetist at the Royal Infirmary, honorary anæsthetist at the Dental Hospital, and assistant anæsthetist at the Manchester Ear Hospital, met with a fatal accident on June 25th. He was sitting beside his chauffeur, and was driving his motor, a landaulette, when at a crossing near Hale, Altrincham, the car came into collision with a taxicab and was turned over, the occupants being thrown out. Dr. Thompson, whose skull was fractured, died almost immediately. Mrs. Thompson and three relatives were in the car, and several persons were in the taxicab, but no one except Dr. Thompson was seriously hurt. The taxicab was only going at a moderate pace, but there was some rather contradictory evidence given at the inquest on June 27th as to the pace at which the motor-car crossed the main road. The verdict of the jury was "Accidental death," but they "recommended that the responsible authorities should be asked to erect a danger signal in Park-road to warn drivers that they were approaching a main road." Much sympathy is felt for Mrs. Thompson in the death of her husband. He was only in his thirty-second year, and leaves, besides his widow, two small sons.

A Difficult Diagnosis.

An inquest was held on June 27th on the body of a man who died from the effects of a fall downstairs on June 20th at his own house in Hulme. He could not rise without help, and complained of pain in his left side. He was taken in an ambulance to the infirmary soon after midnight, and was brought home before 2 A.M. on a stretcher, in the care of a policeman. Later in the day he again went to the infirmary in a cab. He was wheeled from the cab to the accident room, and after his injuries had been attended to returned home in a cab. It was said that he had to wait for a time before he received attention, and that his wife expressed her belief that he was not fit to go home, but the patient said he would walk. On getting home again a medical man was sent for, who gave him an order for the Withington Workhouse Hospital, where he died on the 23rd. At the infirmary the injury was diagnosed as fracture of two ribs, and this was confirmed by Dr. F. Da Cunha at the workhouse, who said the sixth and seventh ribs were fractured. He did not think the case particularly serious, but the man became worse and pneumonia set in. Internal examination showed that the third, fourth, and fifth were also fractured, and the sixth had scratched the pleura, but had not penetrated the lung. The jury returned a verdict of "Accidental death," but they considered that the man should not "have been turned out in his condition at that early hour of the morning, knowing, as the doctors must have done, that he had broken ribs." If otherwise fit to be moved, as he was considered to be at the infirmary, it does not appear why the early hour of the morning should have been injurious to him. These unfortunate cases are a source of great anxiety to hospital residents. There is generally no space whatever in the hospital to allow for their detention with the idea of watching for developments.

June 28th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The World's Missionary Conference.

DURING the past two weeks Edinburgh has been the scene of the meetings of the World's Missionary Conference, and though Scotland has long been accustomed to great assemblies of religious bodies of one kind or another, the gathering which has just taken place has been to onlookers an amazing revelation of missionary spirit and enterprise.

By some strange oversight no commission was appointed to consider the problems of medical missions. To repair this oversight a series of three sectional meetings was held during the second week of the Conference, at which matters bearing on medical missions were discussed. A series of papers which had been prepared as a basis for discussion were distributed to the medical men and women attending these meetings. Dr. J. W. Ballantyne (Edinburgh) wrote on the Training of Medical Missionaries; Mr. W. McAdam Eccles (London) on Elementary Training in Medicine for Foreign Missionaries; Dr. C. F. Harford (London) on Organisation of a Home Medical Department of a Foreign Missionary Society and the Scope of its Work; Dr. G. Basil Price (London) on the Need for the Home Base (Medical Department) to Systematically Collect and Record Statistics such as Relate to the Health of Foreign Missionaries; and Mr. D. D. Main (Hangchow) on Medical Education in China. A paper on the Training of the Missionary Nurse, prepared by the executive of the Nurses' Missionary League, was also considered. There was a good attendance at the meetings, and though the subjects under discussion demanded a much longer time for their consideration than was actually available, the feeling of the meetings was fairly well expressed in the findings arrived at.

On the question of the Training of Medical Missionaries, opinion was unanimous that the medical missionary could not be too highly trained in his profession. Intending medical missionaries were advised to undertake further study after graduation in such subjects as ophthalmology and tropical diseases. It was also suggested that a practical experience of hospital work as a resident, either at home or on the field, was desirable before undertaking the duties of a medical mission station for the first time. Several of the missionaries spoke on the advisability of attending post-graduate courses when home on furlough, and suggested that missionary societies should give grants for the purpose of encouraging this practice among their members. Several speakers referred to the difficulty which a medical missionary in charge of a large hospital has in undertaking satisfactorily the whole of the evangelistic work in this connexion; and some speakers considered that the medical missionary, if engaged in extensive medical work, ought to be relieved of the main part of the evangelistic work. Dr. Ballantyne in his paper referred at length to the work of the Edinburgh Medical Missionary Society, stating that this society has for some years encouraged all its students to study for the M.B., Ch.B. degree of the University, with the result that at present 21 of the 23 students of the society are working for the degree. In the training of missionary nurses the necessity for efficiency was again insisted on. All agreed that missionary nurses should have the full three years' training in a general hospital, with additional thorough training in obstetrics. Speakers also emphasised the fact that in the case of both doctors and nurses a thorough knowledge of the language was as necessary as in the case of other missionaries.

The subject of Elementary Training in Medicine for Foreign Missionaries was taken up at an evening meeting in the hall of the Royal College of Physicians. The paper presented by Mr. McAdam Eccles advocated a nine months' course of instruction in medicine for missionaries going to isolated districts where medical aid was unattainable. Of the nine months, three were to be devoted to elementary chemistry, anatomy, and physiology, together with methods of case investigation and the rudiments of materia medica and bandaging. In the succeeding three months the elements of medicine and surgery would be studied, with practical clinical work in the wards and out-patient department of a hospital and in the clinique of a medical mission. The third term of three months would be occupied by the study of special medical matters, including an elementary practical course in diseases of the eye and of the skin. Instruction in special hygiene, nursing, and cooking, dentistry, tropical diseases, and occasionally midwifery, was also advisable. Missionaries with this training were not to be allowed to take the name of "medical missionary," nor to undertake positions of medical responsibility. A short course of three months might be arranged for missionaries going to districts where skilled medical aid was not far distant. In this three months' course instruction in first-aid, hygiene, tropical diseases, cooking, and nursing was desirable. The proposal of organising a preliminary education of this kind for non-medical missionaries met with considerable criticism, some missionaries speaking strongly of the tendency of partially-trained men to undertake responsibility and work for which they were entirely unfitted, and pointed out what a great danger there was of bringing lasting discredit on the cause they were working for by such a course of action. The meeting appeared to be agreed that while a knowledge of hygiene and first-aid was of value to all missionaries, the training given in nine months was either too much or too little—too little if a man were to undertake medical responsibility, too much if he were to be confined to the practice of first-aid and the use of simple remedies. Disapproval was expressed of the policy of sending missionaries to isolated districts where medical aid was inaccessible. It was generally agreed that all missionaries should have such knowledge as would enable them to preserve their own health and that of their families. In the cases where a missionary was to be sent to an isolated district the opinion of the majority was that a knowledge of the treatment of accidents and the use of simple remedies was advisable and that such knowledge should be acquired at a recognised missionary institution.

At the same meeting Dr. Harford spoke on the Organisation of a Home Medical Department of a Foreign Missionary Society. Dr. Harford based his interesting paper on the discussions during the past five years of the Association of Medical Officers of Missionary Societies. In the course of his address he emphasised the desirability of every missionary society having a definitely organised home medical department. This department, he suggested, should consist of a medical officer who should be a paid official under a medical board, of which he should act as secretary and to which matters of difficulty could be referred. The work of such a board would be to consider the selection of candidates and to supervise the health of missionaries abroad. The board should consist of retired medical missionaries, retired practitioners from abroad—either civil or military—and practitioners in medical practice at home.

Dr. Basil Price's paper dealt with the need for the Systematic Collection of Statistics relating to the Health of Foreign Missionaries, and showed the great value of collecting data bearing on such matters.

In the third of the sectional meetings Medical Education of Natives in Mission Centres was the subject under discussion. Mr. Main (Hangchow) spoke on medical education in China. The other speakers were Dr. Wanliss (Miraj), the Rev. Dr. D. Christie (Moukden), Dr. J. Van Someren Taylor, Dr. J. H. Cook (Uganda), and Dr. Sheppard. The speakers on the situation in China pointed out strongly that in view of the present awakening in that empire and of the increasing demand for Western knowledge, the development of the missionary medical colleges there offered a great opportunity, since the Christian men they trained now would be ready to take the lead in the great educational movements which were coming. The missionary colleges already existing were to be improved and extended, and the missionaries asked for the most able men this country could supply, but men who also, in Mr Main's words, "would teach the Christian faith by word and deed," to occupy posts on the staffs of these colleges. Several speakers repeated what had before been insisted on in reference to evangelistic work—namely, that the medical reformation of China could only be brought about by native agencies. On that account it was imperative that missionary societies should aim at thorough efficiency in their native medical schools.

Dr. Edith M. Brown spoke of the work done in Ludhiana in training native Christian girls as hospital assistants and compounders.

A large medical missionary meeting was also held in the Synod Hall on the afternoon of June 22nd. Addresses were given by Sir Donald MacAlister, who presided, Dr. Cook (Uganda), Dr. Wanliss (Miraj), the Rev. Dr. Christie (Moukden), and Professor A. Macalister (Cambridge). It is to be hoped that in view of the great interest of these discussions to medical missionaries a full report will be included in the reports of the work of the conference.

Victoria Jubilee Cullen Prize.

The Victoria Jubilee Cullen prize for the greatest benefit done to practical medicine, which is awarded by the Royal College of Physicians of Edinburgh once in four years, has this year been awarded to Dr. R. W. Philip for his work on tuberculosis.

Amateur First Aid.

Mr. Wilson, Home Office factory inspector at Glasgow, in his report for 1909 mentions that owing to the heavy burden of compensation insurance, particularly in the shipbuilding and engineering trades, attention has been focussed not only on the causes of accidents but their after-treatment. Minor injuries had proved often very costly due to septic poisoning supervening, and it was discovered that unskilled cleansing and disinfecting of the wound at the works was chiefly responsible for this. A large federated body of employers has now a standard of appliances provided at every one of its works, and, among other things, each dressing is sealed up in an envelope by itself. In the event of an injury the antiseptic dressing is removed from the envelope by means of a pincers, the wound is bound up, no attempt being made at washing or disinfecting, and the patient thereafter sent direct to a medical man or to the infirmary. The financial saving which has resulted from this attention to minor injuries has been so striking that federated employers in other parts of the country who are their own insurers are copying the system.

The Treatment of Measles in Dundee.

The treatment of measles was dealt with at a meeting of a subcommittee of the public health committee of the Dundee town council on June 24th. It was resolved to recommend the town council to provide the necessary accommodation for the treatment of urgent and serious cases. A piece of ground to the south of King's Cross Hospital was considered suitable on which to erect a pavilion for measles and another for phthisis, together with the necessary administrative buildings. The city engineer and the town clerk were instructed to negotiate with the proprietors.

Motor Accident to an Arbroath Medical Man.

On June 18th Dr. J. D. Gilruth of Arbroath along with his wife and two children had a miraculous escape from injury. The party was motoring from Arbroath to Elliot when, after passing through the railway bridge and taking the sharp turn on to the straight of the Dundee-road at the Old Toll, the car was suddenly turned from the left side to the right in order to avert a collision with a powerful motor, belonging to Hawick, proceeding in the opposite direction. The sudden swerving had the effect of overturning the car, and the occupants were thrown out. Dr. Gilruth was pinned underneath the car, but escaped with only slight bruises to his arms and legs. The children also were partly under the car, but along with Mrs. Gilruth, who was thrown clear, they escaped with nothing more serious than a slight shock. The body of the car was badly damaged.

Donation of Shelters for Consumptives.

At a meeting of the Aberdeen county district committee held last week it was intimated that Dr. J. P. Watt, the county medical officer of health, had received from an anonymous donor two revolving moveable shelters for the use of patients suffering from pulmonary phthisis. The meeting resolved to record its thanks for this generous donation.

Low Death-rate in Aberdeen.

Dr. Matthew Hay, medical officer of health of the city of Aberdeen, reports that for the month of May last there were in the city 187 deaths, equal to an annual rate of 11·9 per 1000. This is probably the lowest recorded for any month of May. The rate for the corresponding month in the preceding ten years was 15·7. The mean age of all persons dying during the month was 46·0 years, as against an average of 36·4 for the corresponding month in the preceding ten years. In regard to the mortality among infants under 1 year, there were only 22 deaths, as against an average of 47 for the month of May in the preceding five years.

Oldmill Poorhouse Medical Officership.

Owing to the death of Dr. J. J. Y. Dalgarno, the post of visiting medical officer to the Oldmill Poorhouse, Aberdeen, has become vacant, and the question of future arrangements is being discussed between the Local Government Board and the Aberdeen parish council. Dr. Dalgarno, as visiting medical officer, was allowed a salary of £70 per annum, and there is attached to the institution a resident medical officer, meantime a woman, at a salary of £80. Taking this opportunity, the Local Government Board strongly advises the appointment of two resident medical officers. The Board holds that there is need in so large an institution of a resident medical officer of experience and standing, and suggests £250 or thereby as salary to procure a capable man. Under him it recommends a junior resident, and for this post, which might be held by a man or woman, a salary of £80 is suggested. In support of this it is pointed out that the average number of inmates is about 650, of whom 250 are always requiring medical attention. In addition to this there is the large workhouse staff. In similar institutions in the south it is usual to have senior and junior residents, and a special ward set aside for cases of an unpleasant character from the male wards with male nurses. The poorhouse committee, however, regards a modification of the present arrangement as all that is necessary. Subsequently, at a meeting of the poorhouse committee of the Aberdeen parish council it was decided to appoint a visiting dispenser at £40 per year, to raise the salary of visiting medical officer to £100 per year, thus enabling him to attend oftener and to visit every patient at least once a week, and also to undertake the lectures to probationers. These findings passed by a substantial majority. A representative of the Local Government Board attended the meeting.

June 28th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Ireland and the Midwives Act.

LAST week a conference on the subject of the Midwives Act was held in Dublin, in which representatives of the following bodies took part: Royal College of Physicians, University College, Galway, Royal Academy of Medicine, Irish Medical Association, Rotunda Hospital, Coombe Hospital, and Holles Street Hospital. Representatives of the Royal College of Surgeons, Queen's University, and University College, Cork, had also been appointed but found it impossible to attend. The Registrar-General and the medical member of the Local Government Board were also present. After considerable discussion, it was unanimously decided to demand that the provisions of the Midwives Act should be extended to Ireland. A committee, consisting of Sir William Smyly, Mr. A. J. Horne, and Dr. F. W. Kidd, was appointed to draw up a statement for presentment to the Chief Secretary. It would seem that the unwillingness to receive the Midwives Act into Ireland has dissipated, and the decision of the conference must, in the absence of any decided voice to the contrary, be regarded as the expression of Irish professional opinion. In a letter to a contemporary Sir William Smyly argues strongly in favour of the extension of the Act to Ireland. His main point is that puerperal mortality in Ireland is unduly high, and that as statistics have shown an improvement in England since the Midwives Act came into force, so we might hope for improvement in Ireland if midwives were officially registered and inspected.

Royal Sanitary Institute.

A provincial sessional meeting of the Royal Sanitary Institute was held in Trinity College, Dublin, on June 24th, Colonel J. Lane Notter, R.A.M.C., deputy chairman of the council of the institute, presiding. The subject under discussion was the Water-supply of Towns, and Mr. J. H. H. Swiney, M.I.C.E., dealt with it with special reference to the problems of maintenance and working. He argued in favour of upland catchment water rather than rain-water as a supply for Irish towns. He urged that the Local Government Board should exercise a close supervision over completed

works, and by frequent chemical and bacteriological examinations see that the water was kept up to a proper standard of purity. Professor E. J. McWeency discussed the Bacteriological Examination of Water. The papers were discussed by Sir John W. Moore, Mr. George M. Ross, B.E., Professor Adeney, and Mr. P. C. Cowan, C.E.

Memorial to the Late Professor Cunningham.

The model for the memorial to the late Professor Cunningham, which was intrusted to Mr. Oliver Sheppard, R.H.A., is now completed, and it is hoped that the bronze portrait panel will be cast and placed in the School of Anatomy, Trinity College, Dublin, before the opening of the coming winter session. It will be remembered that the memorial fund will be used to defray the expenses connected with this portrait and to provide a memorial medal and prize to be awarded annually in anatomy. As it is proposed shortly to close the subscription list, friends and pupils of the late professor who desire to contribute are requested to communicate with the honorary treasurer or honorary secretaries of the Cunningham Memorial Fund, Trinity College, Dublin, at an early date.

Extraction of Teeth by an Unregistered Dentist: Death from Hæmorrhage.

A representative of a firm of "teeth specialists" practising in Cork attended at Bantry on Saturday, June 18th. A Miss Collins, an assistant school teacher, called on him and had four incisors and two molars extracted. She was bleeding when leaving him and went to the house of a friend in the town. Whilst there she fainted twice in the course of about two hours. The dentist was then sent for, and as his endeavours to stop the hæmorrhage were ineffectual, in the evening Mr. T. Bennett was called in. The bleeding was very persistent and Mr. Bennett only succeeded in stopping it some hours afterwards. As it started afresh from time to time during the next day he called Mr. T. Popham to see her in consultation with him on Monday, but in spite of the efforts of both medical men the poor girl died on Wednesday morning, June 23rd. At the inquest Mr. Bennett stated that he had noticed several patches on the body indicating that the deceased was suffering from purpura hæmorrhagica. In reply to a question he said he would not, having regard to her state of health, have extracted six of her teeth. The coroner remarked that the dentist was unregistered and that the facts revealed a scandalous and dangerous condition of affairs. The jury found that death was caused by hæmorrhage resulting from the extraction of six teeth by an unqualified dentist, deceased not being in a physical condition to be operated on. They tendered their sympathy to the relatives of the deceased and strongly condemned the action of "unqualified men going around the country doing the work of qualified dentists."

The Abbey Sanatorium, Belfast.

Mr. Robert Hall, physician to the Belfast Union Infirmary and the Abbey Sanatorium for Consumptives, has presented an interesting report to the committee of the latter institution on its working during the half year ended March 29th, 1910. During this period of six months, 516 patients were under treatment, 251 of whom were discharged, leaving all the beds (265) occupied at the close of the half year. 26 patients were discharged as greatly improved, 100 as improved, 39 as not improved, 15 were not long enough in the sanatorium, and 71 died. The general average age of the patients in the sanatorium was 30, and the general average duration of stay was 147 days. The youngest patient was 9 years old and the oldest was 68 years. Regarding the occupation of those discharged, 64 were labourers, 35 housekeepers, 14 spinners, 9 stitchers, 8 school girls, 6 doffers (workers in spinning mills), and 6 clerks. It is interesting to note that a large number of the patients in the pavilions slept on the verandahs during the winter nights with advantage; and Mr. Hall asks his committee to erect a verandah around the front of the hospital block, which would enable some of the patients to have the advantage of sleeping in the open air when thought desirable, and would form a more hygienic shelter in wet weather than remaining in the sitting-room as at present. Appended to the report is an interesting financial statement showing the cost of the Abbey Sanatorium. The average cost of each patient per week was 13*s.* 10¼*d.*, and if to this be added 3*s.* 4¾*d.* for repayment of loans, the cost is 17*s.* 3*d.*, which is less than in the corresponding period of 1909, when it was 17*s.* 10¼*d.* This sanatorium is the largest Poor-law institution for consumptives in the three kingdoms, is doing an admirable work, and it is a great credit to the progressive spirit of the Belfast board of guardians and an example to the rest of the country. When the report was presented the committee in charge of the sanatorium approved of the erection of a verandah around the front of the hospital block, and it has also wisely agreed to try Welsh coal at the sanatorium to avoid smoke and dust.

June 28th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Pulmonary Embolism subsequent to an Injection of Grey Oil.

AT a meeting of the French Society of Dermatology and Syphilography held recently M. Verchère described an alarming case which, in his opinion, deserved attention, even if it did not raise some doubts relative to the treatment of syphilis by means of grey oil. The patient was a female, aged 18 years, who had suffered from syphilis for five months and had already in his wards received four injections of grey oil. The fifth injection, given with all the usual precautions, was as painless as its predecessors, but 48 hours afterwards the patient complained of a pain in her left side, accompanied by a sensation of nausea. The pulse was irregular and thready, but there was no rise of temperature. The symptoms were considered to be due to pulmonary congestion of influenzal origin. When they had continued for two days with slight dyspnœa but without any rise of temperature the patient had a sudden attack of vomiting, after which she uttered a cry and fell dead. Several members of the society who were present at the meeting took part in the discussion; they all remarked on the necessity of the greatest care in the therapeutic use of grey oil both as regards the dose of the remedy and the method of administering it. It was absolutely necessary to give the injection in two successive stages so as to make sure that the needle had not entered a vein.

An Election at the Academy of Medicine.

The Academy of Medicine has elected a *membre titulaire* in the section of medical pathology. The honour fell to Professor Gaucher, who received 61 votes out of a total of 68 that were given.

Hygiene of Pregnancy.

Pregnancy is very often accompanied by illnesses of various kinds, and childbirth may be attended with complications dangerous to the health of both mother and infant when they are not recognised and treated in good time. In order to protect herself from accidents which she cannot herself foresee every pregnant woman would be well advised if she consulted a medical man periodically without waiting for the onset of labour. The managing body of the Assistance Publique has recently by means of suitably displayed posters announced that pregnant women of the poorer classes may have free advice at the maternity hospitals. Even though they may not intend to become in-patients when labour is imminent, they are invited to seek advice with regard to the progress of their pregnancy.

Fatal Effects of Chloroform Inhalation in Cases of Hepatic Disease.

The Surgical Society has at three successive meetings discussed the danger of chloroform inhalation in cases of hepatic disease. M. Quenu in introducing the subject described the hepatic lesions which were produced by chloroform, and said that in cases of hepatic disease the danger of chloroform inhalation was particularly great when jaundice was present; from whatever cause the jaundice might arise there was an increase of it during the next few days and there was evidence of toxic effects produced by bile; after an operation these jaundiced patients had also a great tendency to hæmorrhage. All these ill-effects being due to the chloroform, M. Quenu said that he no longer administered it to such patients, but he employed ether, which was not followed by aggravation of the jaundice or by toxic symptoms. M. J. L. Faure mentioned a typical case in which, after an inconsiderable operation performed under chloroform, the patient died in 48 hours. M. Chaput said that two patients under his care had

died from a similar cause. M. Reynier said that in his opinion the exact cause of the fatal result could not be always ascertained. M. Lucas-Championnière said that it was an exaggeration to attribute to the chloroform every case of jaundice occurring in a patient who had been operated on, for jaundice had been known to disappear after chloroform anæsthesia. M. Poncet said that chloroform undoubtedly had a toxic action on the healthy as well as on the diseased liver; he also remarked that it was often very difficult to ascertain the exact cause of a death after an operation; he considered that as a general anæsthetic ether was in any case to be preferred to chloroform. M. Sieur, a military surgeon, mentioned the case of a man aged 24 years, an alcoholic subject, to whom it was necessary to give chloroform for the application of a fixation apparatus to a fractured patella. After the operation the man vomited incessantly, was slightly jaundiced for several days, and although there was no important rise of temperature he had a pulse-rate of 110. The jaundice increased progressively, anuria and delirium supervened, and the patient soon died. At the necropsy splenomegaly was found, as well as enlargement of the liver and kidneys.

Radiology in Legal Medicine.

M. Béclère, speaking at a meeting of the Society of Legal Medicine held on June 13th, said that an examination of a case by means of the X rays ought to include both radioscopy and radiography. In the former the visual result varied according to the incidence of the rays with respect to the lesion, whilst radiography supplied a permanent record of the best of the radioscopic views. A radiograph might be a valuable piece of evidence, provided that it was correctly taken and properly interpreted. Some cases were difficult to interpret, and an expert who was not a radiographer might misunderstand an X-ray picture. In this connexion M. Béclère mentioned a case of fracture of the radius sustained by a milkman who attributed it to a machinery accident. There was a conflict of opinion among the medical men as to the existence of a fracture with impaction of the fragments. A radiographer, not a medical man, after taking a picture said that there was no fracture. The medical experts diagnosed a fracture on account of the shortening, but could not say if it was recent. M. Béclère was then instructed to take a new picture. By comparison with the sound limb and by methodical interpretation of the picture he showed that there was an old fracture which was not due to the accident in question, but was of much earlier date. In order that a radiograph might be of value it ought to be accompanied by a certificate describing the conditions under which it was taken and giving its medico-legal interpretation.

Vaccination against Typhoid Fever.

Professor Vincent has found that animals were completely immunised against the infection of typhoid fever if they had previously received injections of extracts of living bacilli. Injections of this antityphoid vaccine were then given to 13 persons, all adults. It was very well tolerated and imparted powerful bactericidal properties to their blood serum, so that bacilli mixed with their blood underwent a sort of solution, becoming granular and unrecognisable. Inoculation on a culture medium was not followed by growth, the bacilli being in fact killed. The serum of a vaccinated person showed this bactericidal power, even when it was diluted to 1000 times its volume. Persons who have received injections of this vaccine were therefore protected in a high degree against the microbe of typhoid fever.

The Disturbances at the "Concours de l'Agrégation."

The disorderly scenes which took place on the occasion of the Concours de l'Agrégation were mentioned in this column on June 11th, and it has to be added that several medical societies have now addressed the Dean of the Faculty of Medicine, congratulating him on his action during these unpleasant circumstances. Communications to this effect have been sent by the Society of Hospital Surgeons of Paris, the Society of Hospital Physicians of Paris, and the Lyons Faculty of Medicine.

June 28th.

THE Royal Academy of Medicine of Turin has elected Dr. Roux, Professor of Anatomy in the University of Halle, an Honorary Member.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

Annual Meeting of Swiss Medical Men.

THE Annual Meeting of Swiss Medical Men, which was attended by over 200 practitioners, was held at Zürich on June 3rd and 4th. On June 3rd Dr. Baer demonstrated by optical lantern enlargements of radiograms of the thorax illustrating the great advances made during the last ten years. Incipient phthisis can be diagnosed, tumefied bronchial glands can be demonstrated, and deep-seated small infiltrations come to light. In short, these X ray photographs prove a most important accessory in modern physical diagnosis of the chest, often also as regards prognosis. Professor H. Zangger, professor of legal medicine in Zürich, demonstrated very clear photographs of the organisms of recurrent fever and syphilis. On June 4th Professor H. Eichhorst spoke on so-called epidemic or meningococco-meningitis, which has not left the canton of Zürich since 1906. Every year from 15 to 28 cases have occurred. The mortality is very high, notwithstanding the specific serum treatment. He also demonstrated a very rare case of alkaptonuria in a man 60 years of age. Professor Kroenlein demonstrated a number of interesting surgical cases: a perforated gastric ulcer, a ruptured spleen, two rare cases of rupture of a goitre due to external injuries, and a very serious case of foreign body (false teeth) which had perforated the œsophagus and caused acute mediastinitis. All the patients had recovered. He also demonstrated a large diverticulum of the œsophagus removed under local anæsthesia; a patient successfully operated on for abscess of the brain; a patient, aged 83 years, from whom he had removed a large cancerous tumour of the kidney 25 years ago; and another patient operated on 12 years ago for polycystic tumour of the kidney, the tumour weighing 19 pounds. The meeting closed with a dinner, which was well attended, and with a trip by steamer down the lake.

Swiss Congress for the Consideration of the Midwife Question.

This conference took place on Nov. 30th and Dec. 1st at Bern, and the report of the proceedings has now appeared. The Federal Department of the Interior invited medical delegates from all the Swiss cantons to confer on the reform of the organisation of midwives in Switzerland. Twenty-three cantons had sent 33 delegates. Dr. Schmid of the Swiss Federal Department of Hygiene was elected chairman. One of the questions of special interest referred to the illegal production of abortion, the rate of deaths from this cause having trebled from 1901 to 1907, rising from 0·6 to 1·8 per 100,000 inhabitants. The following suggestions were made: 1. Better choice of midwives, with an improved standard, physical, moral, and educational. 2. Improved and more uniform instruction at hospitals of at least half a year's duration. 3. Repeated courses of instruction for midwives. 4. Higher fees, the fees of the poor to be guaranteed by the local authorities; from 15 to 20 francs (12*s.* to 16*s.*) for conducting a normal labour in poor cases, and a minimal fee of from 20 to 30 francs (16*s.* to 24*s.*) in other cases. 5. Special grants of from £12 to £30 a year to induce midwives to settle in sparsely populated and mountainous districts. 6. Insurance against sickness and accidents. 7. Strict legal measures to prevent the practice of uncertified midwives.

June 25th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Convocation at McGill University.

THE chief feature of the convocation proceedings at McGill University, Montreal, on June 9th, was the address of Dr. Wesley Mills, who for 25 years has been professor of physiology and who is retiring on account of ill-health to take up residence in Germany. Dr. Mills, in his vigorous, outspoken address, considerably startled the governors and professors of the University. He stated plainly that McGill and Montreal were not in sympathy; that the citizens practically took no interest in their university; and that Montreal, and, indeed, Canada, was satisfied with material prosperity and commercial advancement, and took no particular thought of

the higher life of her citizens. He criticised especially the teaching of medicine, declaring that students were given a great deal too much to digest, and that they should be taught less and taught better, and so become men first and medical practitioners afterwards. He thought there were too many men on the Medical Faculty who gave at least two-thirds of their time to their private practices, and that medicine of the future would demand men who could devote their whole time to investigation and education. At the close of Dr. Mills's speech Dean Francis J. Shepherd read an address expressive of the regrets of the Faculty at parting with Dr. Mills, and presented a purse of gold on behalf of the Faculty. The degree of LL D. was conferred on Admiral Sir Archibald L. Douglas *in absentiâ*, who, although he had crossed the Atlantic for the purpose of receiving the honour in person, was detained in New York through illness. Two degrees were conferred in circumstances hitherto without precedent in the history of McGill, one being the honorary degree of M.D., C.M., upon Miss Maude C. Abbott, B.A., M.B., the first woman to receive this degree from McGill, and the degree of Musical Bachelor upon Miss Beatrice Donnelly. The resignation of Dr. William Gardner from the chair of gynæcology was announced; Dr. Gardner has occupied this chair for 27 years and for eight years previously had occupied the chair of medical jurisprudence. Dean Shepherd announced the accession to the staff of Dr. J. C. Simpson as professor of embryology and histology. The official opening of the new medical buildings has been postponed for a year owing to the death of King Edward. Dr. Thomas A. Robinson, the winner of the Holmes gold medal, delivered the valedictory address to the graduating class.

Annual Meeting of the Canadian Association for the Prevention of Tuberculosis.

The seventh annual meeting of the above association was held in Montreal on June 7th, under the presidency of Professor J. George Adami of McGill University. In his address Professor Adami advocated the formation of Protestant institutions, similar to those of the Catholic Sisters of Quebec, for the purpose of caring for tuberculous sufferers. Referring to the oft-repeated fact that more females grew up to mature years than males, he thought the Roman Catholic system of the convent solved one of the great dangers of society. Could some of these women but devote their lives to forwarding a noble work and establishing a sisterhood for the care of incurable cases of tuberculosis they would emulate the good example of their Catholic sisters. Professor Adami paid a high tribute to the work which the Catholic Sisters of Quebec were doing throughout that province in the care of indigent and incurable cases of tuberculosis, specially instancing the Sisters of Providence, who had been most active in the fight against the disease. Major-General George M. Sternberg of Washington, D.C., delivered an address "On the Housing of the Working Classes as a Factor in the Prevention of Tuberculosis." One of the pioneers of bacteriology on the continent of America, Major-General Sternberg has been an earnest advocate of better housing for the poor. He has already accomplished good work in removing plague spots from some of the cities of this continent. He believed that the reduction in the death-rate was simply due to the better housing of the working classes, and that with the abolition of the slums and crowded tenement districts tuberculosis would receive a staggering blow. He detailed at considerable length the system of house-building which has been inaugurated at Washington and spoke of the good results which have been obtained there.

The Canadian Medical Association.

A resolution favouring the transfer of the *Montreal Medical Journal* to become the journal of the Canadian Medical Association, as soon as the Finance Committee could make satisfactory arrangements with the board of governors of the said journal, was carried at the recent meeting of the Canadian Medical Association. Dr. Andrew Macphail will continue as editor. Montreal was selected as the place of meeting of the Association in 1911, with Dr. George E. Armstrong as President-elect and chairman of the Executive Council. Dr. James Bell (Montreal) was elected chairman of the Finance Committee. Dr. George Elliott (Toronto), after nine years' service as general secretary, retired, and Dr. E. W. Archibald, 190, Peel-street, Montreal, was elected to succeed him. Dr. H. B. Small (Ottawa) was re-elected treasurer.

June 20th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

The American Medical Association.

THE Sixty-first Annual Session of the American Medical Association, which was held in St. Louis from June 6th to 10th, though smaller as regards the number in attendance than either the Chicago session (1908) or that of Boston (1906), must undoubtedly be written down a success. The registration was only 4077, but it is estimated that there were some 600 to 1000 in attendance who did not take the trouble to register. This is probably due in large part to the fact that the registration bureau was at quite a little distance from both the section meeting-places and the principal hotels. The opening meeting was held at the Odeon Theatre, which easily seats 2400 people, and there did not appear to be a vacant seat. Colonel William C. Gorgas of Panama introduced the incoming President, Dr. William H. Welch of Johns Hopkins University, who in his address dwelt on the necessity for animal experimentation, against which at present a violent campaign is in progress in this country, the need of more complete vital statistics, the importance of establishing a national department of public health with a secretary in the Cabinet, and the necessity for elevating the general standard of medical education. The scientific sessions were well attended and some notable papers were contributed. The Oration on Medicine was delivered by Dr. R. C. Cabot of Boston, who gave a study of mistaken diagnoses based on the necropsy findings in 1000 cases. In this section there was a symposium on the Circulatory Disorders in Acute Infections, in which Dr. W. G. MacCallum, Dr. George Dock, Dr. Joseph F. Miller, Dr. S. R. Richards, and Dr. W. S. Thayer, among others, took part. The Section on Obstetrics had four symposia. In the first, the inventors of various operations for retroversions and retroflexions of the uterus discussed the various operative measures. This discussion was participated in by Dr. Tod Gilliam, Dr. Goldspohn, Dr. Wesley Bovée, and Dr. Howard Kelly. The second was on Enteroptosis, in which Dr. Musser, Dr. Ochsner, and Dr. Goffe took part. The third dealt with Carcinoma of the Uterus, and included among the speakers Dr. Harvey Gaylord, Dr. J. A. Sampson, Dr. Emil Ries, and Dr. C. C. Frederick. The fourth was on Eclampsia. The chairman's address in this section, by Dr. John G. Clark of Philadelphia, was on the Embryologic and Anatomic Causes for Obstinate Constipation in Women and Operative Methods for its Relief. In the Surgical Section the chairman's address, by Dr. Charles H. Mayo of Rochester, Minn., was on the Prophylaxis of Cancer. Dr. Robert Abbe of New York delivered the Oration in Surgery, summarising the present status of radium in surgery. He stated, *inter alia*, that radium had never failed to cure cancer of the lip in the seven years he had been using it. In the Section on Ophthalmology an interesting address, which was listened to with great attention by a very large audience, was that by Mr. J. Herbert Parsons, F.R.C.S., of London, on The Effect of Bright Light on the Eyes. In the Section on Preventive Medicine an interesting feature was the symposium on Hookworm, Pellagra, and Typhoid Fever. Dr. John D. Long of Washington, D.C., combated the spoiled-corn theory of pellagra and cited the microscopical findings in the stools to prove that the cause was to be found in a microbe inhabiting surface water and vegetables. Dr. Charles W. Stiles of Washington took part in the discussion on hookworm. In the Section on Dermatology several cases of pellagra in various stages were shown. The Scientific Exhibit contained several noteworthy displays, among which may be mentioned that of Dr. W. W. Graves on the "scaphoid scapula," illustrating, by the contrast of normal bones with those of "scaphoid" type, by embryological specimens, &c., his thesis that this type of scapula is a more or less definite pathological entity, due, according to him, to anomalies of development dependent on some constitutional taint in the progenitors. It is a curious fact that in the "De Humani Corporis Fabrica" of Vesalius (Basle, 1543), which was exhibited in the Historical Exhibit, the three scapulæ figured as typical all belong to what Dr. Graves calls the "scaphoid" type.

The exhibit of the St. Louis Medical History Club was a veritable museum, such as has perhaps never appeared as part of a medical convention before. It occupied a large room, and contained various incunabula—Albertus Magnus, Avicenna, Guy de Chauliac, William Harvey, Mundinus, and Tycho Brahe.

Three editions of Eustachius—Amsterdam, 1722; Rome, 1728; Leyden, 1761—were there, as also the first editions of Columbus Realdus, Bartholin, Barthelemy Cabrol, Malpighi, Vesalius, and many others too numerous to mention. In addition to the books was a collection of medical portraits, including many fine engravings, old diplomas, seals, medallions, busts, surgical instruments and appliances, &c. The entire collection was furnished by the members of the club, with the aid of the St. Louis Medical Library and the Washington, St. Louis, and Missouri State universities. The association, through its House of Delegates, supported the principle of the Owen Bill to create a national department of public health, with a secretary having a seat in the Cabinet. Of late years there has developed considerable opposition among members of the American Medical Association to an alleged dominating "ring," which is said to control the politics of the association, and through it of the profession at large in the United States. This opposition has given rise to a great many personalities. At the present session Dr. Simmons placed his resignation as secretary before the House, which was accepted. At the election of officers, however, he was unanimously re-elected to the post by a rising vote, not a single delegate refraining from voting or voting adversely. For the presidency Dr. Abraham Jacobi of New York and Dr. J. B. Murphy of Chicago were nominated, Dr. Murphy being elected. The association adopted a resolution in favour of the passage of State laws abolishing the office of coroner and dividing the medical from the legal functions, allotting the former to a medical examiner and the latter to the district attorney, according to the plan that has for some years been in successful operation in Massachusetts. Another resolution attributed the alarming increase in suicides in part to the publication by the lay press of details thereof, and urged legislation denying the use of the mails to newspapers that published such details. A gold medal was awarded to Dr Claude A. Smith of Atlanta, Ga., for his researches on hookworm. It was resolved to create a Section on Genito-Urinary Diseases.

Other organisations that held their annual session in St. Louis during the meeting of the American Medical Association were the National Committee on Ophthalmia Neonatorum, the Academy of Medicine, the American Urological Association, the American Medical Editors' Association (at which both the retiring and the present presidents of the American Medical Association spoke), the National Federation of State Licensing and Examining Boards, the American Association of Medical Examiners (before which Dr. Liston H. Montgomery of Chicago read a paper on Longevity, in which he expressed the opinion that the average length of human life might be lengthened to 120 years by careful attention to the following points: the elimination of quacks and unprincipled physicians, the abolition of poorly equipped hospitals and medical schools, the enforcement of the Pure Food and Drug Acts, cold storage regulation, Government inspection of all dairies and abattoirs, municipal sanitation under Government inspection, publicity and education of the public through literature especially in relation to venereal diseases, the electrification of all railways and the abolition of the smoke nuisance, and closer inspection of all immigrants), the American Association of Medical Milk Commissions, the Medical Library Association, the Baltimore and Ohio Association of Railway Surgical Surgeons, the American Proctologic Association, and the American Gastro-Enterological Association. The following distinguished foreigners were present as guests of the association: Dr. Holger Hygind of Copenhagen, Dr. Paul Fleischmann of Berlin, Mr. J. Herbert Parsons, Dr. A. Primrose of Toronto, and Dr. Alfred Saenger of Hamburg.

June 21st.

NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

Cranial Sarcoma.

A CHINAMAN came to hospital asking for removal of a cranial growth (see illustration). His history was that the tumour had first appeared three years ago. When about the size of a turkey's egg, two years later, he had asked a foreign medical man to remove it, but operation was refused. On returning to his village a native "doctor" had acupunctured it in three places. This was done about six months ago and had resulted in a steady acceleration of the growth. The skin was hairless but intact; there was eggshell crackling as of bony trabecular structure over its whole extent. The growth itself was painless, but latterly he had headache when tired "from the weight of it." The upper right eyelid showed pressure œdema. The tumour on palpation was not hard nor was there any pulsation; it was of the same consistency all over, summit as well as base. As he was beyond operative help he left the hospital, taking with him some phenacetin and caffein citrate powders which gave him great relief when headaches came on. It would be impossible to say whether this was a growth of the pericranium or diploë. There were no symptoms pointing to encroachment on the intracranial cavity; he was bright mentally, and both optic fundi were

normal. There was no involvement of lymphatic glands. The case is interesting owing to the element of traumatic sarcoma introduced by the village charlatan's needling operation. The increase in size was almost imperceptible till the acupuncture, after which it "began to grow one day bigger than another," to use the patient's words.

Health of Shanghai.

The annual report of this, the largest European settlement in the Far East, shows that the public health during 1909 has been satisfactory. There has been continued immunity from human plague; the reason for this immunity, says Dr. A. Stanley, the medical officer of health, is not obvious in view of the constant communication by shipping between Shanghai and infected ports. Vigorous sanitary precautions have been kept up. During the year 92,000 rats were trapped and burnt, and 17,634 rats were found dead and taken to the laboratory; of these latter 187 were plague-infected. People have been encouraged to keep cats, and the building of ratproof houses (steel and concrete) has been advocated whenever possible. A note is made of the absence of any marked degree of opposition from the Chinese, who have coöperated to a greater extent than was expected. The incidence of small-pox has been exceptionally small. Only one case was notified among the foreign resident community. Among the Chinese there were 19 deaths, as compared with 143 and 863 during the preceding two years. Vaccination is done free for all Chinese and indigent foreigners applying at the Health Office. Vaccine is also supplied free to the Chinese hospitals in Shanghai. Although there has been an increase in the number of cases of choleraic diarrhœa the diagnosis of Asiatic cholera caused by the cholera bacillus has not been confirmed by the laboratory, where over 50 cases, foreign and native, were examined. These cases were therefore not held to be true cholera, though the clinical picture and post-mortem signs of both diseases are identical. Typhoid fever remains an important factor, causing a case mortality of 18·9 per cent. Scarlet fever appears to have come to Shanghai to stay. It was practically unknown there prior to 1900, when it was probably introduced by foreign immigrants. As would be expected with a recently introduced disease, against which

evolution has afforded no natural immunity, scarlet fever has been of a virulent type among the Chinese. It is probable that the passage of the disease through the susceptible Chinese has led to an intensification of the virus so that it is more fatal to foreigners also. The prevalence of tuberculosis remains at the same high level. There have been no deaths registered from Malta fever. Quite a number of cases of malarial fever, mostly of the benign tertian type, are contracted in and around Shanghai. As regards beriberi, the incidence of this disease has increased, deaths from it having occurred in the Municipal Gaol. Dr. Stanley, after close observation of the causes, thinks that the evidence so far preponderates in favour of beri-beri being an infective disease having no direct relation to food, and infective through body vermin. Recommendations regarding the admission of municipal prisoners have been adopted which will settle the latter point. Relapsing fever again made its appearance among the prisoners; it is evidently common in Shanghai among Chinese and to some extent among foreigners. The death-rate per 1000 for the year among foreigners was 16·7 and among Chinese 15·1.

Presentation to Dr. W. J. Milles, M.D. Brux., F.R.C.S. Eng.

Dr. W. J. Milles, who is severing his connexion with Shanghai and returning home after having been for 27 years one of the leading and most successful members of the medical faculty in Shanghai, has been made the recipient of a very cordial leave-taking on the part of his professional colleagues, with whom, as with all Shanghai, he has been very popular. The meeting took place at the house of Dr. W. J. Jackson, and Dr. C. J. Davenport, on behalf of all his colleagues, presented Dr. Milles with a massive Japanese bronze vase. Dr. Milles, in replying, said that when he came to Shanghai there were only eight medical men, while at present they numbered 40. After some interesting reminiscences, Dr. Milles concluded by wishing all present as felicitous a termination to a long and happy professional career as he had himself enjoyed in Shanghai.

Peking, May 25th.

Obituary.

CLAUD MUIRHEAD, M.D. EDIN., F.R.C.P. EDIN.,

CONSULTING PHYSICIAN TO THE ROYAL INFIRMARY, EDINBURGH, ETC.

WE regret to record the death of Dr. Claud Muirhead, one of the senior members of the medical profession in Edinburgh. He had done his usual medical visits and gone to his insurance office on Tuesday, June 21st. Next morning he was found dead in bed, lying calm and peaceful. He had but recently attended, in his last illness, his old friend, Dr. John Smith, whose death he felt keenly. He was in his seventy-fifth year, and by his death the medical profession in Edinburgh loses one of its most eminent and esteemed members. His father was Claud Muirhead, proprietor of the *Edinburgh Advertiser*, a respected citizen of his day. After his school education he entered on the study of divinity under the Edinburgh Presbytery of the Church of Scotland, and completed one year's study. On applying for admission to the divinity classes at the beginning of the second year he was unfortunate enough to fall into the hands of a parson who was known as the bear and bully of the Presbytery of Edinburgh. Muirhead was then, as always, a shy, retiring, reserved man, and annoyed at the rude treatment he had received at the hands of this cleric he abandoned divinity and took to the study of medicine in the University of Edinburgh. He graduated M.D. in 1862. In 1864 he became a Member of the Royal College of Physicians and in 1865 a Fellow. After graduation he studied at Berlin, Vienna, and Paris. He was house physician to Warburton Begbie in the Edinburgh Royal Infirmary in 1864–65. Along with Dr. (now Sir) T. R. Fraser he was in 1869 appointed assistant physician to that institution, chiefly to take the charge of the fever wards. In 1870 he published in the *Edinburgh Medical Journal* an account of Relapsing Fever in Edinburgh, which attracted considerable attention because of the rarity of the disease. In 1876 he was appointed full ordinary physician to the Royal Infirmary. From 1867 for several years he assisted Dr. (afterwards Sir) Douglas McLagan in his private practice. He attended his former "chief," Warburton Begbie, in his last illness and was one of his executors. He taught and lectured on clinical medicine during all the 15 years he was physician to the Royal Infirmary, and he was specially strong on therapeutics. As a "chief" in the Royal Infirmary he was greatly beloved by his resident house physicians. After leaving that institution he was appointed physician to Chalmers Hospital and consulting physician to the Edinburgh Royal Infirmary, to Leith Hospital, and the Chalmers Hospital. For two periods of five years each he was a manager of the Royal Infirmary and acted as convener of the committee of medical managers, where he did excellent work in framing the new regulations. He was medical officer to the Scottish Equitable Insurance Company for a few years, which he left to become chief medical officer of the Scottish Widows Fund, which he continued to be till his death. In this latter capacity he published a valuable monograph on "The Causes of Death among the Assured, 1874–1894." In the *Edinburgh Medical Journal* in 1887 he published a paper on the Treatment of Acute Bronchitis, and in the Edinburgh Hospital Reports a paper on the Treatment of Enteric Fever. He was a member and an ex-President of the Edinburgh Royal Medical Society.

In the old infirmary days he had to deal with several epidemics of small-pox, typhus fever, and enteric fever, and the experience he then gained he turned to excellent use when later he became consulting or visiting physician to the City Fever Hospital, after it was separated from the Royal Infirmary but housed in the old infirmary buildings. He devoted himself entirely to his professional duties. He appeared little at the medical societies or the social functions for which Edinburgh has always been notable. He was too shy and retiring. Like Professor J. Wyllie and Dr. J. O. Affleck, he would not consent to act as President of the Royal College of Physicians when he was chosen in rotation for that honourable position. He was greatly beloved by his patients both in the medical profession and among the general public. He was very genial and very inspiring. His encouraging visit was often better than medicine to the patient. The great sorrow of his life was the death of his wife and only child. He never married again. Latterly he and his brother lived together in Charlotte-square. He was a member of St. Stephen's Church, but he did not take any prominent part in the management of its affairs, though working much privately for the poor of the congregation.

HUBERT ROTHWELL GREENE PASHA, L.R.C.S. IREL., L.R.C.P. EDIN.

Hubert Rothwell Greene, whose death, in his seventieth year, occurred at Dunstable on June 4th, had a distinguished military and official career. He was the youngest son of the late Samuel Greene of Kilmanahan Castle, Co. Waterford. He was educated at Trinity College, Dublin, and studied medicine at the Royal College of Surgeons in Ireland. In 1862 he obtained the L.R.C.S. Irel., and in the following year, after taking the L.R.C.P. of Edinburgh, he entered the Army Medical Service.

During the Afghan war of 1878–80 he acted as secretary to Sir Benjamin Simpson, the Principal Medical Officer, and at its termination was commissioned with the organisation of the medical service in the new Quetta district. In 1884 he served in the Suakim campaign under Sir Gerald Graham, and was especially mentioned in despatches. He was also a member of the Nile expedition party for the relief of Khartoum.

In 1885 he was appointed sub-director of the Egyptian Sanitary Department, and in the following year he retired from the army with the rank of brigade-surgeon. In 1887 he became Director of the Egyptian Sanitary Department and was created Pasha by His Highness the Khedive, being granted the Second-class Order of the Medjidieh. Sanitary reform in Egypt at the time of Greene's administration was crippled by want of money, by the capitulations under which all foreigners were amenable to their own consuls, and by the bondholders. The task which he had before him was therefore no easy one, but he performed it with conscientious zeal and ability, as may be judged from the excerpt which follows from a letter written to Greene in 1890 by the late Sir Gerald Portal, then officiating Agent and Consul-General for Egypt:—

In forwarding to the Foreign Office the Statistical Reports of the Sanitary Department, I have given myself the pleasure of explaining at some length the very great progress made during late years by this

department, which has had to fight its way through severe criticism and constant opposition, and I have submitted to Lord Salisbury the promptness and energy with which during this summer measures were taken to combat a possible invasion of cholera. I take this opportunity of adding my own congratulations on the work which has been accomplished by the department under your orders.

His official services came to an end owing to his becoming very deaf, and this distressing infirmity, occurring when it did, was a drawback to his career which he never surmounted.

Greene Pasha was a frequent and valued contributor to our pages, and it is with great regret that we announce his death.

AMBROGIO MORI.

A BRIGHT career has been suddenly extinguished by the death of this young surgeon who, as *privat-docent* in "operative medicine" at the Florentine Istituto di Studi Superiori and as specialist in children's diseases and pædiatry in Milan, had earned the esteem of the profession and the confidence of a rapidly extending *clientèle* when he succumbed to appendicitis on June 13th after an illness of barely four days' duration.

Born 36 years ago at Brescia, son of an eminent local practitioner, Ambrogio Mori graduated with first-class honours in the clinics at the University of Padua, whence he passed to Florence as assistant in the clinique of obstetrics and gynæcology of the Istituto di Studi Superiori. In this capacity he not only gained a high reputation as second only to his chief, Professor Pestalozza, but was chosen by Dr. Mya, who holds the chair of pædiatry, as his adjutant at the Mayer Hospital for Children. In 1908 his success in this department was such that he was appointed *privat-docent* in the subject, on which he had already published many treatises much appreciated for their originality and practical use. Always well to the front on the occasions, only too common in Italy, of public calamity, he was one of the first to intervene at the Siculo-Calabrian cataclysm, and as medical coadjutor of the Red Cross team, organised at Brescia, he did noble service not only in rescue-work but also in the improvised hospitals for the injured. "Superiors and subordinates at that critical time," says one of his colleagues, "had nothing but praise for Ambrogio Mori."

In the same year (1908) he settled in Milan, while retaining his post as *privat-docent* in Florence, and rapidly won his way to distinction, insomuch that his appointment as Primario of the Milanese Brefotrofio (children's hospital) was within his grasp just as the fatal illness supervened. Another of his charges during the "balneary season" was that of consultant at a Swiss thermal "kur," where, again, he was in high favour with his colleagues and his *clientèle*, who were about to welcome his return when the news of his death arrived. Indeed, something like a "plebiscite of mourning" has followed him to the grave, not the least impressive of the tributes to his memory being the obituary notices of the lay journals, such as the *Nazione* of Florence, the *Perseveranza* of Milan, and the *Sentinella* and *Provincia* of his native Brescia, all of them indebted to his prompt and powerful pen for opportune appeals to the public in aid of the charities, medical and sanitary, whose interests he had at heart. One of these tributes, inspired by affection and solemnised by the suddenness of his decease, sums up the general emotion in words that may well be inscribed on his tombstone—"Memento Mori."

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Oliver P. Rex, formerly lecturer on children's diseases in Jefferson Medical College, Philadelphia.—Dr. Gurny Stubbs, adjunct professor of laryngology and otology in Rush Medical College, Chicago.—Dr. Filipp Joseph Pick, formerly professor of dermatology in the German University of Prague, one of Hebra's oldest pupils, having been born in 1834. He was the founder of the *Archiv für Dermatologie und Syphilis*.—Dr. Ludwig Rosenberg, assistant physician in the Buch Lunatic Asylum, near Berlin, from septicæmia, contracted during a post-mortem examination.—Dr. Ludwig, formerly director of the Heppenheim Lunatic Asylum in the Grand Duchy of Hesse at the age of 84 years.—Dr. James Eisenberg, author of a work on Bacteriological Diagnosis of Diseases Peculiar to Women. His age was only 49 years.—Dr. Aigner of Munich, whose articles on the medical aspect of the Lourdes miracles made some stir several years ago.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held in June the following candidates passed in the undermentioned subjects:—

Surgery.—J. Cree (Sections I. and II.), Belfast; W. H. Hooton (Section I.), Leeds; and W. E. North-Smith (Sections I. and II.), Durham and St. Mary's Hospital.
Medicine.—A. C. Dickson (Section I.), Guy's Hospital; E. M. E. Hall (Sections I. and II.), Royal Free Hospital; W. H. Hooton (Sections I. and II.), Leeds; and M. S. Jevons (Section I.), Royal Free Hospital.
Forensic Medicine.—W. J. Gibson, London Hospital; W. H. Hooton, Leeds; G. Meyer, Graz; and C. J. Thompson, Birmingham.
Midwifery.—N. B. Darabsett, Bombay and Middlesex Hospital; A. Y. Massey, Toronto and University College Hospital; T. F. O'Mahony, London Hospital; and C. Pyper, Leyden.

The Diploma of the Society was granted to the following candidate, entitling him to practise Medicine, Surgery, and Midwifery:—J. Cree.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Staff-Surgeon Dr. Napp, of the First University Ophthalmic Clinic, and Staff-Surgeon Dr. Momburg, of the Surgical University Clinic in the Ziegelstrasse, have been granted the title of Professor.—*Freiburg:* Two professors who have recently received more or less tempting offers of chairs elsewhere have declined them, viz., Dr. L. Aschoff, Professor of Pathology and Anatomy, who was invited to migrate to Würzburg as successor to Professor von Borst, and Dr. Axenfeld, Professor of Ophthalmology, who was offered the corresponding chair in the University of Heidelberg in succession to Dr. Leber.—*Heidelberg:* Dr. Wagenmann, Professor of Ophthalmology in Jena, has been offered Dr. Leber's chair on his retirement.—*Jena:* Dr. J. Thiemann has been recognised as *privat-docent* of Surgery, and Dr. W. Brunings as *privat-docent* of Otology and Laryngology.—*Kiel:* Dr. Stargardt, who for some time past has been a member of the teaching staff of the Strasburg University, has now returned to his former position in Kiel.—*Leipsic:* Dr. L. Krehl, Professor in Heidelberg, has accepted the offer of the chair of Special Pathology and Therapeutics in succession to the late Dr. Curschmann.—*Munich:* Dr. E. von Malaisé has been recognised as *privat-docent* of Neurology, Dr. Rudolf Schneider as *privat-docent* of Ophthalmology, and Dr. Max Isserlin as *privat-docent* of Psychiatry.—*Naples:* Dr. Giuseppe Pianise, Extraordinary Professor of Pathological Histology; Dr. Fabrizio Padula, Extraordinary Professor of Surgical Anatomy and Operations; and Dr. Nicola Pane, Extraordinary Professor of Bacteriology, have been promoted to Ordinary Professorships.—*Padua:* Dr. Demetrio Roncali, Extraordinary Professor of External Pathology, has been promoted to an Ordinary Professorship.—*Palermo:* Dr. L. Castellani and Dr. E. Engel have been recognised as *privat-docenten* of Anatomy, and Dr. G. Alagna as *privat-docent* of Otology and Laryngology.—*Parma:* Dr. Giunio Salvi, Extraordinary Professor of Anatomy, and Dr. Ersilio Ferroni, Extraordinary Professor of Midwifery and Gynæcology, have been promoted to Ordinary Professorships.—*Pisa:* Dr. C. Carreras has been recognised as *privat-docent* of Internal Pathology and Dr. Giuseppe Coen as *privat-docent* of Midwifery and Gynæcology.—*Prague (Bohemian University):* Dr. Franz Votruba has been recognised as *privat-docent* of Medicine.—*Rome:* Dr. Giuseppe Calligaris and Dr. Giulio Moglie have been recognised as *privat-docenten* of Neurology.—*Vienna:* Dr. Ernst Fuchs, Professor of Ophthalmology, is about to retire on account of the condition of his health. Professor Fuchs is well known to many generations of English and American medical students, some of whom remember his unfailing kindness and patience, together with his astonishing knowledge of English, as long ago as the "seventies" when he was assistant to Professor von Arlt.—*Zürich:* Dr. Schönholzer has been appointed to the charge of the Institute of Mechanical Therapeutics connected with the Surgical Clinic of the University.

THE NORTHAMPTONSHIRE SANATORIUM.—The Northamptonshire Sanatorium for phthisical cases was opened on Thursday, June 23rd, by the Marchioness of Exeter. The Marquis of Northampton presided on the occasion and Sir Frederick Treves delivered the inaugural address. Dr. P. S. Hichens, who, with Dr. W. M. Robson, was the originator of the scheme for building a county sanatorium, presented a financial statement, in which it was

stated that £6202 17*s.* 9*d.* had already been subscribed. The sanatorium has 22 beds and starts without endowment. The cost of each patient is rated at 30*s.* per week. Dr. Thomas J. Walker of Peterborough and Dr. Hichens have been appointed honorary consulting physicians for Creaton Sanatorium.

MIDDLESEX HOSPITAL.—Her Majesty the Queen has graciously contributed £100 to the Appeal Fund for the Middlesex Hospital; and in a letter to Prince Francis of Teck, the promoter of the appeal, has expressed her best wishes for the success of this endeavour to raise money for the institution.

UNIVERSITY OF LONDON: FACULTY OF MEDICINE.—A meeting of the Faculty of Medicine was summoned for Friday, June 24th, at 5.30 P.M., to consider certain resolutions adopted by the Senate on May 26th last to receive from the appropriate Boards of Studies nominations for appointments to the Board of the Faculty, and to appoint the Board of the Faculty. An insufficient number of members attended to form a quorum so the meeting was adjourned.

BOLINGBROKE HOSPITAL.—At a recent special meeting of the board of governors of the Bolingbroke Hospital, Wandsworth, the following resolution was passed:—

That, having regard to the judgment of the Court of Appeal wherein the gift of £5000 from the Weir Trust Funds to the hospital was described as a misapplication of such Fund, it is the unanimous desire of the governors to restore such sum if possible; and that it will be referred to a committee to consider and report, after taking legal advice, the best steps to be taken to give effect to such desire.

GUY'S HOSPITAL.—The governors and medical staff of Guy's Hospital are giving a garden party on Thursday next, July 7th, at 3.15 P.M., in the grounds of the institution in St. Thomas's-street, S.E. Professor Howard Marsh, professor of surgery at the University of Cambridge, will distribute the various medals and prizes to the students of the hospital. The laboratories, museums, and wards, also the college and the nurses' home, will be open for inspection by the guests during the afternoon.

THE VISIT TO ENGLAND OF AMERICAN SURGEONS. The following members of the American Society of Clinical Surgery are now visiting England, accompanied in some cases, as will be seen, by their wives:—Dr. Samuel Alexander (St. Louis), Dr. William Bartlett (St. Louis) and Mrs. Bartlett, Dr. A. D. Bevan (Chicago), Dr. Frank Billings (Chicago), Dr. J. A. Blake (New York), Dr. G. E. Brewer (New York) and Mrs. Brewer, Dr. E. A. Codman (Boston) and Mrs. Codman, Dr. G. W. Crile (Cleveland) and Mrs. Crile, Dr. G. C. Davis (Philadelphia), Dr. Ellsworth Eliot (New York), Dr. J. M. T. Finney (Baltimore) and Mrs. Finney, Dr. C. H. Frazier (Philadelphia), Dr. J. H. Gibbon (Philadelphia) and Mrs. Gibbon, Dr. M. L. Harris (Chicago), Dr. L. W. Hotchkiss (New York), Dr. J. P. Hutchinson (Philadelphia), Dr. R. G. le Conte (Philadelphia), Dr. F. B. Lund (Boston), Dr. L. L. MacArthur (Chicago), Dr. Edward Martin (Philadelphia), Dr. Charles H. Mayo (Rochester, Minnesota) and Mrs. Mayo, Dr. J. C. Munro (Boston) and Mrs. Munro, Dr. J. B. Murphy (Chicago), Dr. C. A. Porter (Boston) and Mrs. Porter, Dr. Emmet Rixford (San Francisco), Dr. George Woolsey (New York), and Dr. R. H. Harte (Philadelphia). Dr. Harvey Cushing (Baltimore) is also expected. The tour in London includes visits to the following hospitals: St. Thomas's, King's, Middlesex, Guy's, St. Bartholomew's, London Temperance, and the National Hospital for Epilepsy, Mr. Makins, Sir Watson Cheyne, Mr. Bland-Sutton, Mr. Arbuthnot Lane, Mr. Lockwood, Mr. H. Paterson, and Sir Victor Horsley doing the honours of the respective clinics. While in London the visitors will also inspect Frimley Sanatorium, the Museum of the Royal College of Surgeons of England, and the instrument manufactory of Messrs. Down Bros., and will find time to visit Oxford, to dine with the Council of the Royal College of Surgeons, to attend a reception at the American Ambassador's house, to visit the House of Commons and Lord's Cricket Ground, and to play golf. On Wednesday next they leave for Edinburgh, where they will visit the Royal Infirmary and the Hospital for Sick Children, under the auspices of Professor Alexis Thomson and Mr. Harold Stiles; whence they will proceed to Newcastle and Leeds, attending the clinics of Mr. Rutherford Morison and Mr. Moynihan; and so to Liverpool, where they will be under the care of Mr. Robert Jones. On Saturday, July 9th, they will sail again for America.

UNIVERSITY OF OXFORD: THE WELSH PRIZE.—The professor of human anatomy has awarded the Welsh prize for proficiency in anatomical drawing to Charles M. Burrell, scholar of University College.

EALING HOSPITAL.—The ceremony of laying the foundation-stone of the new hospital will take place at Mattock-lane, Ealing, on Wednesday next, July 6th, at 6 P.M. Princess Christian of Schleswig-Holstein, who had promised to perform the ceremony, will in consequence of the Royal mourning be unable to do so, but the committee has secured the services of Lord Rothschild for the purpose. It is stated that £5000 are still required to enable the new buildings to be opened in 18 months without any debt, and an urgent appeal for contributions is made.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN (UNIVERSITY OF LONDON).—The council of this school has appointed Mr. Percy Flemming, M.D., F.R.C.S., to be lecturer in ophthalmology, and Mrs. E. M. Vaughan-Sawyer, M.D., B.S., to be lecturer in gynæcology. Entrance scholarships of the value of £60 for three years, extendible to five years, and £30 for one year, respectively, will be awarded on the result of an examination to be held from Sept. 20th to 22nd. Forms of entry and all particulars can be obtained from the secretary and warden.

DONATIONS AND BEQUESTS.—Under the will of the late Mrs. A. Grant of Ayr the Ayr County Hospital will benefit by a sum of £1505.—The late Miss E. E. Bond of Lancaster has left £10,000 upon trust for a sanatorium or other building for the relief and cure of consumption.—Mr. Edmund Davis has given a donation of £1000 to the Middlesex Hospital in response to Prince Francis of Teck's appeal on behalf of the funds of the institution.—The Royal Dental Hospital, Leicester-square, has received a legacy of £250, duty free, under the will of the late Miss Emma Brandreth.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The sixty-ninth annual meeting of this association will be held on Thursday and Friday, July 21st and 22nd, at the Royal College of Physicians, Edinburgh, under the presidency of Dr. John Macpherson, Commissioner in Lunacy for Scotland. A fairly large number of papers will be read. The annual dinner will take place on July 21st at the Caledonian Hotel at 7 P.M. The charge for dinner tickets (wines included) will be 1 guinea. The honorary general secretary is Dr. C. Hubert Bond, 11, Chandos-street, Cavendish-square, London, W.

RUSSIAN MILITARY ORTHOPÆDIC CLINIC.—Early in April the tenth anniversary of the Military Orthopædic Clinic was celebrated in Russia. During the proceedings Professor G. J. Turner stated that the development of orthopædics in Russia had been very backward. There were only two special orthopædic clinics in the country, at Kharkoff and Moscow, previously to the establishment of the Military Orthopædic Clinic in 1900. The hospital commenced with five beds, now ten more have been added, but the calls on its resources continue to grow. Patients come from all parts of Russia and wait their turn, and during its nine and a half years of activity 9774 have been treated, and over 2500 operations have been performed.

MAITLAND SANATORIUM, PEPPARD COMMON (OXON.).—The new buildings of this sanatorium, the medical superintendent of which is Dr. Esther Carling, were opened by the Bishop of Oxford on June 25th. The Hon. W. F. D. Smith presided and said that they had received £3469 for the alterations and additions, out of which they had spent £3080. This left a balance of £389, but as there were works in hand which would cost £900, £511 more were required to meet the debt, which he hoped would soon be found. The Bishop of Oxford said they would see the campaign against consumption in its true light if they thought of it as a real bit of patriotism, and it was the larger understanding of patriotism that they should foster more and more. He heartily recommended the reading of Mr. John Burns's speech at the Whitechapel Exhibition last year. Professor W. Osler spoke of the campaign as the most

hopeful in which they were engaged to-day, foreseeing that in the course of a few generations the disease would be wiped out. Mr. J. F. Mason, M.P., promised to double whatever sum was collected in aid of the funds.

LITERARY INTELLIGENCE.—Messrs. Cassell and Company, Limited, announce for immediate publication "Moveable Kidney: its Etiology, Pathology, Diagnosis, Symptoms, and Treatment," by William Billington, M.S. Lond., F.R.C.S.

MEDICAL FREEMASONRY.—On Monday, June 27th, a medical Rose Croix Chapter was duly consecrated by the M.P.S. Grand Commander, the Right Hon. the Earl of Dartrey, 33°, and Ill. Bro. George Frederick Rogers, M.D., 31°, was installed as first M.W.S. Ill. Bro. W. A. Oxford, M.D., 32°, to whose initiative the foundation of the Chapter is mainly due, is Recorder.

LEPROSY IN RUSSIA: EXPERTS' VIEWS ON ITS TREATMENT.—At the recent Pirogoff Congress a special sitting was devoted to reports on leprosy in Russia. Dr. J. J. Hubert estimated the number of patients in Russia at 1736, and insisted that the scourge should be dealt with by the Government. His figures were disputed by some of the delegates who computed the number of lepers as high as 10,000. A plea for isolation was objected to by those who insist on the liberty of the individual. Dr. R. K. Biller, director of the Riga leper station, in presenting his report, laid stress on the contagious nature of the disease, and *inter alia* added that isolation was the only method against its spread. He urged its application in the most complete and stringent possible form, both in acknowledged cases and for suspects. He advocated the separation of children from leprous parents and stated that he considered lepers should be a State charge. Dr. V. J. Andrusson also estimated the number of lepers in Russia at 10,000, and said that the law on leprosy should be reformed and that leper stations should be established near universities for the instruction of students. He added that he had found apparently successful cures spoiled by the drinking habits of the patients. Dr. N. A. Solotavin described the condition of things in the leper community of Yamburg, near St. Petersburg, where the disease has taken a firm hold. Finally, Dr. N. P. Proxoroff spoke of the striking success of the struggle with leprosy in Norway due to a radical temperance reform. With the decrease in the consumption of alcohol both crime and leprosy have diminished. He said that in Russia drink was at the root of the leprosy scourge. On the hearing of these reports the meeting passed a resolution to the effect that it was desirable to hold at an early date a conference of specialists; a resolution in favour of isolation was also passed. In considering cases in which medical men were reported to have inoculated themselves with leprosy in order to test its infectivity, the meeting held that such inoculations were wrong.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

A Medical Peer.

AMONGST the new peers included in the list of Birthday honours is Sir WALTER FOSTER. He is a medical man by profession, and during the many years in which he sat in the House of Commons he took a close interest in matters of public health. He retired from the House of Commons a few months ago.

The Midwives Bill.

The Midwives Bill, which has for some time been standing for second reading in the notice paper of the House of Lords, has been withdrawn by the Lord President of the Council. However, it will be reintroduced in an amended form. The object of this operation is to simplify the proceedings on the Bill. The Privy Council has received representations which have, it is understood, induced it to assent to a modification of the terms of the measure. It was open to the Government to bring forward the modifying amendments in committee, but that is a complicated process. As the Bill had not received a second reading it was the simpler course to withdraw it and press forward a redrafted measure. The Government intends, if possible, to pass the Bill through both Houses of Parliament this session.

Experiments on Living Animals.

The annual return showing the number of experiments on living animals during the year 1909 under licences granted under the Act 39 and 40 Vict., c. 77, has been printed as a Parliamentary paper. The nature of the experiments is distinguished in it. The total number of experiments which took place during the year was 86,277, being 2357 less than in 1908. Of these, 82,389 were inoculations, hypodermic injections, and some few other proceedings performed without anæsthetics. Professor G. D. THANE, who signs the report, states in it that in no instance has a certificate dispensing with the use of anæsthetics been allowed for an experiment involving a serious operation. The number of experiments performed under licence and under the various certificates are carefully recorded, and the conditions under which they were generally carried out are stated. In the event of pain ensuing as the result of an inoculation, a condition attached to the licence requires that the animal shall be killed under anæsthesia as soon as the main result of the experiment has been attained.

During the year 1909 (the report goes on to state) 45,182 experiments were performed at five institutions in the course of cancer investigations. A large number of experiments, almost wholly simple inoculations and similar proceedings, were performed either on behalf of official bodies, with a view to the preservation of the public health, or directly for the diagnosis and treatment of disease. Several county councils and municipal corporations have their own laboratories in which bacteriological investigations are carried on, including the necessary tests on living animals; and many others have arrangements by which similar observations are made on their behalf in the laboratories of universities, colleges, and other institutions. A sewage farm is registered as a place in which experiments on living animals may be performed in order that the character of the effluent may be tested by its effects on the health of fish. The Board of Agriculture and Fisheries has a laboratory which is registered for the performance of experiments having for their object the detection and study of the diseases of animals. In other places experiments have been performed on behalf of the Home Office, the Naval Medical Service, the War Office, the Army Medical Advisory Board, the Army Veterinary Service, the Local Government Board, the Metropolitan Asylums Board, the Royal Commission on Tuberculosis, the Advisory Committee for Plague in India, the Tropical Diseases Committee of the Royal Society, and the Grouse Disease Committee. 63 licensees return over 16,000 experiments which were performed for Government departments, county councils, municipal corporations, or other public health authorities; 1126 experiments were performed by three licensees for the Royal Commission on Tuberculosis; and 15 licensees performed 6386 experiments for the preparation and testing of antitoxic sera and vaccines, and for the testing and standardising of drugs.

During the year seven new places were registered for the performance of experiments and three places were removed from the register.

Sir THORNLEY STOKER makes the report for Ireland. He states that 21 licences were in force there during the year. The experiments performed were 284 in number. 78 of them were physiological, 37 therapeutical, and 169 pathological. The greater number consisted of hypodermic injections and inoculations. The principal were: investigations of the gases of blood and blood pressure; the movements of respiration, functions of heart and nervous control of heart; intestinal movements in connexion with respiration; uterine contraction; nervous and chemical control of digestive glands; the study of X rays; study of calf vaccine lymph; of medico-legal investigations; of the intravenous injection of drugs in disease; the study of the tubercle bacillus and of the pneumococcus; of the pathogenicity of lumbar puncture; of the actions of the kidney; of the action of adrenalin and of an antimeningococcus. The increase in the experiments of late years is largely connected with the study of new investigations connected with the treatment of disease by means of antitoxins, sera, and vaccines.

The Coroners' Law and Death Certification (Amendment) Bill.

The Bill which Sir WILLIAM COLLINS introduced in April in the House of Commons "to amend the law relating to coroners' law and the certification and registration of deaths and burials" has now been printed. It has the support of Colonel LOCKWOOD, Sir PHILIP MAGNUS, Sir LUKE WHITE, Dr. HILLIER, Dr. CHAPPLE, and Mr. O'GRADY. The promoters of the Bill explain in a brief general way its objects in a memorandum. They state that the law relating to coroners is not adapted to modern necessities, and its administration is costly to local authorities without securing efficiency in results. In December, 1908, a Departmental Committee of the Home Office was appointed to inquire into the law relating to coroners and coroners' inquests, and into the practice in coroners' courts. The provisions of this Bill are intended to give effect to many of the recommendations of the Departmental Committee of 1908 and of the Death Certification Committee of 1893. The report of the Departmental Committee drew attention to anomalies existing in the appointment of coroners in certain "franchise districts," in the qualifications required of coroners, the conditions of their appointment, the mode of their remuneration, the provision of deputies, the areas of jurisdiction, &c.

Clause 6 of the Bill lays down that appointments as coroners are to be given only to barristers and solicitors having certain professional experience, and to registered medical practitioners who are barristers or graduates in law of a university in the United Kingdom. By Clause 10, any county or borough council may appoint one or more medical investigators or pathologists in each coroner's district to assist the coroner in his inquiries and inquests and to make

post-mortem examinations. Such medical investigators or pathologists shall be paid such remuneration out of the county or borough rate as the county or borough council may determine. The further provision is added in Clause 11 that where a medical witness is not a medical investigator or pathologist appointed by the county or borough council he shall be entitled to receive such remuneration as the Secretary of State shall by regulation prescribe.

The proposals in Part II. of the Bill concern the registration and certification of death and burial. It is provided in Clause 16 that no death shall be registered under the Registration Acts without the delivery to the registrar of a certificate of death signed by a registered medical man or by a coroner after holding an inquiry or inquest. In a succeeding clause it is proposed that before giving a certificate of death a registered medical practitioner shall personally inspect the body and identify it as the body of the person named in the certificate whom he has attended during his last illness and shall certify to the fact of death as well as to its cause. The filing of the certificate is to take place within 24 hours of death. When the medical man is unable to give a certificate of death he must notify to the coroner the fact of the death with the reasons for his inability to give such certificate. A form of death certificate is set forth in one of the schedules to the Bill. Non-compliance with the provisions of the Bill is to render the medical man liable to a penalty. It is also proposed that certificates of burial should be entered in a register.

At this time of the session a private Member's Bill has little chance of advancement. It has to be regarded as the embodiment of the views of those who introduced it, and it may serve a very useful purpose in inducing consideration of the subject with which it deals.

Accidents in Mines.

A Bill has been presented in the House of Commons on behalf of the Government for the purpose of securing organisation for rescue and aid in the case of accidents in mines. It gives the Home Secretary power to require the supply and maintenance of appliances for use in rescue work, the formation and training of rescue brigades, the supply and maintenance of ambulance appliances, and the training of men in ambulance work.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 22ND.

Nerve Troubles amongst Telephone Employees.

Mr. WILLIAM THORNE asked the Postmaster-General whether his attention had been drawn to the increase of hysteria and other nervous disorders in the large telephone exchanges in London; whether, in the London Trunk Telephone Exchange alone, 25 girls were absent through nerve trouble between May 12th and 31st; and whether, in view of this prevalence of nervous complaints, he would order an inquiry to be made into the causes of this state of matters.—Mr. H. SAMUEL wrote in reply: A medical inquiry into the conditions of work in telephone exchanges has been proceeding for some time past and is now completed. The report of the investigators is receiving immediate and careful consideration. The number of absentees from the London Trunk Exchange on account of nerve trouble between the dates mentioned was not quite half the number quoted by the honourable Member among a staff of 239 persons.

THURSDAY, JUNE 23RD.

The Detention of Feeble-minded Females.

Mr. BARNSTON asked the President of the Local Government Board whether, in view of the continual difficulty which boards of guardians had in dealing with feeble-minded females, he could see his way to introduce legislation to empower boards of guardians to detain such persons.—Mr. BURNS replied: I am aware of the difficulty to which the honourable Member refers. The matter is, however, part of a much larger question, and I am not in a position at the present time to promise legislation dealing with this particular aspect of it.

The Butter and Margarine Act.

Mr. HUGH BARRIE asked the Parliamentary Secretary to the Board of Agriculture in how many cases of alleged fraud the department had initiated prosecutions under the Butter and Margarine Act, 1907, and with what result.—Sir E. STRACHEY answered: No prosecution under the Butter and Margarine Act, 1907, has as yet been initiated by the Board.

Nerve Troubles amongst Telephone Employees.

Mr. H. SAMUEL (the Postmaster-General), speaking on the Post Office vote, said that as chairman of the Departmental Committee on Industrial Diseases he was instrumental in having telegraphist's cramp scheduled as entitling sufferers to compensation under a recent statute; and now that he was himself at the Post Office he was eager to adopt any means that science could devise in order to provide what was far better than either compensation or cure for disease of that character, and that was prevention of its occurrence. With respect to the young operators in the telephone exchanges there had lately been sensational statements in the press as to the effect upon their physique of the employment on which they were engaged. Grossly exaggerated figures had been furnished, which on inquiry proved to require to be divided by two, three, or even by ten in order to give a fair picture of the facts. But the truth remained that the work of the telephone operator was of a character that did impose a certain strain upon the nervous organisation. The late Postmaster-General some months ago set on foot a medical inquiry into the conditions of employment in the telephone exchanges. The inquiry was conducted by the second medical officer of the Post Office and the principal female medical officer. The inquiry was now completed and the report of the committee reached him two days ago. The investigators visited a number of telephone exchanges and examined 250 of the operators, and in their report they made a number of suggestions for improvements in the allocation of hours and the intervals for meals and rest, and they expressed the hope that some improvements might be devised in the instruments in use. He had given instructions that the recommendations in this report should be regarded as matters of urgency, and he hoped in the near future to be able to effect any improvements that might be found by the medical officers and his technical advisers to be practicable in that branch of the work of the Post Office.

County Medical Officers of Health.

Mr. LLOYD MORGAN asked the President of the Local Government Board whether county councils had hitherto been unable to appoint a medical officer of health under the Housing, Town Planning, &c., Act, 1909; whether the reason was that such councils were unable to fix the salary of the medical officer until they were in a position to specify the duties of the office; and whether he would state when he proposed to issue the general order setting forth the duties of county medical officers under the said Act.—Mr. BURNS (in a written answer) replied: The power of a county council to appoint a medical officer of health is contained in Section 17 of the Local Government Act, 1888, and many county councils have already exercised the power. As regards the last part of the question, I may state that the general order prescribing duties is in an advanced state of preparation, and that I hope to issue it shortly.

MONDAY, JUNE 27TH.

Malta Fever.

Mr. CHANCELLOR asked the Under-Secretary of State for the Colonies to state the number of troops in Malta during the year 1905, the half-years ending June and December, 1906, and the years 1907, 1908, 1909, and 1910; the civil population of the island; the numbers, respectively, of civil and military and naval cases of Malta fever for the same periods, respectively; the date when the cleansing of the harbour was carried out; and the date when the garrison was removed from the St. Elmo to the new barracks.—Colonel SEELY replied: The figures asked for by my honourable friend, so far as they are available in the Colonial Office, are as follows:—

Number of troops in Malta (average strength, all ranks), 1905, 9587; 1906 (Jan. 1st–June 30th), 8101; 1906 (July 1st–Dec. 31st), 6979; 1907, 6525; 1908, 6819; and 1909, 7122.

Number of military cases of Malta fever: 1905, 643; 1906 (Jan. 1st–June 30th), 119; 1906 (July 1st–Dec. 31st), 42; 1907, 11; 1908, 5; 1909, 1; and 1910 (Jan. 1st–May 31st), none.

Total naval force: 1905, 14,360; 1906, 12,130; 1907, 10,530; 1908, 9780; and 1909, 9920.

Number of naval cases of Malta fever: 1905, 270; 1906, 514; 1907, 14; 1908, 6; and 1909, 11.

Number of civil cases of Malta fever: 1905–6, 822; 1906–7, 714; 1907–8, 501; and 1908–9, 463.

The figures for the exact periods named are not available in the Colonial Office as regards the number of cases among the civil population. The civil population of Malta was estimated at 190,250 on March 31st, 1909. I do not understand to what my honourable friend refers as the cleansing of the harbour. If he means the construction of drainage works to prevent sewage draining into the harbour, I can only say that various works with this object have been carried out from time to time during the last ten years. As regards the last sentence of the question, I would point out that there are still troops in occupation of the barracks at St. Elmo.

In reply to another question put by Mr. CHANCELLOR, Mr. MCKENNA (First Lord of the Admiralty) said that in the Navy at Malta, while there had been 11 cases of Malta fever in 1909, there had been 69 cases of simple continued fever.

Zymotic Diseases in the Isle of Wight.

Mr. DOUGLAS HALL asked the First Lord of the Admiralty whether he would explain why, in the official returns of zymotic diseases sent to Captain Christian, the head of the Royal Naval College at Osborne, the returns with regard to West Cowes were omitted; whether he was aware that in the official returns of East Cowes sent to Captain Christian measles, chicken-pox, whooping-cough, and German measles were not mentioned; had Captain Christian called the attention of the Admiralty to these omissions; and whether, in the interests of the general health of the college, he would take steps to ensure that outbreaks of all such diseases in the neighbourhood of the college should in future be reported to the head of the college.—Mr. MCKENNA replied: A communication on this subject has been received from the Isle of Wight rural district council and inquiries are now being made into the matter.

Asylum Death Notices.

Colonel RAWSON asked the Secretary of State for the Home Department whether he was prepared to take steps for the deletion of the description pauper patients from the notices of death sent out from the asylums, as such a description might be hurtful to the feelings of the relatives at a time of distress and bereavement.—Mr. CHURCHILL answered: I have communicated with the Commissioners in Lunacy, and I do not think there will be any serious difficulty in making the change desired. The alteration in the form of notice will require the approval of the Lord Chancellor, and I am asking the Commissioners to submit the matter for his approval.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

DIGHTON, CHARLES A. ADAIR, M.B., Ch.B. Edin., has been appointed Ophthalmic and Aural Surgeon to the Scarborough Hospital and Dispensary.

LIVERMORE, WILLIAM BARCLAY, M.B. Aberd., has been appointed Medical Superintendent of the Devon and Cornwall Sanatorium, Didworthy, South Brent, Devon.

MARTIN, A. E., M.D. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Elstree District of the county of Hertford.

MAYO, T. A., M.B. Cantab., F.R.C.S. Eng., has been appointed Medical Officer of Health of Cowes, and Certifying Surgeon under the Factory and Workshop Act for the Cowes District of the county of Hants.

MOIR, J. L., M.B., M.S. Vict., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Congleton District of the county of Cheshire.

PHILLIPS, LLEWELLYN POWELL, M.D., B.C. Cantab., F.R.C.P. Lond., F.R.C.S. Eng., has been appointed Professor of Medicine in the Egyptian Government School of Medicine and Senior Physician to the Kasr-el-Aini Hospital, Cairo.

WIGHAM, WILLIAM HARPER, M.D. Durh., M.R.C.S., has been appointed Medical Officer of Health for the South Molton (Devon) Urban District.

WINGRAVE, V. H. WYATT, M.D. Durh., has been appointed Resident Pathologist at the Medical Graduates' College and Polyclinic.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ARLESEY, NEAR HITCHIN, THREE COUNTIES ASYLUM.—Medical Superintendent. Salary £800 per annum, furnished residence, &c.

BATTERSEA POLYTECHNIC, London, S.W.—Lecturer in Physiology and Hygiene.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Physician; also House Surgeon. Salary at rate of £50 per annum, with board, lodging, and washing.

BIRMINGHAM, YARDLEY-ROAD SANATORIUM FOR CONSUMPTIVES.—Resident Medical Officer. Salary £150 per annum, with board and residence.

BRADFORD, ROYAL EYE AND EAR HOSPITAL.—Resident Officer (female). Salary £30 per annum, with board and laundry.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CAMBRIDGE, CAMBRIDGESHIRE LUNATIC ASYLUM, Fulbourn.—Senior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and washing.

CANCER HOSPITAL, Fulham-road, London, S.W.—Senior and Junior House Surgeon for six months. Salaries £80 and £70 per annum respectively. Also Surgeon.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon; also House Surgeon for Ophthalmic and Ear and Throat Departments, each for six months. Salary £30, with board, residence, and laundry.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—Resident House Surgeon. Salary £50 per annum, with board and residence.

CHESTER COUNTY ASYLUM.—First Assistant Medical Officer. Salary £250 per annum, with board, lodging, and washing.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with board, apartments, and laundry.

CROYDON GENERAL HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with board, laundry, and residence.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—Assistant House Surgeon for six months. Salary £30, with board, residence, and washing.

DORCHESTER, DORSET COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

FRIMLEY, BROMPTON HOSPITAL SANATORIUM.—Assistant Resident Medical Officer. Salary £150 per annum, with board and residence.

GLASGOW SCHOOL BOARD.—Assistant Medical Officer (female). Salary £250 per annum.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with rooms, board, and washing.

HIGHBURY HILL HIGH SCHOOL FOR GIRLS.—Female Practitioner. Salary £50 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Radiographer. Salary 50 guineas per annum. Also Dental Surgeon. Salary 50 guineas per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician and House Surgeon, both unmarried, for six months. Salary in each case £30, with board, residence, and washing. Also House Physician and Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board, residence, &c.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Assistant House Surgeon (female). Salary £40 per annum, with board and laundry.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary at rate of £75 per annum, with board, residence, and washing.

MIDDLESEX COUNTY ASYLUM, near Tooting, S.W.—Fourth Assistant Medical Officer.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Clinical Assistants for six months.

NOTTINGHAM CITY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £200 per annum, with board, apartments, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Also Assistant House Physician. Salary in each case £100 per annum, with board, lodging, and washing.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Pathologist Salary £20 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon and House Physician for six months. Salary in each case at rate of £80 per annum, with board, residence, and washing.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Joint Morning House Anæsthetist. Salary £25 per annum.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.

ST. MARYLEBONE, PARISH OF.—Visiting Medical Officer of the Workhouse and Houseless Poor Wards. Salary £200 per annum.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion-square.—House Surgeon for six months. Salary 50 guineas per annum.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with board, residence, and laundry.

SHEFFIELD EDUCATION COMMITTEE.—Assistant Medical Officer. Salary £250 per annum.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing. Also Casualty Officer. Salary £60 per annum.

SHEFFIELD ROYAL INFIRMARY.—Seventh Resident Medical Officer. Salary £60 per annum, with board and residence.

STAMFORD, RUTLAND, AND GENERAL INFIRMARY AND FEVER HOSPITAL.—House Surgeon, unmarried. Salary £130 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board and lodging.

WAKEFIELD, WEST RIDING ASYLUM.—Assistant Medical Officer. Salary £140 per annum, with apartments, board, washing, &c.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House Surgeon. Salary £120 per annum, with apartments, board, and laundry.

WEST BROMWICH DISTRICT HOSPITAL.—Assistant Resident House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Physician.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Hatherleigh, in the county of Devon.

Births, Marriages, and Deaths.

BIRTHS.

CRAN.—On June 23rd, at Netherdale, New Malden, the wife of Hugh Rose Cran, M.R.C.S., L.R.C.P., of a daughter.

KIDD.—On June 17th, at 13, Portland-road, Gravesend, the wife of Archibald Kidd, M.R.C.S., L.R.C.P., D.P.H., of a daughter.

LANGMORE.—On June 23rd, at Aston Tirrold, Berks, the wife of Herbert Richard Langmore, M.B. Cantab., M.R.C.S. Eng., of a son.

ROBERTSON.—On June 21st, at Althorpe, near Doncaster, the wife of J. F. Robertson, M.R.C.S., of a daughter.

SAMBON.—On June 24th, at Woodlawn, Shoot-up-Hill, N.W., the wife of Dr. Louis W. Sambon, of a daughter.

SHARP.—On June 23rd, at 1, Headingley-terrace, Leeds, the wife of Alexander D. Sharp, F.R.C.S.E., of a son.

MARRIAGES.

BRISCOE—PRINGLE.—On June 21st, at All Saints Church, Banstead, William Thomas Briscoe, M.R.C.S., L.R.C.P., to Nancy, younger daughter of Andrew Pringle, J.P.

DEATHS.

MUIRHEAD.—On June 22nd, at Charlotte-square, Edinburgh, suddenly, Claud Muirhead, M.D., F.R.C.P.E., in his 75th year.

STANWELL.—On June 26th, at Green-lanes, Palmer's Green, Middlesex, Frederic Skey Stanwell, M.D. Edin., aged 37 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A DIARY OF CONGRESSES.

CONGRESSES are now getting so numerous that we have thought that a diary like the one printed below might be of service to our readers. With that idea we shall repeat it occasionally, with any necessary additions or subtractions. The following Congresses, Conferences, and Exhibitions are announced for 1910 :—

July 2nd–5th (Edinburgh).—National Association for the Prevention of Tuberculosis.
,, 26th–29th (London).—British Medical Association.
,, 26th–29th (Cambridge).—Pharmaceutical Congress.
August 2nd–7th (Paris).—Third International Congress on School Hygiene.
,, 4th–10th (Brussels).—International Congress of Legal Medicine.
,, 31st (Sheffield).—British Association for the Advancement of Science.
Sept. 10th–14th (Brussels).—Second International Congress on Occupational Diseases.
,, 13th–15th (Brussels).—International Congress on Radiology and Electricity.
,, 22nd–27th (Toulouse).—Sixth French Congress of Gynæcology, Obstetrics, and Pædiatrics.
,, 27th–30th (Vienna).—Eighth International Physiological Congress.
Oct. 3rd–7th (London).—Sixth London Medical Exhibition.
,, 3rd–7th (Berlin).—International Congress on the Care of the Insane.
,, 16th–22nd (Barcelona).—First International Spanish Congress of Tuberculosis.

In 1911 :—

May–October (Dresden).—International Hygiene Exhibition.
August or September (Berlin).—Third International Laryngo-Rhinological Congress.
September (Brussels).—Exhibition of Fractures.
October (Cologne).—International Congress of Criminal Anthropology.

In 1912 :—

September (Washington, D.C.).—Fifteenth International Congress of Hygiene and Demography.

In 1913 the only fixture so far is in London, where the Seventeenth International Congress of Medicine will take place.

WEI-HAI-WEI: THE OPIUM HABIT AND PUBLIC HEALTH.

THE territory of Wei-hai-wei was leased to Great Britain by China by a convention made in 1898. It lies in latitude 37·30 N., longitude 122·10 E., in the Chinese province of Shantung, and comprises the island of Liu Kung, all the islands in the Bay of Wei-hai-wei, and a belt of land ten English miles wide along the entire coast line, with a total area of about 285 square miles and an estimated population of 150,000, in which are included 4000 residents on the island of Liu Kung. The government is administered by a Commissioner, Sir J. H. Stewart Lockhart, K.C.M.G., whose report for the year 1909 has just been received at the Colonial Office. It states, *inter alia*, that every endeavour has been made, so far as the territory is concerned, to carry out the policy of His Majesty's Government with regard to opium and to assist China in her task of suppressing the opium habit. The lease of the opium farm, which was vested in a farmer who paid the Government for his privilege £700 a year, having expired in June, 1909, an Ordinance was at once introduced prohibiting generally the importation, sale, and smoking of opium and any other hypnotic, and only allowing an exception on medical grounds in the case of a few licensed vendors who are permitted to import the drug and to retail it only to persons who produce a doctor's certificate that it is required for medicine. Since the introduction of the Ordinance only two chests of opium have been imported, and the number of shops licensed to sell opium, which to commence with was seven, has been reduced to one. The number of opium-smokers holding a medical certificate has been gradually reduced from 220 to 110. At the present moment there are no opium divans in the territory. A refuge for those who desire to rid themselves of the opium habit has been opened under the control of the medical officer. There were 31 admissions during the year. All those admitted were at once deprived of the drug, other hypnotics being given as required for the first few nights. Digestive and other symptoms were treated on general principles as they arose. The average stay in the refuge was 14 days, and all who had been admitted left in good health without any craving for opium. Whether there have been many relapses it is impossible to say. Public opinion among the Chinese of Wei-hai-Wei is now opposed to opium and the number of smokers is comparatively small. It seems, therefore, reasonable to hope that through the influence of public opinion, supported by the prohibitive legislation which has been introduced, opium smoking will become a rare habit in the territory. The general health of both the European and Chinese communities during the year was good. There were some cases of dysentery and an outbreak of diphtheria occurred among Chinese in a house on the island. There were five cases and two deaths before the disease was notified. The remaining three cases, which were severe, were treated with antitoxin, and all recovered. During the summer a severe epidemic of cholera broke out at Chefoo, distant 60 miles by road and 40 miles by sea from Wei-hai-wei, and the disease gradually spread along the high road from Chefoo to Wei-hai-wei until it reached several of the villages in the latter territory. Chefoo was at once declared an infected port, and all native passengers arriving by sea were subjected to medical inspection, whilst the villages infected were visited by a medical officer. Printed instructions regarding the treatment and prevention of cholera were also circulated throughout the territory by the headmen of the villages. As a result of the precautions taken the disease did not spread in the territory and soon disappeared. The sanitary condition of Port Edward and the island is satisfactory. The highest monthly barometrical average was that of January, 30·660; and the lowest that of July, 29·009. The highest temperature was 94° F., recorded in July, and the lowest 11°, in January and February. Rain or snow fell on 81 days, the total rainfall for the year being 33·54 inches. Peace and good order reigned throughout the year owing to the orderly nature of the inhabitants, among whom crime is rare and good behaviour prevalent.

A QUERY.

To the Editor of THE LANCET.

SIR,—Can any of your correspondents inform me which is the best electrically-lit ophthalmoscope or electric light fitting for the ordinary ophthalmoscope?

I am, Sir, yours faithfully,

June 27th, 1910. OPHTHALMOSCOPE.

SEWERAGE AND WATER-SUPPLY OF NICE.

Mr. A. McMillan, the British Consul, reports that the Nice sewerage system has been completed and is in a most satisfactory state and in full working order. All that remains to be done is to extend the main collecting sewer towards the west so as to remove still farther away the point of discharge into the sea; and a supplementary system of sewers will then be brought into operation in a not extensive suburban zone on the west side of Nice between the Magnan stream and the quarter known as Californie. Nice is in the enjoyment of arrangements for water-supply which are eminently satisfactory. There are two systems of conduits supplying water of two kinds: (1) water to be used for irrigation and road watering and the requirements of hygiene; and (2) drinking water. It has sometimes happened in the past that a lack of sufficient drinking water has necessitated its being supplemented by water of the former kind; but the municipality constructed and brought into operation about three years ago, in the Bon Voyage quarter, a factory for the sterilisation of drinking water. As this establishment, however, could only sterilise a portion of the drinking water required, a second factory was constructed in the course of 1909 in the Rimiez quarter, so that the whole supply of drinking water can now be sterilised. The result is that since December last the whole city of Nice has had an abundant and continuous supply of drinking water perfectly sterilised.

THE WEIR-MITCHELL SYSTEM.

To the Editor of THE LANCET.

SIR,—Could any of your readers tell me of an institution where the Weir-Mitchell treatment can be had for about 10*s.* or 15*s.* a week?

I am, Sir, yours faithfully,

JOHN E. H. PARSONS.

The Cottage, Shipton-under-Wychwood, Oxford, June 28th, 1910.

SALE OF LETTERS AND AUTOGRAPHS FROM WELL-KNOWN MEDICAL MEN.

AMONG a collection of autograph letters of celebrities sold at Sotheby's recently were included many interesting specimens from eminent medical men. Among them were letters of Dr. Neil Arnott, F.R.S., Sir William Gull, Sir Andrew Clark, Dr. Lionel S. Beale, Sir Richard Quain, Sir R. Owen, Dr. J. Conolly, besides many others. Only nominal sums were realised for the majority of the lots. One letter from James Currie, M.D., of Liverpool, the earliest biographer of Burns, to Sir Joseph Banks, respecting the treatment of French prisoners of war, declaring that they were insufficiently fed, clothed, and cared for, with a copy of Sir Joseph Banks's letter in answer, fetched £2 16*s.* Another from John Hunter to Edward Jenner, in which he says, "I want you to pursue the Expts. upon the Hedge Hog this winter, and if you would send me a colony of them I should be glad, as I have expended all excepting two; one an Eagle cat, and a trap caught the other," together with another to a Mr. Smith, an artist, asking him to accompany him to a camp of gypsies "which he should like to have a painting of," and two small portraits, sold for £5 5*s.* A lot of rather gruesome interest was two love letters from William Palmer, surgeon (the Rugeley poisoner), to his fiancée, Miss Annie Brooks, written shortly before their marriage, in which he expressed his warmest devotion "for ever and ever." Another lot included a

licence to William Pirrie, M.D., of Aberdeen, to practise anatomy in the anatomical theatre of Marischall College, signed by the Home Secretary, Lord Melbourne, with seal, and dated October 18th, 1832. The last lot, a collection of 19 letters from well-known physicians and surgeons, including a scarce portrait of Sir Thomas Watson, M.D., was sacrificed for 1s.

WEST BROMWICH PROVIDENT MATERNITY SOCIETY.

A SOCIETY has been started at West Bromwich for supplying any married woman, subject to the approval of a small lay committee, with medical assistance and expert nursing in cases of labour at reduced prices. It appears that the medical men and the nurses by whose charity the society is to live have not been consulted as to the rules of the organisation. It is extraordinary how often the situation repeats itself in which lay organisations propose to do public service by exploiting the medical profession.

TOOTHBRUSH DRILL.

To the Editor of THE LANCET.

SIR,—I should like to point out that I first instituted the toothbrush drill at the Newton Abbot Isolation Hospital especially for cases of diphtheria and scarlet fever: one brush for each child, and the brush to be kept in a glass of solution of hyd. perchlor. 1 in 2000. I believe the idea aided convalescence very materially—such details lead to success. Committees are not always agreeable to the cost of what they call luxuries. I am, Sir, yours faithfully,

June 27th, 1910. EDWARD CARNALL, M.R.C.S., D.P.H.

THE DESTRUCTION OF FLIES.

Messrs. Edward Cook and Co., of the Soapworks, Bow, London, E., write:—"We notice in the press of this country and in the American press that a great deal of attention is being drawn to a circular issued by the City of Chicago Department of Health, and that various amended forms of it are being posted or advertised in this country. We tried both suggested remedies, and our practical experience has been that they are useless. From a chemical and bacteriological point of view this seems obvious.

"With regard to the first one—two teaspoonfuls of formaldehyde to a pint of water—we would point out that formaldehyde is most fugitive, and probably before 24 hours had elapsed there would be very little left in solution. Again, formalin has a very low comparative efficiency as a germicide, and we doubt in the strength quoted above if it would be a germicide at all.

"Next with regard to bichromate of potash dissolved in 2 ounces of water and sweetened with sugar. Bichromate of potash is a powerful oxidising agent, and in a few hours precipitates charred sugar or carbon, as we have found. We have also proved that it is not attractive to flies, and having oxidised the sugar it becomes ineffective.

"We have been experimenting in this matter for the last 15 years, and have this year discovered an efficient process. It is possible to sprinkle along the window ledges a strongly disinfectant powder. The composition of this powder has taken some time to arrive at, but we are now prepared to prove that it is absolutely efficient. A room infested with bluebottles and house-flies can be cleared in from half an hour to an hour. After sprinkling the window ledges, both the lower and the higher ones, all food being removed from the rooms, the doors and windows are shut. The flies naturally fly to the window-ledges and alight in the powder. The powder prevents their feet adhering to the glass and they fall again and again into it, thoroughly disinfecting themselves and very quickly killing themselves. If a window is left slightly open at the top many of the flies will fly away while still they have strength, for they cannot settle on the glass and they cannot continually fly round the room. This process is not only theoretically but scientifically and actually efficient, as we can prove to any inquirers.

"It seems a pity if publicity is given to means for the extermination of flies not to be sure that such means are thoroughly efficient."

W. A. H.—We know of no locality which entirely fulfils the conditions. The West is neither dry nor bracing, and the East coast is very exposed to cold winds. Probably a South-coast town would be the most suitable. This coast offers a graduated range of climate from the sheltered, warm, and humid resorts of the South-western counties to the cooler, drier, and more bracing stations of the South-east; while the entire coast has the maximum sunshine. In the eastern portions, the South Downs afford protection from the northerly winds, but the east wind is felt; further west, as the east wind comes down the Channel, it becomes considerably tempered by the warmth of the sea. Probably Seaford and Weymouth, despite their obvious differences, are the two places in England which most nearly fulfil the required conditions.

Spes is thanked for an interesting communication. The theory has been mooted before and has been supported by evidence in different directions in our columns and elsewhere. It has very generally been felt that it is "Not proven."

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8 P.M., Dr. G. Mackay: Note on an Interfascicular Endothelioma of the Choroid, situated at the Optic Disc—Pathological Report by Mr. E. T. Collins.—Mr. J. B. Lawford: Further Note on the Case of Optic Atrophy and Oculo-motor Palsy due to Intracranial New Growth and shown on Feb. 10th, 1910. The Annual General Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. W. Evans: Clinique (Skin). 5.15 P.M., Lecture:—Dr. F. J. McCann: Gynæcological Therapeutics.

TUESDAY.—4 P.M., Dr. L. Guthrie: Clinique (Medical). 5.15 P.M., Lecture:—Dr. W. Ewart: The Principles of Treatment of Pulmonary Emphysema.

WEDNESDAY.—4 P.M., Mr. L. H. McGavin: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. T. H. Openshaw: Treatment of Appendicitis.

THURSDAY.—4 P.M., Dr. P. Stewart: Clinique (Medical). 5.15 P.M., Lecture—Dr. E. Cautley: Simple Infantile Anæmia.

FRIDAY.—4 P.M., Mr. W. Stuart-Low: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. R. Lloyd: Anæsthetics.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 11.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. M. Moullin: Gynæcological Cases.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. G. Stewart: Syringomyelia (with cases).

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery. (Lecture V.)

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Elliot: Some Points in the Differential Diagnosis of Conditions accompanied by Insensibility.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howell Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

MONDAY.—5.15 P.M., Dr. H. Thursfield: Infant Feeding and Food Diseases, illustrated by cases, specimens, skiagrams, and drawings. (Lecture IV.). (Post-graduate Course.)

TUESDAY.—5 P.M., Mr. O. L. Addison: General Surgical Diseases, illustrated by cases, specimens, skiagrams, and sketches. (Lecture VII.). (Post-graduate Course).
WEDNESDAY.—5.15 P.M., Dr. H. Thursfield: Infant Feeding and Food Diseases, illustrated by cases, specimens, skiagrams, and drawings. (Lecture V.). (Post-Graduate Course.)
THURSDAY.—4 P.M., Lecture:—Dr. Still: Naso-pharyngeal Trouble in Children.—5 P.M., Mr. O. L. Addison: General Surgical Diseases, illustrated by cases, specimens, skiagrams, and sketches. (Lecture VIII.). (Post-graduate Course).

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.
TUESDAY.—3.45 P.M., Lecture:—Dr. Abercrombie: Clinical Cases.
FRIDAY.—3.45 P.M., Lecture:—Mr. W. Stuart-Low: Accessory Sinuses.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. T. G. Stewart: Disseminated Sclerosis.
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. F. Batten: Myopathy.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (6th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (7th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (9th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, are given in this issue of THE LANCET.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1910 will be ready shortly. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

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WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 29th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 23	29·84	S.W.	0·11	122	69	56	57	63	Cloudy
,, 24	29·67	S.	0·49	103	67	56	57	57	Raining
,, 25	29·46	S.W.	0·05	122	63	56	57	60	Cloudy
,, 26	29·52	N.W.	0·53	111	61	53	53	59	Cloudy
,, 27	29·69	W.	...	107	64	50	52	57	Cloudy
,, 28	29·57	S.W.	0·19	124	68	56	59	63	Cloudy
,, 29	29·67	W.	...	122	62	55	55	61	Cloudy

Communications, Letters, &c., have been received from—

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The Oliver-Sharpey Lectures

ON

THE CEREBRO-SPINAL FLUID.

Delivered before the Royal College of Physicians of London on April 22nd and 29th, 1910,

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LECTURE II.[1]

Delivered on April 29th.

THE PATHOLOGY OF THE CEREBRO-SPINAL FLUID.

MR. PRESIDENT AND FELLOWS OF THE COLLEGE,—In my last lecture I endeavoured to point out to you the physiology of the cerebro-spinal fluid. I discussed its physical and chemical properties, its source, its destination, and its functions. To-day I propose to consider the pathology of the cerebro-spinal fluid.

I will throw on the screen a lantern slide indicating the pathological conditions which may occur in the fluid.

TABLE I.—*Cerebro-spinal Fluid and Pathological Conditions.*

Properties, substances, &c.	Normal.	Pathological.
Appearance.	Clear, like water.	Serous, turbid, purulent, fibrinous, yellow, red, brown.
Specific gravity.	1·004–1·007.	Increased.
Reaction.	Alkaline.	Alkaline.
Tension.	60 drops per minute.	Hypertension, Hypotension.
Cryoscopy.	−0·55°.	Hyper- Hypo-
Permeability of subarachnoid space.	*Nil.*	Variable and unstable.
Presence of drugs.	—	Occasional instances.
Toxicity.	*Nil.*	It does exist, but rare.
Virulence.	*Nil.*	Sometimes marked.
	Chemical Alterations.	
Proteins.	Trace globulin. No albumin.	Excess globulin, albumin, nucleo-protein.
Lipoids.	*Nil.*	Cholesterol. Splitting products of lecithins and sphingomyelin.
Sugar.	0·15–0·18%.	Excess in diabetes. Probable decrease in dementia præcox.
Urea.	0·15%.	Excess in uræmia.
Choline.	*Nil.*	Probable trace in acute nervous degeneration.
Chlorides.	0·6–0·7%.	—
Carbonates.	0·13%.	—
Potassium salts.	0·03% KCl.	No appreciable alteration.

PROPERTIES, SUBSTANCES, &C.

First as regards its physical properties. Even in marked pathological conditions, such as general paralysis of the insane, the fluid may appear clear like water, and only on further investigation may its pathological changes be discovered. Occasionally, however, the fluid may be turbid, purulent, serous, fibrinous; its colour may be yellow, being tinged with bile, red from the presence of blood, or brownish-red from the presence of altered blood. In my experience, however, which is a large one, I have very seldom seen the fluid other than like clear water, excepting always the presence of blood from the puncture of a small vessel during the performance of the operation. There is little to be said about its specific gravity, nor about the reaction. A rough estimate has been made of the tension by the number of drops per minute; 60 drops is considered the normal average. With hypertension an increased number of drops will occur.

As regards the rest of the table there is little to be said except as to the presence of drugs. As a rule drugs do not pass into the cerebro-spinal fluid, and most observers have not confirmed Majendie's original observations relating to the passage of potassium iodide into the cerebro-spinal fluid, a fact upon which Majendie laid great stress as showing the manner in which this drug benefited in such a marked degree certain diseases of the nervous system. Recently an important observation has been made by Ager. He has obtained satisfactory results following the administration of urotropine in meningeal affections; the drug is said to be excreted in the cerebro-spinal fluid in half hour to one hour after ingestion, and to exert a marked antibacterial effect. It was first employed in a case of cerebro-spinal fistula following trephining for cerebral tumour, in which the discharge became purulent. After the administration of 30 grains daily for a week the temperature became normal and recovery ensued. Experiments made on animals have been confirmatory. It is known that tetanus toxin does not pass into the cerebro-spinal fluid, but to this I have already referred in my first lecture. I may, however, remark that we should not expect the tetanus toxin to be eliminated by the choroidal gland, but from the capillaries in the nervous substance. Here the affinity of the toxin for the nervous matter would exert itself immediately. Upon the escape of the toxin from the blood-stream there should be in consequence no toxin free to pass into the subarachnoid space from which the fluid is withdrawn.

CHEMICAL ALTERATIONS.

I will now pass on to certain chemical alterations, dwelling more especially upon those to which we have given attention in the laboratory at Claybury.

Proteins.—The amount of protein in normal cerebro-spinal fluid is especially low (about 0·03 per cent.); serum-globulin may be present in slight amount, but albumin is absent. In acute and chronic inflammatory conditions, in fact in all conditions where there is leucocytosis, there is excess of globulin, and albumin and nucleo-proteins are present. In cases of progressive degeneration, in spite of the large excess of fluid, the amount of proteins is found to be greatly increased. This excess consists of globulins, nucleo-proteins, and a small amount of albumin, the greater part being coagulable by heat between 73°–80° C. The excess of globulin is the most marked, and Noguchi describes the following method for its detection in a small quantity of *blood-free* cerebro-spinal fluid. Boil for a few seconds two parts of the cerebro-spinal fluid with five parts of a 10 per cent. butyric acid solution (in 0·9 per cent. sodium chloride solution); then add one part of normal sodium hydrate solution (4 per cent.) and boil again briefly. Noguchi states that the fluid of parasyphilitic cases gives a granular or flocculent precipitate on allowing the tube to stand for a short time, and that cases of alcoholic psychosis, dementia præcox, imbecility, epilepsy, and many other non-specific diseases do not give any precipitate, but that cases of tuberculous meningitis, pneumococcic meningitis, and epidemic cerebro-spinal meningitis give an enormous amount of precipitate. I have applied this test to a considerable number of fluids, and have obtained a positive reaction in many non-specific cases, in fact, in all cases of dementia, whether non-specific or specific, and have found that the amount of precipitate is proportional to the degree of degeneration of nervous tissue, being most marked in the progressive degeneration of general paralysis of the insane. Another test for the globulin present consists in allowing the fluid to flow gently on to the surface of a saturated solution of ammonium sulphate, when a characteristic white ring appears which intensifies on standing. A rough indication of the excess of protein can also be obtained by precipitating the total protein content of the cerebro-spinal fluid with three times its volume of absolute alcohol after rendering it faintly acid with acetic acid.

Lipoids.—In the normal fluids no lipoids are present, but in degenerative conditions of the nervous system, whether primary or secondary, lipoids are present in the form of cholesterol, or, as it was formerly termed, cholesterin, an alcohol of the terpene series containing neither phosphorus nor nitrogen. This substance, the method for detecting

[1] Lecture I. was published in THE LANCET of July 2nd, 1910, p. 1.

which I shall point out presently, we have found present in practically all cases of general paralysis and chronic dementia. Generally speaking, the amount present, as shown by the intensity of the colour reaction, is proportional to the amount of wasting. It is of interest to note that frequently in cases of chronic dementia and chronic wasting diseases of the brain and spinal cord cholesteatomata of the meninges are found, and I have even seen little plates and nodules of a cholesterin-containing substance. The term cholesteatoma was given to those bodies owing to the fact that crystals of cholesterol are often found in their centre. Besides cholesterol there are phosphatides, the result of cleavage products of the lecithins and sphingomyelin.

The presence of lipoids is of interest and importance because they are indicative of wasting of the nervous structure. Moreover, they are of importance in connexion with the Wassermann reaction. Pighini asserts that cholesterol is essential for the Wassermann reaction, but inasmuch as we have found it in the fluid of diseases which do not give the Wassermann reaction, I do not agree with this statement. It seems much more likely that the Wassermann reaction—a subject to which I shall allude much more fully later—is connected with a particular form of eu-globulin.

Sugar.—The quantity of sugar varies in amount. Probably the normal quantity in fluid withdrawn by lumbar puncture is 0·15 to 0·18 per cent. If we could obtain it from the subarachnoid space without admixture of the fluid as it is secreted by the choroid plexus, it would possibly show a higher percentage, approximating that of the blood. It has long been known that the sugar is increased in diabetes, and that it diminishes under the influence of treatment. The relatively small percentage of sugar in the cerebro-spinal fluid of cases of dementia præcox is interesting, and if in a large number of cases we find this diminished quantity prevails, the fact might be correlated with the clinical symptoms of this disease.

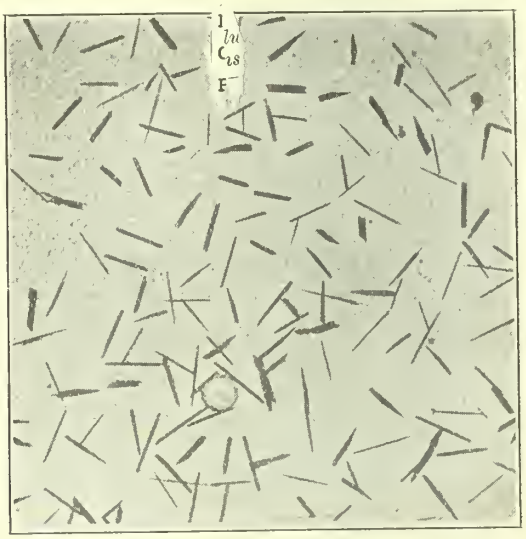
Urea.—I have not made any estimations of urea. The normal quantity is 0·15 per cent., and numerous observers have shown that there is an excess in uræmia.

Choline.—Professor W. D. Halliburton and I made a number of observations tending to show that choline occurs in the blood and cerebro-spinal fluid in conditions where a large amount of nervous tissue was undergoing degeneration. The existence of choline was demonstrated by physiological and micro-chemical tests. I am, however, of opinion from further observations that the micro-chemical tests employed—i.e., the formation of choline platino-chloride crystals—were unreliable, and that the crystals we obtained were more often potassium and ammonium salts; moreover, a number of post-mortem fluids were used for our observations, and in the laboratory we have found, using the periodide test (investigated by Rosenheim), that a very small quantity of fluid obtained from any post-mortem within a comparatively short time of death gives the test 'denoting the presence of choline or some substance from which choline is easily dissociable. We have been unsuccessful in obtaining the test in fluids obtained during life, even in the cases of general paralysis. A large number of papers have appeared on this subject, and the points under dispute are (1) the reliability of the tests employed; and (2) whether the substance present is really choline or some other similar or even dissimilar product of the cleavage of the complex phosphatide molecules. The questions are difficult to settle owing to the small quantity of the substance present in the fluid, but it would appear that, although choline may be split off from the phosphatide molecule during the course of active degeneration of nervous tissues, it cannot exist as such in the alkaline cerebro-spinal fluid. However, as our knowledge regarding the exact chemical composition of the complex substances of nervous structures increases, we may be able to ascertain the nature of the cleavage products of these substances in nervous degeneration.

I may remark that the potassium salts which are present in relatively so large amount in brain tissue, and which the experiments of Macdonald would suggest as being increased in the fluid in cases of degenerative destruction of the nervous system, are not appreciably altered in amount.[2] This does not prove, however, that the potassium salts do not pass into the cerebro-spinal fluid and blood and that they are not increased, for it is extremely difficult to estimate differences where such small quantities have to be dealt with. Moreover, seeing that the quantity of potassium salts is approximately the same as the blood, any increase would tend to diffuse.

There is little more to be said about the chemical alterations, but I will throw on the screen an outline of a rough method for the chemical examination of the cerebro-spinal fluid. Ten cubic centimetres of the centrifuged fluid, after examination for cells has been made, are taken and rendered faintly acid with acetic acid. Three cubic centimetres of absolute alcohol are added and the whole gently heated on a water bath for 15 minutes. After standing overnight it is again warmed and filtered. The amount of protein can be approximated at sight or weighed on a tarred filter-paper or Gooch crucible, the amount of ash being subtracted from the total weight of protein. The filtrate is rapidly evaporated to dryness at a low temperature, the residue is moistened, and a smear transferred on the end of a glass rod to a slide, and one drop of a saturated solution of iodine in 10 per cent. potassium iodide is added. The mixture is now watched under the microscope, *when, if choline is present, brownish-black rectangular plates of choline periodide will be formed.* (Fig. 10.) The moisture is removed from the residue by evaporation, and another extraction with absolute alcohol is made. The filtered extract is evaporated *to dryness* and extracted with hot chloroform. The volume of chloroform is reduced to about 2 cubic centimetres and the presence of cholesterol detected by Liebermann's test which is thus carried out. (Add to chloroform solution a few drops of acetic anhydride, then add concentrated sulphuric acid drop by drop. After a time a rose colouration of the acid, and a violet colouration of

FIG. 10.



Photomicrograph of crystals of choline periodide obtained from a small quantity of the cerebro-spinal fluid of a non-paralytic case, taken a few hours after death.

[2] Myers has estimated the potassium salts in the cerebro-spinal fluid in a number of general paralytics and non-paralytics with the following result. *General paralytics* (13 cases).—Average 0·038 per cent. KCl. (Highest, 0·054 per cent.; lowest, 0·027 per cent. KCl.) *Non-paralytics* (4 cases).—Average 0·033 per cent. KCl. (Highest, 0·039 per cent.; lowest 0·027 per cent. KCl.) These results were obtained from 10 cubic centimetres of cerebro-spinal fluid in each case, and it was deemed advisable, in repeating the work, to make determinations on appreciable quantities of fluid from two or three cases instead of on smaller quantities from each case. I have therefore examined larger quantities of cerebro-spinal fluid obtained by adding together the fluids from several cases of dementia præcox and general paralysis with the following results:—

Dementia Præcox.	*General Paralysis.*
1. 27·5 c.c. 0·033 per cent. KCl.	1. 40 c.c. 0·038 per cent. KCl.
2. 27·5 c.c. 0·038 ,, ,,	2.* 40 c.c. 0·034 ,, ,,
3. 26·0 c.c. 0·030 ,, ,,	Average 0·036 ,, ,,
Average 0·033 ,, ,,	

* All fluids used in this instance gave a positive Wassermann reaction.

the chloroform turning to blue, then green, indicate the presence of cholesterol.)

The test for sugar can be performed on one or more cubic centimetres of the original fluid, and Noguchi's and other confirmatory tests may be made on any remaining fluid. Many observations have been made based upon the examination of fluids obtained after death; I have found, however, that within a very short time after death the composition of the fluid so alters that the results obtained are useless and misleading.

Experiments show that if micro-organisms enter the subarachnoid space they rapidly multiply in the cerebro-spinal fluid and lead to a general colonisation. We may suppose that the micro-organisms invade the perivascular lymphatics and set up an inflammatory reaction therein, which if it does not localise the spread will eventually lead to the organisms getting into the subarachnoid space and by the movement of the cerebro-spinal fluid lead to a general infection of the membranes.

PATHOLOGICAL CONDITIONS.

Time will not permit me to do more than summarise the abnormal conditions of the cerebro-spinal fluid as a whole, and I will throw on the screen a table illustrating the principal features occurring in pathological conditions. In this table you will observe that I have made four groups, and I shall dwell more especially upon those points upon which my assistants at Claybury and myself have chiefly worked, therefore about which I have special knowledge.

TABLE II.—*Abnormal Conditions of the Cerebro-spinal Fluid.*

I. *Cytological examination.*—Normal fluid is practically free from cells. In pathological conditions an estimation is made of the type and number of cells.	1. *Polynuclear leucocytosis* generally indicates microbial invasion of the subarachnoid space by some organism other than the tubercle bacillus; but polynuclear cytosis may accompany lymphocytosis in a certain proportion of cases of tuberculous meningitis. 2. *Mononuclear leucocytosis.*—Whereas polynuclear leucocytosis points to an acute inflammatory affection of the meninges, mononuclear leucocytosis indicates a chronic condition. It occurs almost invariably in syphilis of the central nervous system, general paralysis, tabes dorsalis, tuberculous meningitis, and sleeping sickness. It has been found in other conditions—e.g., herpes zoster, acute poliomyelitis, mumps, lymphatic leukæmia, chloroma, and some cases of cerebral tumour. Mononuclears may also replace the polymorphs in the later stages of microbial infection.
II. *Bacteriological examination.* (*a*) Staining the centrifuged deposit. (*b*) Cultural methods. (*c*) Inoculation.	The most important organisms found are: pneumococcus, streptococcus, bacillus tuberculosis, diplococcus intracellularis causing meningitis. Various other micro-organisms, together with pneumococcus, pneumo-bacillus streptococcus, and staphylococcus may, as a result of secondary or terminal infection, invade the subarachnoid space.
III. *Protozoal examination.* (*a*) Staining the centrifuged deposit. (*b*) Examination of a hanging drop. (*c*) Inoculation.	The only protozoon met with constantly in the disease which it causes is the *Tryp. gambiense*. Only once has the *Treponema pallidum* been found.
IV. Biochemical.	The Wassermann reaction of the blood serum combined with that of the cerebro-spinal fluid.

SLEEPING SICKNESS, SYPHILIS, AND PARASYPHILIS.

The work in which I have been especially engaged has been the investigation of the pathological conditions met with in sleeping sickness, in syphilis, and in parasyphilis, pathological conditions in which there are many points of similarity. The meninges and perivascular lymphatics in all three of these diseases are characterised by a lymphocyte and plasma cell infiltration, and by a hyperplasia of the neuroglia cells indicative of a chronic inflammatory process, due in all probability in each case to toxic irritation. In all three of these diseases the cerebro-spinal fluid contains a large number of mononuclear cells—leucocytes.

I shall have occasion later to demonstrate other points in connexion with the cerebro-spinal fluid in these diseases. You will observe how similar is the appearance of the perivascular lymphatics of sleeping sickness, general paralysis, and syphilis. But the diseases in question present many pathological differences which would explain the different clinical phenomena. Let me first refer to sleeping sickness, a disease caused by the *Tryp. gambiense*. Whether this chronic irritation of the lymphatics is due to toxins produced by the invasion of the blood and lymphatic system of the body generally or to the presence of the organism in the cerebro-spinal fluid, is still a matter open to discussion, but I think from the examination of the brains of over 30 cases of this disease that there is a parallelism between the somnolence or drowsy stupor which is the characteristic feature of this disease and the degree and intensity of this perivascular lymphatic cell infiltration. I would attribute this to the interference with the circulation of the ambient fluid of the neurons, whereby they suffer from an insufficiency of oxygen. It cannot be explained by an interference with the blood circulation, for the anæmia is not intense enough; it cannot be explained either by degenerative changes in the nerve cells, such as we find in general paralysis, for in those cases, and I may say they were few, in which a secondary microbial invasion by diplococci, streptococci, or staphylococci had not taken place, the brain presented a normal appearance to the naked eye. There was no wasting, and microscopical examination did not reveal sufficient changes in the nerve cells to account for the symptoms manifested during life. Europeans who have suffered with sleeping-sickness, and a Congo native speaking English well who died under my care in Charing Cross Hospital, could be roused from their drowsy lethargy to answer questions rationally—a very different condition to that of general paralysis, where the auto-critical faculty is almost invariably affected. The drowsy lethargy of this disease I attribute then to the failure of the oxygen supply to the cells of the cortex.

We can readily understand how this could be effected, if the fluid which circulates in the perivascular lymphatics is the ambient fluid that takes oxygen from the blood to hand it over to the nerve cells; this progressive, universal, and intense inflammatory state of the perivascular lymphatics would interfere with its flow and lead to deficient oxygen supply. Moreover, there is a vicious circle established, for the more these lymphatics become obstructed by the actively growing young cells the more the oxygen that may be in the fluid will be snapped up by them and the less will be at the disposal of the nerve cells. Consequently, the oxygen supply necessary for functional activity of the nerve cells becomes progressively less and the drowsy stupor deepens proportionately.

The experiments of Verworn, upon which I have not now time to dwell, prove the importance of oxygen storage by the nerve cells and the necessity of its supply for functional activity. Moreover, the experiments of Baeyer and Winterstein point to the fact that narcotics act by an interference with the capacity of the cell to take up oxygen, whereas normal sleep is a habit on the part of the cell of storing rather than of using oxygen.

In widespread generalised syphilitic meningitis and perivascularitis a drowsy stupor is a frequent symptom, but I attribute this in a measure to the interference with the escape of fluid from the ventricles of the brain in some cases, but in others, more particularly to the widespread obliterative endarteritis affecting the small as well as the large vessels, thus producing a generalised anæmia.

In general paralysis the perivascularitis may be very intense, but never so intense as in sleeping sickness. The dementia, which is *the* characteristic of the former disease, is proportional to the atrophy and wasting of the cortical substance, a condition which is not met with in either sleeping sickness or syphilitic brain disease. It is a primary decay of the neurons with secondary and proportional vascular changes, whereas in syphilitic brain disease the wasting and degeneration of the neurons occur in foci as a result of vascular occlusion from endarteritis or the consequent thrombosis; the symptoms are obtrusive and coarse and occur in sudden spells, whereas in general paralysis, leaving aside the seizures which may occur, the disease is insidious, continuous, and progressive.

In all these diseases, as I have said before, there is a mononuclear leucocytosis of the cerebro-spinal fluid; therefore, diagnosis by cytological methods will not suffice. There is generally also a hypertension of the cerebro-spinal fluid. Now we can leave out a consideration of sleeping sickness, for no one would diagnose that without finding the *Tryp. gambiense* in the cerebro-spinal fluid, lymphatic glands, or blood. The important point is the differential diagnosis of

syphilis from parasyphilis of the nervous system. Of the importance of this one cannot be too emphatic, for whereas syphilis of the nervous system is curable or, at any rate, benefited by mercurial treatment and administration of iodides, it is doubtful whether parasyphilis is ever cured or even benefited by this treatment, and in some cases it positively does harm. And this leads me to say that I do not regard the diphtheroid organisms described by Ford-Robertson as the organism of tabes and general paralysis as in *any* way a specific organism of this disease. My assistant, Dr. J. P. Candler, made a special study of this subject, and we have never been able to find the bacillus in the cerebro-spinal fluid, and only on one occasion was it seen in the blood, although we have examined a very large number of specimens. I think, therefore, we can leave it out of account as a means of diagnosis. Now I come to a very important method of distinguishing syphilitic disease of the nervous system from parasyphilis—I refer to the Wassermann reaction.

THE WASSERMANN REACTION.

The Wassermann reaction since its introduction has had many modifications, but it is a general opinion that, although the theory upon which Wassermann based his method is wrong, yet empirically, although the method is more tedious and more difficult of application, it is nevertheless more reliable in its results; and Dr. Candler and Dr. J. Henderson Smith of the Lister Institute have relied upon this method entirely for the results which I shall place before you. The reaction is as follows. A rabbit is immunised against the blood of the ox—that is to say, several injections of washed ox corpuscles are injected into the rabbit. The serum of this animal has then the power of dissolving the red corpuscles of the ox. This is owing to the presence of two substances—the complement, which is thermolabile, and the amboceptor, which is thermostable. If this serum is heated to 56° C. for 30 minutes it will no longer dissolve washed ox corpuscles, but if some normal guinea-pig serum be added the corpuscles are dissolved. This is due to the fact that the thermolabile substance—the complement—has been added, and in conjunction with the thermostable amboceptor has caused hæmolysis.

The serum or cerebro-spinal fluid to be examined is mixed in varying dilutions with a watery or alcoholic solution of the liver of a syphilitic fœtus; a small amount of guinea-pig serum is then added, and the total volume made up to 2 cubic centimetres with saline solution. A series of tubes containing these mixed solutions is placed in the incubator at 37° C. for one hour and the sensitised ox corpuscles are added. The mixtures are again placed in the incubator for two hours at 37° C., then taken out and put on ice overnight. The next morning the amount of hæmolysis in each tube is observed. A control experiment, using normal serum or cerebro-spinal fluid, should be made at the same time. A positive reaction is obtained when the blood or cerebro-spinal fluid causes fixation of the complement of the guinea-pig serum and hæmolysis is prevented.

It has been found that extract of guinea-pig heart, of human heart, soaps, and lecithins may replace the extract of syphilitic liver in this reaction. Consequently, the idea of the antigen and antibody theory has been abandoned. Still, it is everywhere accepted that the reaction is a most reliable aid to diagnosis.

I have purposely omitted to give the details and precautions necessary for the satisfactory carrying out of this reaction as they are given fully by Henderson Smith and Candler. They have recently examined the cerebro-spinal fluid of 127 cases of various forms of insanity. Of this number, 64 were cases of general paralysis, and in 59, or 92·1 per cent., a positive result was obtained. Of these 59 cases, 21 have since died, and the clinical diagnosis of general paralysis has been confirmed by the post-mortem investigations. Fluids from 63 cases not suffering from general paralysis were also examined, and in no single instance was a positive reaction obtained. A few of these cases have since died, but none showed at necropsy any evidence of general paralysis. 17 out of the 21 cases of general paralysis above referred to, which came to the post-mortem table, showed before death an excess of lymphocytes in the cerebro-spinal fluid.

The following table shows the results obtained by Henderson Smith and Candler in general paralysis and tabes, as compared with those collected from the literature.

TABLE III.—*Comparison of Results obtained by Henderson Smith and Candler with those collected from the Literature.*

—	Cerebro-spinal fluid.	Serum.
General paralysis.		
In literature	352 cases, 309 positive; that is, 87·7 per cent.	285 cases, 247 positive; that is, 86·6 per cent.
Henderson Smith and Candler's cases ...	64 cases, 59 positive; that is, 92·1 per cent.	10 cases, 9 positive; that is, 90·0 per cent.
Tabes dorsalis.		
In literature	112 cases, 57 positive; that is, 50·8 per cent.	176 cases, 125 positive; that is, 71·0 per cent.

Plaut, who was the first to adopt the Wassermann test for the cerebro-spinal fluid, obtained as high a percentage as 90 out of 91 cases, and in every case the serum was positive. He points to the fact that the Wassermann reaction may occasionally be obtained before there is any cell increase in the fluid, although this is the exception according to our experience, yet in one of the cases the reaction was only obtained a few days before death. The diagnosis was confirmed post mortem, macroscopically and microscopically; the cerebro-spinal fluid was withdrawn two hours after death and specimens of lateral ventricle fluid and serum from this case gave strong positive reactions. In this instance, then, although the fluid eventually became positive, it was still negative until a short time before death, when the disease was far advanced. In one of the cases the fluid remained negative throughout. It is unusual to obtain a positive reaction of the cerebro-spinal fluid in syphilis of the central nervous system, although the fluid may contain a large number of lymphocytes. There does not, then, seem to be any correlation between the lymphocytosis *per se* and the presence of the body which gives the reaction. But although syphilis of the nervous system is not accompanied by the reaction in the cerebro-spinal fluid the serum, unless the patient is under active treatment, always gives the reaction. The explanation of this is somewhat difficult. Concerning the chemistry of the Wassermann reaction I have found that a fluid giving a positive reaction fails to do so after the separation of the protein fraction. Sachs concludes that the substance is a globulin and Noguchi has come to the conclusion that the substance in the fluid causing the reaction is attached to the eu-globulin, from which it cannot be separated by solvents. In repect to the manner in which this arises in the cerebro-spinal fluid several suggestions offer themselves, one being that it is a transudation from the blood. If it were so we should expect to find it in cerebral syphilis, but as a rule this is not the case. Inasmuch as I have shown that the cerebro-spinal fluid is secreted by the choroid plexus I was naturally led to make a comparative examination of this structure in general paralysis and other diseases, but although the choroid plexus in general paralysis as compared with other diseases of corresponding age showed more frequently cystic degeneration and denudation of the choroidal epithelium, still I was unable to associate so far the two facts. A positive reaction by the Wassermann method is not necessarily associated with lymphocytosis, neither is lymphocytosis even with a positive serum reaction necessarily associated with a positive reaction of the cerebro-spinal fluid. It may be said that a positive reaction of the cerebro-spinal fluid strongly points to a parasyphilitic affection. Time will not permit me to discuss certain theories which I have put forward in explanation of parasyphilis and the presence in the cerebro-spinal fluid of a body upon which the fixation of the complement depends, but I have dealt with the subject in the Morison Lectures of 1909. I will be content with giving three striking examples out of a number of the value of this reaction.

CASES SHOWING THE APPLICATION OF THE TEST.

1. My attention was called to a case in one of the London county asylums of a woman with double optic neuritis, vomiting, and headache. I had her transferred to my care at Charing Cross Hospital, and on examination Mr. E. T. Collins found five dioptres of swelling in each disc. The cerebro-spinal fluid contained an abundance of lymphocytes but the

Wassermann reaction was negative. After treatment with mercurial inunction the swelling of the discs rapidly subsided, the vomiting and headache ceased, and she was able to read small print, whereas formerly she could not read large print. She was subsequently discharged apparently cured.

2. The condition of a patient in one of the London county asylums improved so much that the medical officers were doubtful as to whether he was a general paralytic. The Wassermann test was made on the cerebro-spinal fluid with a positive result. I expressed the opinion that it was certainly a case of general paralysis and maintained that the test was not likely to be wrong. He still continued to improve and his discharge was contemplated, but the next time I visited the asylum my prediction was confirmed. He had had several seizures and within three months he died, and the examination of the brain left no doubt as to the correctness of the diagnosis.

3. A woman, aged 34 years, was admitted to Charing Cross Hospital under my care, said to be suffering from tabes. There were no signs of syphilis on the body. Her youngest child was aged 4 years. Fifteen months previously she had had a seven months stillborn child. Four months ago she suffered with numbness in the legs, of which she took little notice; then she had double vision and tingling in the feet and legs. For the past 14 days she had suffered with a girdle sensation. She now complained of lancinating pains extending from the back down both legs, unsteadiness in gait and station, a feeling of the soles as if walking on cork, and pain and cramp in the muscles of the legs. The pupils were unequal and reacted sluggishly to light and to accommodation, the knee-jerks were absent, there were patches of anæsthesia on the legs, and a belt of thoracic anæsthesia with girdle sensation. After inquiring into the history and finding that she had suffered with headache and squint, that the knee-jerks, which were absent on admission, had returned a few days later, I concluded that this woman, with a probable duration of infection of less than four years, was suffering from pseudo-tabes, the result of syphilitic meningitis, especially as she told me that she had suffered with a slight stiffness of the neck. I then obtained Kernig's sign. The cerebro-spinal fluid showed 390 lymphocytes per cubic millimetre—an enormous number for tabes dorsalis; this large number could only be accounted for by a widespread active gummatous meningitis. She was placed on mercurial inunction, and within a fortnight the lymphocytes had fallen to 70 per cubic millimetre and the fluid gave a negative Wassermann reaction. Unfortunately, the blood was not tested on this or future occasions. A fortnight later the cerebro-spinal fluid was examined and only 20 lymphocytes per cubic millimetre were found, the patient being almost well. A fortnight later there were no lymphocytes and the fluid was still negative to the reaction. The pains, anæsthesia, and unsteadiness had entirely disappeared and the patient was quite well. Over a year has elapsed and the patient is still quite well, but there is no guarantee that she may not have a recrudescence of symptoms, for my experience has taught me that if once the contagion invades the subarachnoid space producing a diffuse meningitis, symptoms of a latent affection becoming once more active may supervene at any period after.

In conclusion, I wish to acknowledge my indebtedness to my assistants, Dr. Candler and Mr. Sydney Mann, for the invaluable help they have afforded me in conducting these researches and investigations.

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The Croonian Lectures

ON

THE BEHAVIOUR OF THE LEUCOCYTES IN INFECTION AND IMMUNITY.

Delivered before the Royal College of Physicians of London on June 14th, 16th, 21st, and 23rd, 1910,

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LECTURE III.[1]

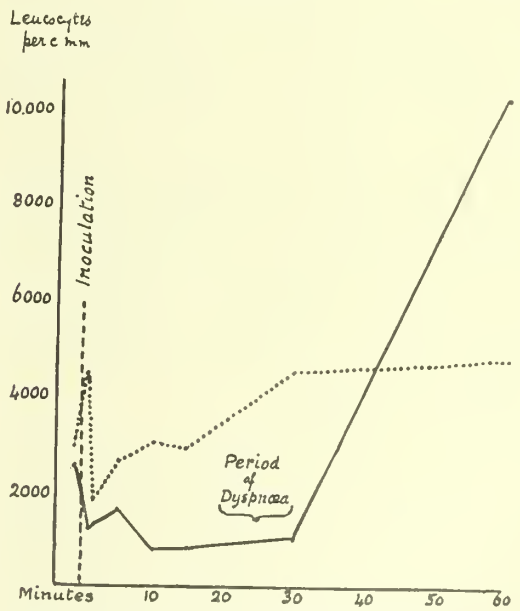
Delivered on June 21st.

MR. PRESIDENT AND GENTLEMEN,—I devoted the last part of my second lecture to a short recital of the more important facts known concerning anaphylaxis in order to justify the statements made, that the constitutional symptoms observed during initial leucopenia are actually those of anaphylactic shock, and that leucopenia is an integral part of the phenomena of anaphylaxis.

INITIAL LEUCOPENIA IN THE ANAPHYLACTIC ANIMAL AFTER INJECTION OF UNORGANISED ANTIGENS.

So far I have only described the initial leucopenia seen after the intravenous injection of living and dead bacteria. In order to complete the evidence associating this leucopenia with anaphylaxis it is necessary to show that it occurs in the case of unorganised antigens. For this purpose I have used egg-albumin and normal horse serum.

CHART 6.



Showing the curves of the circulating lymphocytes and polynuclear leucocytes after the intravenous injection of 3 cubic centimetres normal horse serum into a rabbit previously sensitised against that substance. Dotted line = lymphocytes. Continuous line = polynuclears

A normal rabbit received ½ cubic centimetre horse serum intravenously. No symptoms of illness were produced, and leucocyte counts, made at first every few minutes, showed no initial leucopenia; indeed, the counts were almost constant for three hours. The lowest polynuclear count was 7614 per cubic millimetre at the second minute. 42 days later a second small dose of 1-250th cubic centimetre of serum was given intravenously. Another 33 days were allowed to

[1] Lectures I. and II. were published in THE LANCET of June 25th (p. 1737) and July 2nd (p. 8), 1910.

elapse, and then the animal was tested by the intravenous injection of 3 cubic centimetres of serum. The total leucocyte count fell from 5800 per cubic millimetre before inoculation to 3600 in two minutes; the polynuclears fell from 2552 to 880 per cubic millimetre in 10 minutes and remained low till the thirtieth minute, when a pronounced leucocytosis set in (14,406 polynuclears per cubic millimetre in 1¼ hours.) The animal showed no marked symptoms till 20 minutes after the injection had been given; it then suddenly lay down at full length with intense dyspnœa (respirations 216 per minute). This lasted about eight minutes when, with the onset of leucocytosis, the symptoms passed off as rapidly as they had set in.

A normal rabbit was given ¼ cubic centimetre of egg-albumin (fresh white of egg diluted to 1 cubic centimetre with normal saline) intravenously. The animal remained perfectly well. No leucopenia occurred; indeed, the polynuclear count was slightly raised during the ensuing 15 minutes at each of the five observations made. 23 days afterwards the same dose was repeated: in 20 minutes the animal was lying on its side with respirations of 140 per minute, in 50 minutes it was recovering, and in 2½ hours it was apparently normal again and taking food. On this occasion the total leucocytes fell from 6600 per cubic millimetre before inoculation to 1400 at the tenth minute, and the polynuclears from 1716 per cubic millimetre before inoculation to 88 one minute after. They then rose, and in 2½ hours there was a polynuclear leucocytosis (12,402 polynuclears per cubic millimetre).

It is thus plain that an initial leucopenia similar to that seen after bacterial injections occurs also in the anaphylactic animal when a second dose of antigen is administered, even though this be an unorganised protein.

THE EFFECT OF DEEP ETHER NARCOSIS ON ANAPHYLACTIC SHOCK AND LEUCOPENIA.

I have endeavoured still further to complete the evidence associating leucopenia with anaphylaxis. Besredka has shown that deep ether narcosis so far modifies anaphylactic shock that guinea-pigs can safely be desensitised under it, whereas the unanæsthetised control animal perishes. I was therefore wishful to see how far such anæsthesia modified the phenomenon of initial leucopenia in the immunised animal.

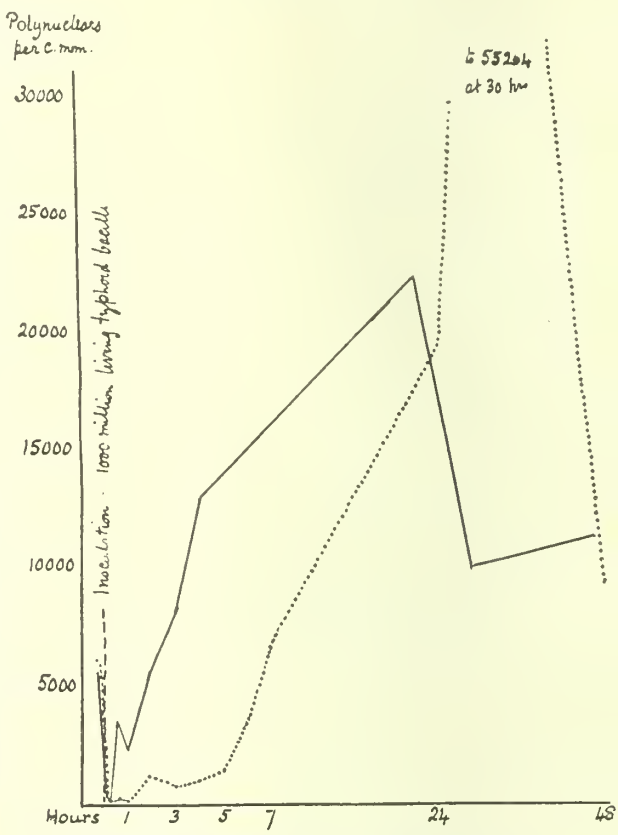
I possessed two rabbits of about the same size and weight which had been immunised against the typhoid bacillus by repeated doses of vaccine—the last doses having been given two months previously; both animals were in good health. I administered to each animal intravenously a dose of 1000 million living typhoid bacilli of an old laboratory strain; one rabbit was not anæsthetised, the other was plunged into deep ether narcosis before the injection was given and kept fully under for 15 minutes afterwards. I am indebted to Mr. H. E. G. Boyle for the skill and care with which the anæsthetic was given. He secured absolute muscular relaxation, with complete abolition of the corneal reflex during the whole experiment.

The result of the experiment was not quite what I expected. The initial leucopenia was during the first quarter of an hour extreme, and practically identical in both, though delayed by a few minutes in the anæsthetised animal. But whereas in the unanæsthetised animal it persisted for five or six hours, the anæsthetised animal showed its lowest polynuclear count at 15 minutes; at two hours it had regained the normal, and in three hours a marked polynuclear leucocytosis had commenced, which by the fourth hour had reached nearly 13 000 polynuclears per cubic millimetre. There was a corresponding difference in the symptoms exhibited by the two animals. The one to which no anæsthetic was administered was rendered markedly ill for many hours; indeed, it was two days before it completely recovered. The symptoms came on towards the end of the first hour after the injection, and were at their worst during the first half of the second hour. In the anæsthetised rabbit the symptoms were at first masked by the after-effects of the ether, but they seemed much less severe than in the control animal, and next day the animal appeared in its usual health. I could detect no noteworthy difference between the two animals as regards the rate at which the bacilli disappeared from the blood. In both they had become very scanty in a few hours.

The actual polynuclear counts were as follows. In the unanæsthetised animal these cells were 6102 per cubic millimetre before inoculation. In one minute they fell to 1312, in two minutes they were 288, in five minutes 44, in 15 minutes 14; they then rose a little and for the next hour and a half varied between 170 and 306. By the fifth hour they had risen to 2145 and in seven hours to 6786. 29 hours after the injection they numbered over 55,000; this leucocytosis was practically over on the second day after the injection.

The corresponding facts in the anæsthetised animal were these. Before the anæsthetic the polynuclear count was 11,440 per cubic millimetre; when fully under ether, but before the injection was given this had dropped to 5632. In

CHART 7.



Showing the effect of ether narcosis in reducing the duration of the polynuclear leucopenia in typhoid anaphylaxis. Dotted line = polynuclear curve of unanæsthetised animal. Continuous line = polynuclear curve of anæsthetised animal.

one minute after the injection it was 3950, in two minutes 266, in five minutes 204, and in 15 minutes 42. This was the lowest point reached. In half an hour the polynuclears were 3380 per cubic millimetre, in two hours 5676, in three hours 8208, and in four hours 12,994. The highest polynuclear count next day was 22,080. It may here be noted that the more severe and prolonged leucopenia in the unanæsthetised animal was succeeded by the higher leucocytosis.

So far as this one experiment goes it would seem that deep ether narcosis diminishes anaphylactic shock in the rabbit, as Besredka had found was the case in the guinea-pig. It scarcely affected the abruptness or intensity of the initial polynuclear leucopenia, but it greatly reduced its duration.

I now determined to test the rabbit which had not been anæsthetised in the foregoing experiment by repeating the injection as soon as the animal had recovered from the effects of the preceding one—i.e., when it might be supposed to be in a condition of "anti-anaphylaxis." On the third day, therefore, I gave it another 1000 million living typhoid bacilli. The animal, however, reacted much as it had done the first time. It was not made so ill and the respiration frequency was not quite so great; the lowest total leucocyte count noted was 2400 per cubic millimetre during the second hour (as against 1400 on the first occasion). The polynuclears were reduced to 90 per cubic millimetre at the

tenth minute, their lowest point, and there was no polynuclear leucocytosis on the following day. The animal was less ill than on the previous occasion. There was thus some evidence of lessened anaphylactic shock on the second occasion, but there was not that absence of symptoms which I had anticipated. The animal was very highly immune, and it may be that it was not wholly desensitised by the dose of bacilli three days previously or that antibody was beginning to return again.

I have thus brought forward evidence showing that the phenomenon of initial leucopenia, after intravenous injection of living or dead bacteria, is an immunity reaction, that it is commonly associated with constitutional symptoms, which may be severe, and that it is part and parcel of the condition known as anaphylactic shock. It seems reasonable to speak of this form of diminution in the number of circulating leucocytes as "*anaphylactic leucopenia.*"

Nature of the Anaphylactic State.

At first sight it might seem that the great accumulation of leucocytes in the lung—amounting to leucocytic thrombi in large numbers of the pulmonary capillaries—would serve to explain the respiratory embarrassment which is so conspicuous a feature of anaphylactic shock. It may be that this is a contributory cause of the distress in breathing; but I feel sure that there is much more behind. The pulmonary block, such as it is, is only an episode in the shock, though a very interesting one, for it constitutes a definite anatomical lesion characteristic of a condition in which no other constant lesion has been found. I do not, however, believe that if every leucocyte in the circulation were to accumulate in the lung it would be sufficient to cause death. In a man the total volume of all the circulating leucocytes is equivalent, according to my calculation, to that of a sphere a little less than one inch in diameter and proportionately less in the rabbit. Such a mass might cause death if impacted in a main pulmonary artery, but not, I think, if distributed in the vastly greater sectional area presented by the capillaries of the lung. Again, I find a lack of correspondence between the time of occurrence of the leucocytic accumulation in the lungs and the maximum intensity of the symptoms. In a well-marked case of anaphylactic leucopenia the polynuclears have usually reached their minimum in a quarter of an hour, at which time the animal is usually cheerful and unaffected. The symptoms of respiratory embarrassment in most of my anaphylactic rabbits have been especially marked during the second hour. Lastly, we have in the observed great fall in blood pressure a factor quite adequate to explain not only the respiratory trouble but the convulsions and death seen in an extreme case.

We have yet much to learn as to the nature of the anaphylactic state, but the provisional view which appears best to meet the facts is as follows. An anaphylactic animal is one which is naturally or artificially immune, having in its fluids a supply of antibody, but having eliminated the antigen which called this into existence. It must be assumed that the antibody is one which requires complement for its effective action. If now a second dose of antigen is administered in such a way as to enter the circulation in bulk, there occurs a sudden reaction between antigen and antibody in which the store of available complement is quickly exhausted. Why and how this sudden reaction should evoke such violent constitutional symptoms we do not yet know; we must be content to admit the fact. It may be that, as Besredka holds, the action is chiefly upon certain cell groups in the central nervous system. If further it be assumed that one of the functions of the polynuclear leucocytes is to furnish the supply of complement we may conceive these cells, exhausted of their supply, to repair to the pulmonary capillaries for oxygenation in order to recuperate.

I am inclined, indeed, to think that initial leucopenia is a more delicate test of the occurrence of the reaction between antigen and antibody in the circulation than the clinical symptoms of anaphylactic shock. I have never seen shock without some degree of leucopenia, but I have seen a marked leucopenia without any symptoms of constitutional disturbance. Of this I will quote a marked example. A rabbit had been twice immunised against washed sheep's corpuscles by the intravenous injection of 1 cubic centimetre of a 5 per cent. suspension, with a six weeks' interval between the doses. Thirty-four days after the second injection I gave the animal a third dose—3 cubic centimetres of a similar suspension. The polynuclear leucocytes fell in one minute from 1312 to 80 per cubic millimetre, and in 10 minutes there were none. In this differential count I found 200 lymphocytes in succession (see Chart 2). Yet the animal was not made ill; shock and dyspnœa were absent throughout. There was nevertheless evidence of disappearance of antibody from the circulation; before the third dose of corpuscles the hæmolytic *titre* of the serum (not inactivated) was 1 in 10; half an hour after the injection it was less than 1 in 5. The immunity was thus feeble at the commencement of the experiment, but practically absent at its close.

Observations on Immunity in the Anaphylactic Animal.

It is at first sight somewhat of a contradiction in terms to speak of an animal as immune, when a dose of the antigen in question produces far more serious symptoms than it does in a normal animal and may even cause a fatal result. The immune condition, so far as it concerns the presence of a humoral antibody, seems to be one of greater sensitiveness and quicker response to the presence of the antigen. When we use the term immunity we understand in an ordinary way an increased power of resisting a naturally occurring infection. The method adopted in producing anaphylactic shock, and that which I have used in my work on rabbits, is a wholly unnatural one. Never under natural conditions can a large dose of alien protein gain sudden access to the blood; all the digestive and portal arrangements of the body are designed to shield the system from such an event. Hardly ever can a sudden large dose of bacteria gain access to the blood; never, unless there is a previous focus of infection; and here one of the conditions necessary for anaphylaxis (previous elimination of antigen) is absent. We must not, then, deny the right of the anaphylactic animal to be termed immune merely because we can make it ill, or kill it, by an artificial procedure which has no parallel in ordinary life.

As a matter of fact, I do not find that the constitutional illness associated with anaphylactic shock interferes in the least with the rapidity of disappearance from the circulation of the bacteria which have been injected. I have made a few observations bearing on this point, though they mostly cover only the first quarter of an hour after inoculation.

In a rabbit immunised against streptococcus fæcalis and into the ear-vein of which I had injected 1000 million of the living organism, 1·50th cubic centimetre of blood withdrawn every two minutes from the opposite ear yielded colonies too numerous to count at two and four minutes; at six minutes the cocci per cubic centimetre of blood were 33,000; at eight minutes, 13,000; and at 14 minutes only 5900. The animal was leucopenic all the time.

In the case of a rabbit similarly immunised against micrococcus citreus agilis, which showed no appreciable leucopenia when injected with 1000 million of the living coccus, the following figures were obtained: at two minutes 120,000 cocci per cubic centimetre of blood; at four minutes 26,000, dropping quite regularly to 1200 at the fourteenth minute.

The figures are very striking in the case of the two rabbits I have already mentioned as treated in this way with virulent pneumococci. One animal was immune, the other normal; both received the same dose (approximately 1000 million) of the same emulsion of cocci. For the first few minutes a confluent growth of pneumococci was obtained from 1-100th cubic centimetre of blood. The numbers progressively fell, but more rapidly in the immune than in the normal animal, till in 16 minutes the immune rabbit had only 15,000 cocci per cubic centimetre of blood, while the normal animal still had 125,000. The highly leucopenic rabbit was able to rid its blood of the cocci more than eight times faster than the normal one, in which leucopenia was almost absent.

In the case of a rabbit repeatedly immunised with diphtheria bacilli I gave 780 million living bacilli intravenously and found them almost gone from the circulation in 2 hours (one or two bacilli in 1·5th cubic centimetre of blood). In the case of typhoid immune rabbits intravenously injected with 1000 million living bacilli I found the bacilli absent from the circulation after 4 to 6 hours, though there had been pronounced leucopenia.

There is thus nothing to suggest that anaphylactic shock and its attendant leucopenia interfere in any way with such immunity as is evidenced by the rate of disappearance of the injected bacteria from the peripheral blood. The facts I have just mentioned do not necessarily mean a complete and

final disappearance, for in one case at least, that of the non-immune rabbit injected with virulent pneumococci, it is highly probable that the cocci would not have disappeared beyond a certain point and that the animal would have died from septicæmia. But in the case of the animals inoculated with diphtheria and typhoid bacilli—the only ones which were not killed after 15 minutes—recovery was complete.

I have only met with one case in which an immunised animal died from septicæmia while the normal control animal survived, and I do not know why this was the case. I had immunised a rabbit against B. coli communis by six large intravenous doses of killed bacilli, spread over five months, rising at the last dose to 400 million. The animal had, as the result, a fairly high opsonic index against B. coli (about 3), and its serum showed a bactericidal power against this organism which was ten-fold the normal. Four or five weeks after the last vaccination I subjected it, together with a normal untreated animal, to an intravenous dose of 750 million living B. coli communis recently isolated from a case of ulcerative colitis. The normal animal showed a moderate leucopenia (lowest total count 2000 leucocytes per cubic millimetre at 3 hours), but in 5 hours had a leucocytosis of 12,400 and next day of 52,000 and 60,000, the increase being entirely due to the polynuclears. This animal had eliminated all bacilli from its peripheral blood in 24 hours and it recovered. The immune animal, on the contrary, exhibited a progressive leucopenia from which it never emerged. At the end of 5 hours the total leucocytes were only 400 per cubic millimetre and it died, still leucopenic, in 23 hours, with about 1200 B. coli per cubic centimetre of heart's blood; the leucopenia at the end was lymphocytic no less than polynuclear. The count from the heart's blood immediately after death was, per cubic millimetre, lymphocytes 108, polynuclears 918, large hyaline 72, and basophils 102.

I may in this connexion call attention to some remarkable results obtained by Horder and Gordon with the meningococcus.[2] Searching for a criterion by which they could judge of the efficacy of vaccines and antisera against this organism, they found that whereas a normal rabbit commonly withstands an intravenous dose of no less than six sloped cultures, when given as a single dose, it readily succumbs to a series of doses, no larger in the aggregate, when these are intravenously administered at hourly intervals. Single cultures, given thus every hour, were found to kill after four to six doses, and they adopted this method of "serial dosage" in order to obtain a standard lethal effect. The serial doses produced a marked leucopenia, and it is not a little strange that no meningococci could be recovered from the blood in animals thus treated, even when the heart's blood was examined immediately after death, though in animals receiving a single massed dose of six cultures living cocci were recovered from the blood in diminishing numbers up to 24 hours after the injection.

The effect of previous vaccine treatment was to diminish the percentage of rabbits dying as the result of the serial inoculations. Out of 22 normal animals 72 per cent. died; out of 21 vaccinated animals 28 per cent. died. Testing the effect of a number of the anti-meningococcal sera on the market it was found that when the more potent sera were administered previously to, and concurrently with, the serial doses of the meningococcus, not only was no protection conferred, but in certain cases death ensued earlier than in the control animals which received no serum. Horder and Gordon suggest that this may he due to an abnormally rapid dissolution of the cocci in presence of the antiserum, with consequent sudden liberation of an excessive amount of endotoxin. They do not, however, bring forward any proof of such lytic action. I mention these interesting observations here because they offer some parallel to the case I have quoted in which an immune animal succumbed to a dose of B. coli from which a normal rabbit recovered.

I may add that on the three occasions on which I have had the opportunity of observing the effects of Sclavo's anti-anthrax serum in human cases of cutaneous anthrax, without excision of the pustule, a local exacerbation of the inflammatory symptoms has in each case followed the administration of the serum, associated with a disappearance of the bacilli from the local lesion. In one case cultures were made every hour or two from the lesion, and the bacilli, at first abundant, were extremely scanty in 12 hours and absent in 24 hours after the serum was given. All three cases made a perfect recovery. It is difficult in such cases to avoid the belief that the exacerbation of local symptoms is in some way associated with a liberation of toxin from the bacilli which are being destroyed.

Before quitting the subject of anaphylactic leucopenia I may remark that it is followed hy a polynuclear leucocytosis. The law of negative and positive phases is here also apparent, and the height of the leucocytosis seems to hear some relation to the intensity and duration of the preceding leucopenia. It is difficult to draw the line between this leucocytosis and that which is commonly associated with the presence of active tissue infections. The one may often pass into the other, just as the leucopenia of the shock may pass into that of marrow exhaustion in a rapidly fatal hlood infection.

THE LEUCOPENIA OF MARROW EXHAUSTION.

If a normal or immune rabhit is killed during the height of initial leucopenia following an intravenous injection of living or killed bacteria no noteworthy changes are found in the bone marrow. I have already stated that the number of cells bearing neutrophil granulations present per cubic millimetre of the normal rabbit's fresh bone marrow at the mid-femoral level may be anywhere between 100,000 and 200,000.

I have examined the marrows of six rahbits killed a quarter of an hour after the injection of large doses of living micro-organisms. Four of these were immune animals and three showed a marked leucopenia at the time they were killed, but neither these nor the ones which had exhibited no leucopenia showed any sign of marrow depletion. The neutrophil counts per cubic millimetre of marrow were in every case within the limits of normality, as the following table shows:—

Infecting organism.	Immunity.	Preceding leucopenia.	No. of cells bearing neutrophil granulations per c.mm. femur marrow.
Tubercle bacillus.	Immune.	Very marked.	159,000
,, ,,	Not immune.	Slight.	185,000
Virulent pneumococcus.	Immune.	Extreme.	193,000
,, ,,	Not immune.	Slight.	208,000
Streptococcus fæcalis.	Immune.	Moderate.	133.000
Micrococcus citreus agilis.	,,	None.	134,000

The hone marrow in these cases was in other respects also quite normal to microscopic examination; the cells and their granulations were natural and well stained; there was no sign of any gelatinous or mucoid degeneration. It would seem, then, that whatever the mechanism of initial leucopenia exhaustion of the bone marrow has nothing to do with it.

There is, however, a form of leucopenia which we may reasonably attribute to marrow exhaustion—that, namely, which is associated with severe and rapidly fatal septicæmias. It is well known that in certain fulminant human infections, of which malignant small-pox is a good example, a circulatory leucocytosis is absent, or if at first present is soon replaced by a pronounced leucopenia, in which myelocytes and nucleated red corpuscles may be found in considerable number in the circulation. Muir has studied the hone marrow in such cases and found it on the whole a "depleted" marrow, with widened blood spaces and a diminished number of cells.[3] The marrow appears to have been robbed of its cells by the drain upon its resources, while no compensating hyperplasia has had time to occur. I find phenomena of this kind in rabhits dying from acute septicæmia. I have never seen them so marked in infection with staphylococcus aureus as with the pneumococcus and with B. coli communis, but I should be prepared to meet with them in any acute and rapidly fatal blood infection.

If one injects into the circulation of a normal rabbit a dose of 200 to 400 million living virulent staphylococcus aureus the animal commonly dies. It may die in the course of the second day acutely septicæmic and with little in the way of local signs of disease; or it may live for 4 to 10 days and die with pyæmic abscesses in the kidney and sometimes in the heart wall. There is a difference in the changes seen in the blood and in the bone marrow in these two cases.

[2] Local Government Board Reports, 1907–08.

[3] Transactions of the Pathological Society, vol. liii.

I have already said that the phenomenon of anaphylactic leucopenia is practically absent when staphylococci are intravenously administered to a normal rabbit. I have seen four animals die under such circumstances in 40 hours or less from the time of inoculation; no one of them had a severe leucopenia at any time, though in three of them counts lower than those found before inoculation were obtained at times, especially towards the end. As a rule I have found intermittently high leucocyte counts, not maintained and falling again to normal or below it as death approached. Myelocytes and nucleated red corpuscles may be found in the last stages. I have examined the bone marrow in three out of these four staphylococcal cases and found counts below the average but still within the limits of normality. The neutrophil counts at mid-femoral level were 112,000, 110,000, and 127,000 per cubic millimetre of fresh marrow. It would appear that the efforts at leucocytosis were beginning to exhaust the marrow but that the supply of neutrophil cells had not yet seriously failed, though insufficient time had elapsed for compensating structural changes in the marrow.

If, however, the animal survives as long as four days after the dose of staphylococci a neutrophil leucoblastic reaction begins to take place in the marrow and progressively increases. I have notes of four rabbits showing this, but I will defer mention of the facts till I come to speak of polynuclear leucocytosis. Rabbits dying four days or more after intravenous staphylococcal infection commonly show no terminal leucopenia but maintain intermittently high leucocyte counts to the end.

I have only once seen a really depleted marrow after death from acute staphylococcus aureus infection. This was in an animal greatly over-immunised against the coccus by five successive weekly doses of vaccine (200 million cocci). The animal was wasted and had a low opsonic index (0 5); it succumbed to a dose of living cocci in 11 hours without exhibiting any noteworthy leucocytosis, although a normal animal survived the dose for eight days. The bone marrow of the over-immunised animal yielded a neutrophil count of only 41,000 per cubic millimetre. I shall have directly to mention other instances in which a depleted marrow is found in the condition of wasting which not rarely attends unsuccessful efforts at immunisation. The low count of neutrophils in this rabbit's marrow was probably associated with the wasting.

Much better examples of leucopenia due to marrow exhaustion are furnished by two rabbits dying from acute septicæmia after intravenous injection of the pneumococcus and of B. coli communis respectively.

A normal rabbit, weighing 2900 grammes, received an intravenous dose of about 200 million virulent pneumococci, isolated the day before from the pericardial fluid of a fatal human case of pneumonia with pericarditis. Before the inoculation the total leucocyte count was 8800 per cubic millimetre, and of these 2156 were polynuclears. Counts were made three times during the first hour, but no initial polynuclear leucopenia was detected, though there was a heavy fall in the lymphocytes 20 minutes after inoculation. The polynuclears rose somewhat at first and at two and a half hours reached 5148 per cubic millimetre, the highest point observed. By the tenth hour they had fallen below their initial number and on the following morning they were only 480 per cubic millimetre. Septicæmia was now pronounced (250 colonies of the pneumococcus from 1-40th cubic centimetre of blood, although two hours after the inoculation this amount of blood had proved sterile). General œdema supervened and the animal died during the second night, probably about 40 hours after inoculation. The leucopenia persisted and involved lymphocytes as well as polynuclears. The latest count (31 hours) showed 3 per cent. of myelocytes, and there were a few nucleated red corpuscles. The bone marrow of this animal showed an extreme degree of depletion; the neutrophil count was difficult to carry out, as the cells were not only reduced in numbers, but seemed in large part to have lost their granulations. I could only count 24,000 cells per cubic millimetre with recognisable neutrophil granulations, and in many of these the granulations were poorly stained and scanty; there were others which showed a pinkish sub-granular protoplasm. This was so however carefully I stained the sections.

CHART 8.

Showing the polynuclear curve in a rabbit intravenously inoculated with 200,000,000 virulent pneumococci. There is no sustained attempt at leucocytosis and leucopenia soon ensues. Death occurred in about 40 hours, with no local lesions.

I have already mentioned a rabbit immunised against B. coli communis which succumbed to an intravenous dose of 750 million B. coli in 23 hours, dying with some 1200 bacilli per cubic centimetre of blood. This animal was leucopenic almost from the first. The neutrophil count from its bone marrow was 59,000 per cubic millimetre.

These two animals did not present the clinical phenomena of anaphylactic shock. Their leucopenia was progressive and endured to the end. At the time the experiments were carried out I had not begun to study initial leucopenia so fully as I did later, and I did not preserve the lungs for examination. But the strict parallel which they show with fulminant infections in man inclines me to believe that the blood changes they presented are best explained on the hypothesis of exhaustion and depletion of the bone marrow. I am disposed to regard this form of leucopenia as different in its essence from that of anaphylactic shock, though the latter may conceivably be present at the outset and pass gradually into that due to marrow exhaustion.

SPONTANEOUS MARROW-WASTING IN IMMUNITY.

It is the experience of many who have attempted to immunise animals against bacteria and against alien proteins that a certain number of the experimental animals do not prosper, but ultimately waste and die for no apparent reason, and without any cause for death being found on post-mortem examination. It has been noted, for example, in experiments on anaphylaxis that a sensitised animal may survive the immediate anaphylactic shock consequent upon a second dose, but may then pine away and die some weeks later. In my experiments on the immunisation of rabbits by the intravenous route, chiefly against bacteria, I have observed this unexplained wasting and death at least nine times. Occasionally I have felt able to attribute it to over-immunisation, but as a rule I could find no reason. I have several times observed that of two rabbits treated in the same way one has prospered and grown fat, while the other has wasted and perished. Sometimes these wasted animals develop sores on the rump or head, and in such cases I have noted polynuclear leucocytosis during life and a leucoblastic reaction of the bone marrow after death. These are, I believe, secondary to the septic sores; in animals simply wasted I have found not only no leucoblastic reaction of the marrow, but a gelatinous kind of marrow poor in cellular elements. Thus in three rabbits dying wasted while in course of immunisation with vaccines of the diphtheria bacillus, the tubercle bacillus, and Gärtner's B. enteritidis respectively, the neutrophil counts per cubic millimetre of marrow (mid femur) were 100,000, 87,000, and 78 000.

These observations are in accord with what is known as to mucoid transformation of the bone marrow in man and other animals. It is a condition associated especially with wasting and inanition. Cadbury records it in many cases in his marrow studies in pulmonary tuberculosis.[1]

[1] Fifth Annual Report of the Henry Phipps Institute.

ANOTHER FORM OF LEUCOPENIA.

There is a form of leucopenia, well known from clinical observation in man, but with which I have not met in my observations on the rabbit. It is that seen in uncomplicated typhoid fever, and in many cases of acute general tuberculosis. It is a persistent condition, and it does not fit in with either of the forms of leucopenia which I have been describing. There is nothing to suggest that it is related either to anaphylactic shock or to marrow exhaustion. In those diseases in which it is seen there is a considerable amount of evidence that the polynuclear leucocytes play little part in the defence of the body against the infecting organism. This fact might well explain the absence of leucocytosis, but not an actual circulatory leucopenia. I do not know that the typhoid bacillus and the tubercle bacillus are distinguished by any negatively chemiotactic powers sufficient to account for the facts. Having no experimental evidence on the matter, I must be content to admit the existence of this type of leucopenia without attempting to explain it.

I now pass on to those conditions in which the circulating leucocytes are increased in number and in particular to the subject of polynuclear leucocytosis.

LEUCOCYTOSIS.

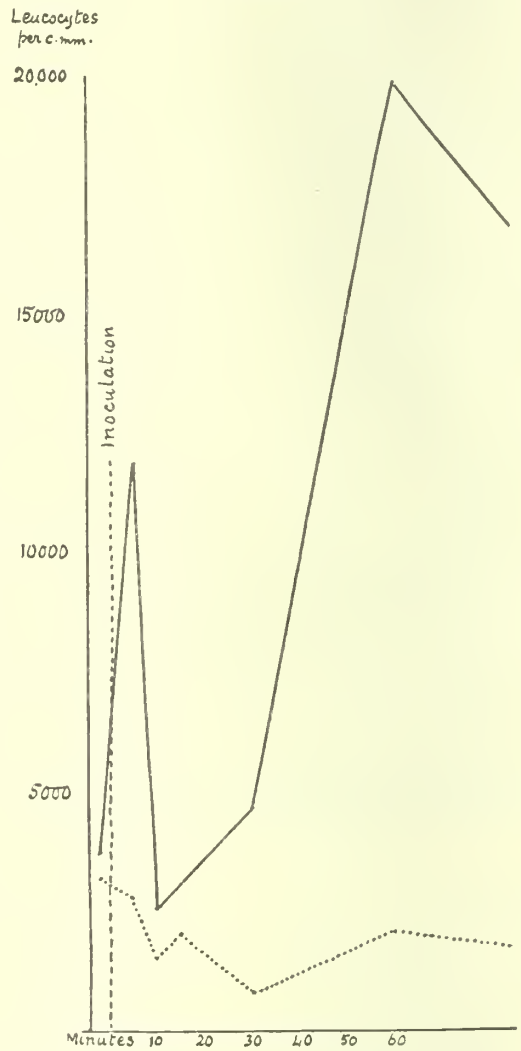
When we say that a man or an experimental animal has leucocytosis we commonly mean that the number of leucocytes in the peripheral blood is increased. With "local" leucocytosis—i.e., an accumulation of one or another kind of leucocyte in the tissues at any given point—I am not for the moment concerned. But there is another factor in the definition of the term leucocytosis. A distinction must be drawn between leucocytosis and that other, and usually more extreme and persistent, increase in the number of circulating leucocytes, presented by the group of diseases known as the "leukæmias." We know little or nothing of the causes of leukæmia, and it is therefore very difficult to draw any line between leukæmia and leucocytosis. Leukæmia is perhaps only a symptomatic condition, but it is probably fair, in the present state of our knowledge, to put the matter thus. Leucocytosis is a deliberate and purposeful increase in the circulating leucocytes: leukæmia is an apparently purposeless and wanton increase. This difference may vanish when we know more about leukæmia: at the present it holds good.

Corresponding to the purposeful nature of leucocytosis we find it almost invariably due to an increase in one special kind of leucocyte—that of which the function is in request. Here I shall deal chiefly with *polynuclear leucocytosis*—which I define as the putting out into the circulation of an abnormal number of polymorphonuclear neutrophil leucocytes, presumably to fulfil some special end. What this end may be we do not in all cases know. Often, as in invasions by the pyogenic cocci, it is clearly the phagocytic destruction of the bacteria; but we also see it after the injection of peptone and, in the immune animal, after injection of foreign proteins. Various toxic leucocytoses are seen in man, and drug leucocytoses such as that produced by cinnamic acid and its allies. We are driven to infer some function of the polynuclear leucocytes other than phagocytosis in order to explain the increased output in such cases. We may guess that where an antibody is reacting with an antigen and using up complement the functions of the leucocytes in furnishing complement are in request. But in many cases we are quite in the dark as to the meaning of the leucocytosis.

THE VARIOUS TYPES OF POLYNUCLEAR LEUCOCYTOSIS IN INFECTIONS.

I have endeavoured to show that there is more than one type of polynuclear leucopenia. My animal experiments lead me to believe that, similarly, an increase in the circulating polynuclears occurs under more than one condition of infection. When a dose of bacteria is intravenously injected into a rabbit there sometimes ensues a practically instantaneous increase in the circulating polynuclears, over in a few minutes, and followed by the ordinary initial leucopenia. In other cases I have seen a high leucocytosis coming on in an hour or two and soon followed by a progressive leucopenia. When initial leucopenia is well marked it is almost always followed by a leucocytosis lasting a few hours, or, it may be, a day, and then subsiding. When the bacteria are not promptly exterminated but gain a foothold somewhere in the body and set up local disease, there is generally seen a polynuclear leucocytosis of longer duration and often of greater intensity than in the preceding cases, lasting till death or recovery. This is the form of leucocytosis which has its parallel in human infections, and corresponds to that met with clinically. I am not prepared to say that it occurs only in local infections, but it is certainly much more characteristic of these than of septicæmic conditions, which tend to leucopenia in proportion to their gravity.

CHART 9.



Showing the behaviour of the polynuclear leucocytes in an immune rabbit intravenously inoculated with 240,000,000 living staphylococcus aureus of low virulence. There is seen an initial polynuclear rise (continuous line). The lymphocyte curve is shown by the dotted line.

I am therefore disposed to recognise at least three types of polynuclear leucocytosis in infective conditions experimentally induced by intravenous inoculation, and I will now give my reasons for this opinion in further detail.

1. EARLY OR INITIAL LEUCOCYTOSIS.

I have seen this chiefly in experiments with the pyogenic cocci, notably with staphylococcus aureus. I conceive that in the bone marrow there must exist a reserve of ripe polynuclear cells ready to pass into the blood. The sudden introduction into the body, and especially into the circulation, of a large number of bacteria possessing strongly positive chemiotactic powers for this type of leucocyte, must, I imagine, precipitate the discharge of such cells from the marrow and lead to an immediate leucocytosis which will soon be over when the reserve is exhausted. I cannot be

sure whether the phenomenon is a common one because I have not made repeated early counts in a sufficient number of cases; my impression is that this initial leucocytosis is more often absent than present.

I will quote only two instances of it. A rabbit which had been intravenously vaccinated three times with killed staphylococcus aureus was given a dose of 240 million living cocci by the same route. A control normal animal was similarly inoculated. The immune animal showed a rise from 3737 polynuclears per cubic millimetre before inoculation to 11,808 five minutes later, though the lymphocytes fell in number. Ten minutes after inoculation the polynuclears numbered only 2530 per cubic millimetre, and there was a slight leucopenia for half an hour. In the normal animal the polynuclears rose from the first. Again, in a normal rabbit inoculated intravenously with 1000 million living pneumococci the polynuclears rose in two minutes from 6596 to 8136 per cubic millimetre, falling again at the fifth minute to 3480; the lymphocytes fell during the whole five minutes.

In the absence of initial leucopenia the leucocytosis set up by the injection of the pyogenic cocci may come on in half an hour or an hour, and the same is true of harmless cocci. Thus, of two normal rabbits into the veins of which I injected living micrococcus citreus agilis (450 million), one showed 16,000 polynuclears per cubic millimetre in 30 minutes, and the other 17,000 in 1½ hours. In a normal rabbit, injected intravenously with a dose of virulent staphylococcus aureus (220 million), the blood showed an hour later a total leucocyte count of no less than 114,000 per cubic millimetre. This is an exceptionally high count, but the majority of the rabbits, normal and immune, which I have intravenously inoculated with staphylococcus aureus have had a leucocytosis by the end of the first hour. In a rapidly fatal case this may be replaced in from 12 to 24 hours by the leucopenia of marrow exhaustion. Or again, if the infection is easily overcome the leucocytosis may subside in a few hours.

2. Reactive Leucocytosis after Anaphylactic Shock.

I have observed the early leucocytosis, which I have just described, mainly in experiments with the pyogenic cocci—i.e., with bacteria having a marked positively chemiotactic power towards the polynuclear leucocytes. There is evidence that phagocytosis occurs very early in such cases, at least when the cocci are not of extreme virulence. I have mentioned the evidence which I have obtained of this in the lung of an animal inoculated with streptococcus fæcalis and killed after 16 minutes. In the reactive leucocytosis seen after non-fatal anaphylactic shock, phagocytosis cannot be invoked in explanation of the rise. Just as we see a high leucocytosis following the leucopenia consequent on injection of peptone, so, in the rabbit sensitised against a foreign protein, do we see polynuclear leucocytosis following the anaphylactic leucopenia. The phenomenon is seen in marked degree in animals immunised against the typhoid bacillus; yet there is good clinical evidence that in human typhoid fever, although suppurations may occur, the polynuclear leucocyte plays a very subordinate part compared with that which it occupies in infections by the pyogenic cocci.

So invariably have I seen a polynuclear leucocytosis to follow on the leucopenia of anaphylactic shock, whatever the foreign protein concerned—bacterial or non-bacterial—that I am disposed to regard it as an integral part of the phenomena of anaphylaxis when the shock is not attended by a fatal result. Again and again I have seen the minor symptoms of shock pass off concurrently with the onset of leucocytosis after the injection of bacterial vaccines. During the leucopenic period the rabbit refuses food, its respirations are increased in frequency, and it is difficult to obtain blood from the ear owing to lowered blood pressure. At a given moment the animal becomes cheerful, begins to eat and move about its cage; it is now found to bleed readily, and the polynuclear leucocytes are increased above the normal.

For these reasons I incline to recognise a distinct type of experimental polynuclear leucocytosis as a reactive form having no necessary connexion with the phagocytic needs of the organism, and, indeed, well seen in those cases where the disturbance is due to a foreign protein and not to an organism having any special chemiotactic influence upon the polynuclear leucocytes.

If it be asked why this leucocytosis occurs the answer is probably to be sought in the humoral functions of the polynuclear leucocytes. If it be true that these cells furnish complement, and that complement is used up in the processes associated with anaphylactic shock, the reason for their appearance in excess is sufficiently explained. In the case of the injection of bacterial vaccines phagocytosis cannot be altogether excluded as some part of the aim of reactive leucocytosis, but I doubt whether it has much to do with the matter. If phagocytosis occurs it does so early, during the leucopenic stage; the dead bacteria in the vaccine are probably easily dealt with, and their multiplication locally in the tissues is here out of court. For these reasons I incline to regard the reactive leucocytosis seen to follow the initial leucopenia consequent on intravenous administration of a vaccine as of the same nature as that seen after an alien protein, such as horse serum or egg albumin. And it may well be that, when living bacteria are substituted for the dead vaccine, the same is true when the infection is easily overcome during the first few hours.

I have seen the phenomenon of reactive polynuclear leucocytosis after the intravenous injection of horse serum, egg albumin, foreign blood corpuscles, and bacterial vaccines, especially of the coli-typhoid group, but also with diphtheria and tubercle bacilli, and it is better marked in the immune than in the normal animal. I have seen it exceedingly well marked when living typhoid bacilli are injected into the immune rabbit.

3. The Leucocytosis of Local Tissue Infection.

I am not quite clear whether I am right in calling the leucocytosis seen in established infective disease a phenomenon of *local* tissue infection. I am not prepared to deny that such polynuclear leucocytosis in human septicæmic conditions may depend upon the generalised blood infection and not upon a local lesion, but I am far from prepared to affirm it. In practically all septicæmias there exist primary, or at least secondary, foci of local infection. In those grave conditions where the blood infection is the predominant feature leucopenia is usually seen; leucocytosis seems more pronounced in proportion to the evidence of local foci of inflammation. My experiments upon the rabbit lead me to lay stress upon local infection as the main condition upon which depend the higher and more enduring forms of polynuclear leucocytosis.

It is probably safest to argue from those infections which depend upon the pyogenic cocci, since these have the most intense positively chemiotactic influence upon the leucocytes. I have repeatedly inoculated rabbits, both normal and immune, with moderate to large doses of living virulent staphylococcus aureus. Sometimes the animal dies within two days, with a pronounced septicæmia; such cases may show a high early leucocytosis, but it is one soon over and replaced, as the animal becomes more ill, by a leucopenia which persists till death, and no focal lesions can as a rule be found in these animals. The spleen may be enlarged and a few subserous hæmorrhages may be seen, but that is all. It is well known that such post-mortem appearances may be all that can be found in certain fulminant septicæmias in man. But in a rabbit dying some four to seven days after an intravenous infection with the staphylococcus the course of events is very different. There may be an initial leucocytosis or the polynuclear leucocytes may not at first be much increased in the circulation, but in two or three days a leucocytosis, essentially polynuclear, becomes established and persists, often with striking fluctuations, to the fatal issue. Such cases always exhibit local foci of suppuration, most invariably in the renal medulla, but often in the heart muscle and sometimes elsewhere. And I shall presently show that they also exhibit a very striking neutrophil leucoblastic reaction in the bone marrow, absent in the cases of earlier death.

In two animals which had been highly immunised against staphylococcus aureus, but which nevertheless succumbed to infections with the living coccus, 8 and 17 days respectively after intravenous inoculation, the local focus of suppuration was found in the spinal meninges. It is noteworthy that in several of these cases of delayed death after intravenous inoculation with staphylococcus aureus, and in which high leucocytosis had been observed to the end, the cocci could not be recovered from the blood during life or even from the heart's blood after death. The condition was not essentially a septicæmia, but a local visceral infection.

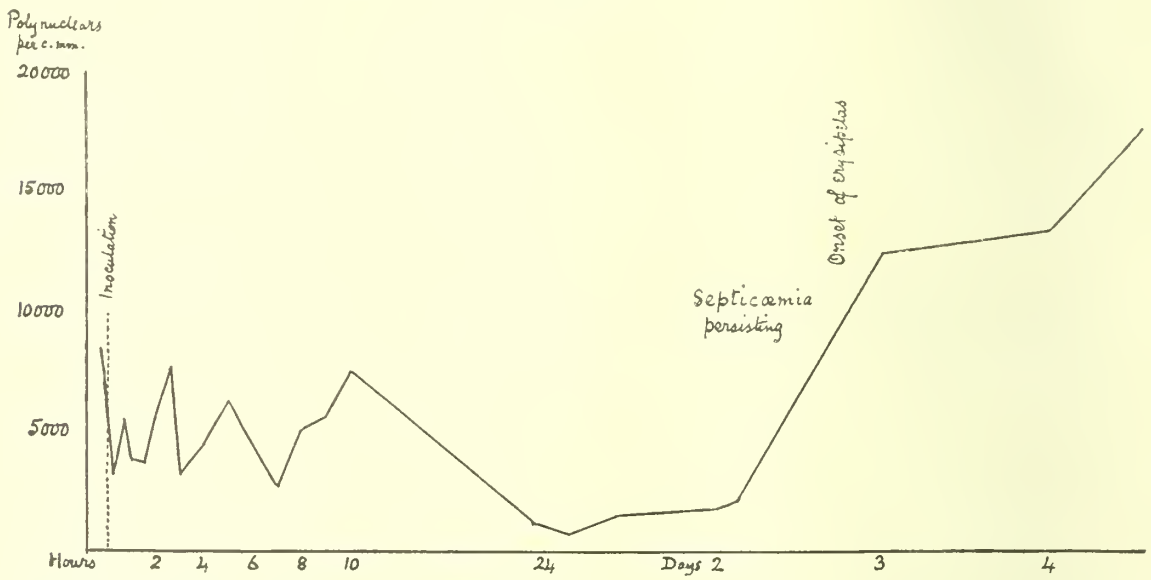
I may further mention an experiment with the pneumococcus which adds force to the preceding facts. It is well known that the rabbit is highly susceptible to this coccus, and when infected with a virulent strain succumbs to a diffuse septicæmia without local lesions. I have already mentioned such an instance in speaking of the leucopenia of marrow exhaustion. I had inoculated another normal rabbit at the same time with the same strain of pneumococcus, using the actual pericardial fluid from a fatal human case, and not a culture. Half a cubic centimetre of the fluid was injected intravenously; I cannot state the number of cocci present in this. Before inoculation the polynuclears of this animal were rather high, numbering 8480 per cubic millimetre. They fell in 20 minutes to 3268, and during the 10 hours on the day of inoculation during which leucocyte counts were made, they varied from 2656 to 7696 per cubic millimetre, never reaching the initial figure. On the following day the animal was evidently ill, and there was a marked polynuclear leucopenia (700 to 1500 per cubic millimetre). On the third day it was no better, and the polynuclears numbered only 1700 to 2100 per cubic millimetre. Nucleated red corpuscles were present in the blood, and there was still a septicæmia. 1-40th cubic centimetre of blood yielded two colonies of the pneumococcus. I had no doubt that the animal would die, but a new and almost dramatic turn was given to the case by the development of a local lesion. Starting on the third day and rapidly increasing in intensity there arose a typical erysipelas of the inoculated ear, which by and by presented bullæ of clear fluid yielding pure but not abundant colonies of the pneumococcus. (I have once before seen erysipelas occur in the rabbit after inoculation with the pneumococcus, and human cases have been recorded.) With the onset of the local lesion the blood picture entirely changed; on the fourth and fifth days the polynuclears numbered 12,000 and 13,000 per cubic millimetre, and on the sixth day nearly 20,000. They remained intermittently high for many days. The animal recovered and was later used for an experiment I have already mentioned.

The occurrence of a pronounced polynuclear leucocytosis, with the onset of the local lesion, appeared to be the turning point in a case which had threatened to be fatal. The humoral changes in the blood were not followed, though I believe they might have proved instructive. But I think it is legitimate to use the case as an argument in favour of the view that polynuclear leucocytosis is essentially a phenomenon of local tissue infection, rather than of general blood infection. Whether this be so or not I have one or two remarks to offer as to the characters and associations of this form of polynuclear leucocytosis.

The first is that the actual number of circulating leucocytes varies from hour to hour, sometimes in very sudden fashion. It is only when counts are made at frequent intervals that this fact becomes apparent. It would seem as though under the stress of infection the polynuclear leucocytes were discharged into the circulation not continuously and uniformly but in irregular gushes, in the intervals between which fresh crops mature. Making every allowance for possible errors in technique and for the fallacies attending local leucocytosis, I feel convinced that these fluctuations are genuine. In a rabbit intravenously inoculated with the pyogenic cocci, I have seen an increase from 9000 to 72,000 leucocytes per cubic millimetre in less than an hour, and though that is perhaps an extreme case, I have seen the same sort of thing in lesser degree on many occasions. Whether similar abrupt variations in the leucocyte count occur in human beings suffering from similar infections I do not know.

The persistent, though perhaps intermittent, leucocytosis seen in tissue infections with the pyogenic cocci seems always associated with leucoblastic changes in the bone marrow. During the first few hours after an intravenous infection a rabbit may at times show a high, even a very high, polynuclear leucocytosis, but it is an effort soon over.

CHART 10.



Showing the curve of the polynuclear leucocytes in a rabbit intravenously inoculated with virulent pneumococci. Septicæmia and leucopenia persisted during the second day. With the onset of a local erysipelas in the ear on the third day leucocytosis set in and the animal recovered.

The reserves in the bone marrow seem soon used up, and the leucocytosis cannot be maintained. In my next lecture I shall deal with those changes in the bone marrow which permit of a more sustained and continuous polynuclear leucocytosis—changes which are not seen until two or three days have elapsed.

The efficiency and persistence of the polynuclear leucocytosis in tissue infections with the pyogenic organisms is a factor of some importance in immunity. This has long been recognised from clinical observation in such human diseases as pneumonia. Absence of circulatory leucocytosis in a serious attack of this disease is of almost fatal augury. I have obtained some evidence from animal experiment that increasing immunity is attended by higher degrees of leucocytosis. Dr. Horder and I, in our report to the Local Government Board (1907–08), record an elaborate experiment on ten rabbits which supports this conclusion. The animals were treated with an intravenous dose of staphylococcus aureus vaccine (200 million) every week, and each week two animals were sacrificed, one for an examination of its bone marrow and one for a test against a normal control rabbit as to its resistance to a dangerous dose of living staphylococci. The doses proved too large and too frequently repeated for a satisfactory immunity to result. For the first two or three weeks the immunity increased

rapidly; the opsonic indices rose, there was a definite leucoblastic reaction of the bone marrow, and the animals tested by inoculation with living cocci survived much longer than the untreated controls. After the third week the over-immunisation was apparent, the immunity reactions diminished, and the protection faded, till, at the end, one of the last surviving animals was found abnormally susceptible to the staphylococcus.

The special point in the experiment upon which I wish to lay stress here concerns the leucocytosis observed after the successive vaccinations. It was impossible to carry out repeated counts upon so many animals, so a different plan was employed: the highest leucocyte counts after intravenous injection of staphylococcal vaccines had been commonly noted about the fifth hour. At this hour, therefore, after each weekly dose the leucocytes were counted in the gradually diminishing band of animals. Five hours after the first vaccination the average of the ten rabbits was 9780 leucocytes per cubic millimetre, after the second vaccination the average of the remaining eight was 24,775. The figures for the third, fourth, and fifth vaccinations were 22,066, 27,700, and 20,600 per cubic millimetre. It would thus appear that with increasing immunity—i.e., in this case up to the second or third week—there was an increased circulatory leucocytic response to the same dose of antigen and that this response lessened at the end as protection faded.

Had I time I could adduce one or two other observations pointing in the same direction. But I must be content to state my belief that in the case of infection with the pyogenic cocci the immune animal responds by a higher and a more ready increase in the circulating polynuclear leucocytes than the normal animal. The facts which I shall have to relate in my next lecture as regards the bone marrow support and explain this.

SUBMUCOUS RESECTION OF THE NASAL SEPTUM,

WITH A REVIEW OF 120 CASES.[1]

BY H. BELL TAWSE, M.B., CH.B. ABERD., F.R.C.S. ENG.

THE surgical treatment of deviations of the nasal septum was until recent years most unsatisfactory and extremely disappointing, and the rhinologist was frequently reproached for his inability to correct the deformity and relieve the accompanying nasal obstruction. This reproach was not due to any lack of enterprise on the part of the surgeon. Far from it. The variety of operations was manifold, their modifications endless, and the armamentarium which had accumulated in a few years would have stocked quite a good-sized museum. In spite of all their efforts rhinologists were still slighted, and their medical brethren did not hesitate to taunt them with accounts of patients who had vainly visited in turn the famous rhinological shrines of Europe in the hope of finding a speedy release from their sufferings. Many of these, in a hopelessly neurotic condition, either became resigned to their fate or drifted into the hands of the unscrupulous quack—not at all a comforting termination either for the patient or for the doctor.

Truly enough, the older methods answered very well for small spurs and slight bends, but for the worst varieties of deviations surgical treatment seemed to be at a standstill and many rhinologists hesitated to tackle them. In 1904 Killian and Freer, however, came to the rescue and introduced the now famous submucous resection—by far the most scientific operation which has ever been devised for the remedying of septal distortion. When Killian's paper was first published a few immediately condemned it, many were sceptical, and all freely criticised it.

The various steps in the operation have undergone many modifications and a few improvements have been introduced, but it has successfully withstood all objections, and at the present time its main principles remain unaltered.

Before describing the operation, perhaps you will permit me to briefly allude to the structure of the nasal septum. It is formed by the thin perpendicular plate of the ethmoid above, by the vomer below, and by the triangular cartilage in front. The latter hardly ever lies in the median line, and is often irregularly thickened. Deflections and thickenings of the septum are almost limited to its anterior three-quarters and to its lower part, the posterior quarter usually being in the median line, and the posterior choanæ of equal size. Though some septal irregularities are undoubtedly traumatic, the great majority are probably developmental. They may be found in quite young children, but most often become marked about the eleventh or twelfth year or later, when rapid development of the face and jaw is in progress. It is covered by a highly vascular mucous membrane, which is inseparably united with the periosteum and perichondrium. This, as I shall point out later, is an important point to remember in carrying out Killian's operation. Further details of the structure of the mucous membrane I need not trouble you with. I know of no operation more easy to describe than submucous resection of the septum, but there are few operations more difficult to carry out in a skilful manner. I shall not readily forget the first one I did. I am not quite sure how much longer than an hour it took me to finish it, and I had not the usual luck of a beginner to strike an easy case. The septum deviated in all directions and the perichondrium seemed as obscure as the peritoneum to the operating surgeon making his first abdominal incision. Of course, I perforated the mucous membrane more than once, and the hole I made was a large one, but I had the consolation of knowing that the patient was delighted with the result whilst I was almost heartbroken at my clumsiness, or as I would rather term it my lack of skill.

Selection of the Anæsthetic.

The first point to be decided is, "Are we to use a local anæsthetic or a general anæsthetic, or both?" Contrary to the custom of many I always use a local anæsthetic, and out of the 120 cases which I have operated on, in only one patient would a general anæsthetic have been preferable. This patient was a young lady of a highly hysterical disposition, and she constantly impeded the manipulation of the instruments and otherwise interrupted the operation. Her behaviour, which was perhaps excusable, was the cause of the perforation which resulted.

The local anæsthetic which I prefer is a mixture of equal parts of 20 per cent. cocaine hydrochlor. and 1 in 1000 adrenalin chloride. Pledgets of cotton-wool are soaked in the solution, and both sides of the nose are packed so that each surface of the septum is covered by the impregnated wool. The patient is warned to avoid swallowing any of the mixture which may trickle into the throat, and after an interval of from 30 to 40 minutes operation may be commenced. To make the anæsthesia doubly sure I used formerly before starting the operation to inject beneath the mucous membrane about 20 minims of eudrenine or codrenine, with an ordinary hypodermic syringe, at various spots on either side of the septum. I have now discontinued this injection, finding that the anæsthesia was quite sufficient without it and would last for at least three-quarters of an hour. Strange to say, I have never seen toxic symptoms arise from the use of strong solutions of cocaine in these cases.

It may be impossible from the nature of the deviation to render the parts behind the bulge sufficiently anæsthetic, and it is occasionally necessary to rub a little cocaine into these areas when access to them has been obtained. Tender spots may be encountered here and there, but will be anæsthetised in a like manner.

I have often heard it said, and I believe some text-books state, that it is dangerous to give chloroform or any general anæsthetic to a patient under the influence of cocaine. This may be so, but I have seen it done so often in nasal cases in hospital practice that I begin to doubt the truth of the statement. In fact some surgeons I have worked under had the nose packed with 10 per cent. cocaine swabs for half an hour before the general anæsthetic was administered. However, as I have never adopted general anæsthesia for these cases since I came to Nottingham, I have not met with the dangers that are said to attend the use of this combination.

The great disadvantage of general anæsthesia is, in my opinion, that the patient must be in the recumbent posture, and is unable to assist the operator in any way. You may argue that the anæsthetic may be administered in the sitting

[1] A paper read before the Nottingham Medico-Chirurgical Society and the Nottingham Branch of the British Medical Association.

position. Well, that is quite true, but the risk is so materially increased that I should hesitate to advise a patient to take it. If a general anæsthetic is decided on I should strongly recommend chloroform as the only suitable one for these cases, and it must be administered with a Junker's inhaler.

Only a slight degree of anæsthesia is required, especially if cocaine has been applied. Ether, on the other hand, is an impossible anæsthetic. By the time the patient is under the mucous membrane is so congested that it bleeds on the slightest provocation. Hæmorrhage obscures the view, illumination of the field of operation is very difficult and ofttimes impossible, and continuous mopping is necessary. When you consider that the mopping has to be done by the surgeon himself, and that his one hand is engaged holding the nasal speculum, while his other is manipulating some instrument which he must lay aside in order to mop, you will at once perceive that his work has to be done in the intervals between mopping. This markedly prolongs the operation, besides affecting its accuracy. Moreover, one is practically compelled to use a Junker's apparatus, and to keep a patient under with ether alone is a herculean task, and I venture to prophesy that you will be driven to add chloroform to attain the requisite degree of anæsthesia.

Finally, a most skilful anæsthetist is indispensable, for if the patient is frequently coming out of the anæsthetic the result is sure to be disastrous. With a local anæsthetic the patient is sitting up, and can give a great deal of valuable aid to the surgeon by altering the position of the head when requested, hæmorrhage becomes a negligible quantity, and perfect illumination of the nares is possible.

Preparation of the Patient and of the Field of Operation.

I find that patients stand the operation better if they have had a good meal just before applying the cocaine. The tendency to faint that I have noticed in some seems to have been aggravated, if not caused, by a prolonged fast. The nose is well douched with a warm alkaline lotion; the face, the upper lip, and the vestibule of the nose are thoroughly cleansed with soap and water. Although the interior of the nose, apart from sinus infection, is well known to be sterile, the same cannot be said of the vestibule, and it is well to cut the numerous hairs, at least the larger ones, that grow from its cutaneous lining. I never insist on, and seldom advise, the removal of a moustache; it is quite unnecessary, and its presence involves the patient in no additional risk. Where suppurative sinus trouble complicates the case it is wise to douche the nose a second time just before starting the operation, and the advisability of shaving the moustache might well be put before the patient. Before describing the operation I should like you to fully understand that the resection is in all cases a partial one. Only a window of the septum is removed, a strip of about a third to a quarter of an inch broad being left along the roof to support the nose.

Operation.

Let us take a simple uncomplicated case of a bow-shaped deviation of the cartilaginous septum bulging into the right nasal fossa. Standing on the patient's right side, an incision is made on the convex side of the bulge well in front of its most prominent part. For this I usually employ an ordinary tenotome. The incision reaches from just above the vestibule down to the floor of the nose, is slightly convex forwards, and extends through mucous membrane and perichondrium down to cartilage. A blunt elevator is passed into the incision and insinuated between the mucoperichondrium and cartilage, and by moving it upwards, backwards, and downwards the membrane is raised from the cartilage. With a nasal speculum in the nostril the progress of the elevator can be watched, the stripping up of the membrane being continued till a point well behind the bulge is reached. The next step in the operation, and perhaps the most difficult one, is to cut through the cartilage in the line of the original incision, so as to obtain access to the concave side of the deviation without wounding the perichondrium of that side. This proceeding will be more easily understood if I remind you that the initial cut in the mucous membrane was made on the right side of the septum. The cartilage is scratched through with a small knife till the perichondrium on the opposite side is seen, and with a little care an elevator can be slipped between the cartilage and the perichondrium of the left or opposite side of the septum. I repeat these steps with the object of plainly demonstrating that the entire operation is carried out through one incision on the right side of the septum. In my first few cases I put a finger in the opposite nostril and cut down on it, gauging the depth of the cartilaginous incision by the sensation conveyed to my finger. On one occasion the sensation was sufficiently evident to make me hurriedly withdraw my wounded digit. Then I tried an assistant's finger, but his fear and my timidity were a hopeless combination. I soon abandoned these measures and gradually gained the necessary experience, and now find that the sensation imparted from the point of the knife is ample guidance.

Separation of the mucoperichondrium of the left side can now be commenced, the movements of the elevator being inspected and controlled through a nasal speculum in the left nostril. The extent of the separation depends, as on the other side, on the amount of cartilage requiring removal. The deformed plate of cartilage has now been freed of mucoperichondrium on both sides and is quite ready for extraction. The greater part of it can be cut out with a Ballenger's swivel knife, the membranous flap being protected from injury by a speculum with long blades. Various biting and cutting forceps are employed to facilitate further removal. The mucoperichondrial flaps are now apposed, the two sides of the nose tested as to their patency, and, if satisfactory, the cut edges of the incision are united by a couple of horsehair stitches. The operation is finished. I usually insert an oily gauze plug in each nostril for 12 hours to prevent effusion of blood between the flaps and to help union.

After-treatment.

In 12 hours the plugs are removed and the nose is douched with warm alkaline lotion, and this is repeated once or twice daily for 10 days. In a few cases re-insertion of the plugs for 12 hours is necessary. Blowing of the nose I strictly prohibit for at least three weeks. As so few patients know how to blow the nose properly, and as it is impossible to make the two nasal cavities exactly equal, undue pressure is apt to be exerted on parts of the pliable septum which may become slightly deviated again. It is judicious to keep the patient in a warm room for from five to seven days, and on the first few occasions that he goes out it is well to suggest that small pieces of cotton-wool be placed in the nostrils. My reason for this is that the cold air entering a nostril which had previously been blocked sometimes sets up neuralgia, which this cotton-wool filter seems to prevent. The stitches are removed on the third day, when the wound will be found firmly healed. Some say stitching is unnecessary, and in a few cases that is so, but, as a general rule, you will find that healing is quicker if you do, and you will thus counteract the tendency I have occasionally noted of the lips of the wound to retract.

Difficult Cases.

Unfortunately but few of the cases one meets with are so simple. The bend may be S-shaped, blocking one side in front and the other side behind, and it may be deemed prudent to make the initial incision on the concave side of the bulge so as to simplify subsequent manipulation. Again, there may be prolapse of the anterior end of the septum which curls in front of the nasal orifice, the columella deriving no support whatever from it. It is uncommon, but I have seen both nostrils blocked anteriorly from a combination of the prolapsal form with an ordinary anterior C-shaped variety. In these two types of cases the incision must be made through the skin along the anterior border, and careful and skilful dissection with scalpel and dissecting forceps is essential till the muco-cutaneous junction is passed and the under-surface of the perichondrium reached. Until then false passages are remarkably easily made, and if a perforation results anteriorly it is sure to cause annoyance. Again, the most prominent part of the deviation frequently shows a patch of chronic dry rhinitis, and then one will almost certainly encounter firm adhesion of the perichondrium to the cartilage, and the separation will demand much care and delicacy of touch to prevent buttonholing the membrane.

Bony Deformity.

Up to now I have considered only simple cartilaginous deformities, but in my experience these form a very small proportion of the cases one has to deal with.

The bony septum, more especially the vomerine part of it, nearly always plays a prominent part in the

obstruction and has to be rectified. This involves a greater separation of mucoperiosteum, is more difficult on account of the uneven and ragged surface, and is more tedious from the closer attachment of the periosteum to the bone. Hæmorrhage is apt to be troublesome, and with such a limited space to work in excellent illumination is absolutely indispensable.

In dealing with large vomerine spurs I have found the following a useful adjunct. The bone is bitten away just above the spur for a distance of from a quarter to half an inch. A long flat separator is passed into the narrowed nasal fossa, and an attempt is made to fracture the spur at its base. In this I am generally successful and the spur can be seized and extracted by a blunt conchotome, gently moved from side to side to avoid tearing the mucous membrane. This may appear to some of you to be a somewhat uncertain and unscientific procedure, but I am so pleased with its results that I intend to continue it. This specimen is a typical example of a large vomerine spur, and you will readily observe that a good deal of time would have been expended in biting out this hard bony mass bit by bit. The step is devoid of danger and has never yet caused me to make a perforation. Before going further it is well to withdraw the speculum and co-apt the mucous coverings and to carefully inspect the nasal fossæ. This will decide whether it is advisable and necessary to remove any bony projection which still narrows the cavity. To test the patency required I usually pass my little finger into each nostril almost back to the posterior choana, when any obstructing excrescence will be readily detected and dealt with.

The Maxillary Crest.

There is one other part of the deformity which often constitutes a source of difficulty and which if not treated energetically may entirely nullify the operation. It is the maxillary crest which only too often exists as a prominent outgrowth along the insertion of the septum. In none of the older methods was there any attempt made to remove it. Before starting the operation one will have decided if the crest is blocking the airway, and if so, I usually make an incision half an inch long along the base of the septum, joining it to the initial incision. An L-shaped cut results and will make separation of the membrane from the crest a much easier matter. If left untouched, obstruction is almost certain to continue, and its subsequent detachment is wellnigh impossible without permanently damaging the mucous membrane. It can be chiselled away without difficulty and without pain, or one can employ the method I have recently adopted of biting it away with Woods' forceps—a powerful and very efficient instrument as you can well imagine. Hæmorrhage will be free for a few minutes, but will soon cease after the flaps have been apposed.

Errors, Difficulties, and Pitfalls.

The first mistake is to make the incision too small and too far back. If too small the movements of the separator will be impeded, the angles of the wound are torn, and approximation is difficult. If too far back the difficulties are increased a hundredfold, much of the obstruction may be left behind, and will be a sonrce of future tronble. It is better to take out too much than too little. A few of the results that I have been dissatisfied with have been due to over-conservatism. It is preferable to make a perforation than to leave the nose obstructed.

A fruitful source of error is failing to get beneath the perichondrium. It is the easiest thing in the world to slip the instrument between the mucous membrane and the perichondrium, and sooner or later you will be struck with the ease with which you seem to be stripping up the membrane. What has really happened is that you have made a buttonhole, and your instrument is sedulously applying itself to the edges of the wound, which it enlarges at every movement. The sudden feeling of freedom which the instrument imparts to the fingers is a danger signal. It is a warning to you to retrace your steps. You have failed to undermine the perichondrium, and a fresh beginning is your only way out of the difficulty. When reflecting the membrane from the convex side it may be impossible to prevent a perforation. When this appears unavoidable cease the separation and proceed to incise the cartilage, and carry out the same stripping on the other side. By this means yon have cleared the cartilage sufficiently on both sides to allow the anterior part of it to be removed. This enables one to proceed with the further separation of the convex side. In old-standing cases, where the angle of the convexity is very acute, close adhesion of the perichondrium is to be expected. Therefore you will find it much easier for the instrument to go through the mucous membrane than through the adhesion, but this can be prevented by pressing the separator closely against the cartilage and working slowly and delicately. In one of my early cases I was so bent on carrying out this advice that I pushed the instrument through the cartilage into the opposite nasal fossa.

Adhesions to the cartilage are most troublesome in cases the result of injury. In broken noses the cartilage has been split in various directions, dislocation of these is common, and you can well imagine that the adhesions will be numerous and strong. To negotiate them is a dreadful trial of patience, and to bring the operation to a successful termination requires skill and luck. The last one I did was in a lady who was hit with a cricket-ball. The nasal bones had been smashed and the cartilage split and dislocated, and a lateral displacement of the nose was a fitting termination to her misfortune. Eighteen months later the parts had firmly healed and nasal obstruction was complete. I began to do a Killian, but from the first I had difficulty in keeping beneath the mucoperichondrium. Soon I came to a standstill, the elevator was lying between two plates of cartilage. I withdrew it and made another start, and succeeded in breaking down some more adhesions till the instrument again became jammed between other two cartilaginous plates. I tried everything I knew to get on, but failed, so I turned to the other side and commenced the separation there. The same difficulty arose, and the hæmorrhage was so severe as to render inspection out of the question. I therefore cut away as much of the cartilage as had been denuded—namely, about 1¼ inches, when bone of ivory hardness was met with. Try as I could, the membrane would not separate from it; after three-quarters of an hour's work I decided to bite out the bone and mucous membrane as best I could. I had determined to secure the patency of both nostrils, and although a perforation of the size of a shilling was left I had the pleasure of knowing later on that nasal respiration was completely re-established, and that no ill-effects had resulted from its presence. A possible danger which might be mentioned occurs whilst the cartilage is being cut with Ballenger's swivel knife. The edge of the knife may slip below the edge of the speculum and the mucous membrane, now devoid of protection, is torn at the same time as the cartilage is being cut. A little care will obviate this risk. A perforation in the posterior three-quarters of the septum results in no inconvenience and the patient may be quite unaware of its existence. In the anterior quarter a perforation is sooner or later discovered and in neurotic women may become the source of discomfort. The particular form of annoyance associated with it is a peculiar whistling sound emitted on blowing the nose.

While I am on the subject of difficulties, I might mention a peculiar condition I met with. The right side of the nose was narrowed by a bulging septum and the maxillary crest was prominent. The mucous membrane was pale, ulcerated in some parts, crusted in others, and the scars of old ulcers which had healed were evident. The patient nearly always had a cold in his head and his health was undoubtedly suffering. His septum was in an advanced stage of chronic dry rhinitis. I recommended a Killian's submucous resection and the patient consented. The mucoperichondrium was found to be firmly adherent to the cartilage and separation was a matter of some considerable difficulty, and that portion of it which encased the maxillary crest seemed to merge imperceptibly into bone. However, by dint of a little patience the stripping up of the mucous membrane was accomplished on both sides, and I concluded that the worst was over, but I was wrong. The cartilage was sclerosed and very hard, instrument after instrument was tried, but small spicules of it had been removed. I ventured to remark that all the instruments were blunt, only to be informed that they had just returned from the instrument makers. However, by a process of biting and twisting I gradually extracted, bit by bit; the last piece I fractured in the method I have already described, and a perfectly straight septum was the result. The patient has had but one cold since the operation 18 months ago, and there has been no recurrence of the crnsting. Profiting by what I learned from

this case, I have done a partial resection of the septum in a few stubborn cases of chronic dry rhinitis with epistaxis, with excellent results.

Complications and Sequelæ.

There is in most of the cases, within 24 hours after operation, swelling of the turbinals and septum, due partly to the reaction after the shrinkage of the tissues with cocaine and adrenalin, but chiefly to the traumatism; it disappears in a few days. In five cases I have noted a fibrinous deposit covering the turbinals and septum on both sides appearing 24 hours after operation. In one case it persisted for a week, despite daily removal. In the others its duration was from one to three days. I foolishly omitted to have the first four deposits bacteriologically examined, but the fifth culture gave a pure growth of the pneumococcus. Hæmorrhage between the flaps I have noted in two cases, but a probe passed between the flaps easily liberates it, and it does not tend to reaccumulate. Late hæmorrhage I have never seen, but an interesting case was related to me by a friend. Here the patient was strongly advised to remain in a nursing home for a fortnight, but he was so well at the end of the fourth day that the surgeon considered that when his week was up he might return home. He did so, and two days later he bled so profusely that when the surgeon arrived the patient was almost pulseless. A little gauze plugging soon stopped the bleeding and he made an uninterrupted recovery, but I think it would be prudent to occasionally reflect on the risks that one sometimes runs in allowing patients to leave the nursing home on the third or fourth day.

Collapse of the Tip of the Nose.

I have never seen this even when the anterior part of the cartilage has been dissected out. An interesting case was that of a young man who fell downstairs three weeks after operation, hitting his nose on the edge of one of the steps. He came post haste to see me, but at the junction of the nasal bones and central cartilages, where much tenderness was complained of, only swelling could be detected. A fortnight later a slight depression was visible at this point and has remained ever since. It probably would have occurred even though no operation had been done, as plenty of the cartilaginous septum had been left in the roof to support the nose if it required it. A little crusting sometimes persists ove the site of incision for a few weeks. It is of no importance

The Indications for Killian's Submucous Resection.

1. Nasal obstruction with its attendant train of evils—catarrh, &c., from a deviated septum. 2. Headache from pressure of a spur on the middle turbinate. 3. Rhinorrhœa and sneezing—occasionally hay fever and asthma from contact of a spur with the inferior turbinate. 4. Some inveterate cases of chronic dry rhinitis. 5. Unilateral atrophic rhinitis. 6. Some cases of epistaxis. 7. As a preliminary to ethmoidal curetting or removal of the middle turbinate. 8. As a preliminary measure before dealing with empyema of the frontal sinus or maxillary antrum. 9. In broken noses to restore nasal respiration. 10. To clear a passage for the passing of a Eustachian catheter in cases of chronic middle-ear catarrh. 11. Snoring. I believe Mr. Mackie has successfully treated a case in this manner. 12. Where the air ways are naturally very narrow and the septum much thicker than usual, with bulges here and there, but not necessarily deviated, about an eighth of an inch more room can be provided by the operation. Usually in such cases cauterisation of the turbinates has failed to effect any marked improvement. 13. In adhesion of the inferior turbinate to the septum apart from or due to operation. 14. For cosmetic reasons.

You are all well acquainted with prolapse of the anterior end of the septal cartilage. It is curled across the nostril, and the skin over it is streaked with red lines from the local dilatation of small blood vessels. It is causing no trouble, but the other orifice is not quite similar. Ladies occasionally insist on its removal if it can be done painlessly. Of course, only ¼ inch to ½ inch of cartilage is removed.

In considering the advisability of operation the age of the patient is a matter of some importance. I am always unwilling to do a resection in young children unless the obstruction is interfering with health. Killian states that children younger than 12 are not fit subjects for the operation, but Freer disagrees, and says he would operate on children at any age, whilst StClair Thomson declares his unwillingness to do a resection on anyone under the age of 17. My youngest patient was 8 years of age, and her life was being rendered miserable from constant colds in the nose and chest. Removal of adenoids improved her a bit, but it was not until nasal respiration had been fully established by a submucous resection that she became reasonably healthy. One must keep in mind that the cartilaginous septum is in its developmental stage; the nose has not nearly reached its permanent shape, and it is possible that abnormal growth may take place at various parts after operation and distort the septum again. It is now two years since I operated on this little patient, and there is already evidence that the deviation is recurring. Whether it is due to a fresh outgrowth of cartilage from the edges of the window or to the result of rapid development of the face and upper jaw I am unable to say.

A question often asked is, Does the cartilage ever become replaced? Freer states that the cartilage and bone in children *seem* to be replaced but tenders no proof, and he appears to have based his conclusions on the gradually increasing firmness of the septum as age advances and on the partial re-formation of the deviation, a case of which I have just described to you. K. M. Menzel submitted a piece of the fleshy septum to histological examination 2½ months after resection of the cartilage and found no trace of re-formation of cartilage, and this is in accordance with the researches of Paget, who states that there are no instances in which a lost portion of cartilage has been restored or a wounded portion repaired with new and well-formed permanent cartilage. The septum certainly becomes very firm and resistant as years go on, but I think this is due to strong fibrous tissue which binds the two perichondrial layers together.

The duration and tediousness of the operation have been put forward as disadvantages, but as a rule only 25 minutes are required to finish it. Some take much less, whilst a few occupy 40 minutes. My experience is that patients do not mind the time taken provided they suffer no pain. Other disadvantages are too trivial to be worth mentioning.

REVIEW OF 120 CASES (*79 Males; 41 Females*).

Age.—The youngest patient I had was a girl, 8 years of age, with complete blockage of the left nostril from a deviated septum. She also had adenoids. The operation took 25 minutes, and she never winced. Other two young patients were boys of 10 and 12 respectively, with similar conditions. Amongst the others the age ranged from 15 to 55. In only 6 cases—i.e., 5 per cent. of the cases—was the deviation purely cartilaginous. The remaining 114 were both cartilaginous and bony.

Cause.—Twelve cases, i.e., 10 per cent., had a traumatic origin; the other 108 were apparently developmental, although in many of these I venture to think the traumatic element had some share in its production, time having probably obliterated its recollection from the memory of both patient and parent. In 90 cases there was marked enlargement of the maxillary crest—these constitute 75 per cent. of the total. Disease of the middle turbinate was noted in 51 patients. In 20 there was active sinus suppuration. Polypi in 25 cases necessitated ethmoidal curetting. I removed from 24 patients, mostly youths, a mass of adenoids. Unilateral atrophic rhinitis—rather a rare condition—was present in 3 individuals. In 1 case the middle turbinate was almost completely atrophied from the pressure of a large bony spur. Three were cases of typical broken noses. In 18 there was complete collapse of the alæ nasi, requiring the use of dilators after operation. Sneezing and rhinorrhœa were the main symptoms in 4, while 2 had well-marked asthmatic symptoms. Chronic dry rhinitis, with ulceration and crusting, was the reason for operation in 5 cases. Three had adhesion of basal spur to the inferior turbinate. Fifteen had middle-ear catarrh and deafness. Supra-orbital and frontal headache was complained of by no fewer than 80 per cent. of the patients.

Results.—Nine out of the 120 had perforations after operation. Five of these occurred during the first 20 I did, and one of these was brought about by a hysterical patient. Two were intentional—cases of broken nose—to restore nasal respiration. Out of the last 100 cases I have had but two perforations, and these were very difficult cases.

Nottingham.

THE EXAMINATION OF FÆCES IN MEDICAL PRACTICE.[1]

BY DR. OSCAR KRAUS.

IN the treatment of gastric and intestinal diseases it is frequently very difficult to prescribe for any given patient a diet which is adapted to the activity of his digestion and assimilation, and in which each disturbance of function in the various portions of the digestive tract is taken into account. It is not the severe cases only which present the greatest difficulties, for some of the most intractable are to be found among those which show comparatively slight signs of impaired digestion. The persistence of these symptoms, rather than their intensity, causes the patient acute suffering and defies all medicinal and other forms of treatment.

After the stomach-tube became a recognised diagnostic appliance it was for some time believed that the examination of the gastric juice would be of great service to the physician, but further experience has shown it to be quite inefficient for the requirements of practical therapeutics.

It must always be borne in mind that not only chemical but also biological, osmotic, and similar processes are involved in the activity of the stomach, and that in digestion both motor functions and innervation of the whole digestive canal must be taken into account. In no other region of the body do the various parts take on a vicarious activity so readily as in the digestive tract. That some individuals can digest their food fairly well in spite of the fact that, at the necropsy, mere fragments of the digesting gastric mucosa are found, can only be explained in this manner, and the continuation of digestion after the operative exclusion of considerable segments of the stomach or intestine is an instance of a similar kind.

Although an examination of the fæces might have been expected to cast some light on the state of the digestive functions, it is nevertheless a fact that for many years no other substances than the ova of round worms, the proglottides of tapeworms, and the skins of grapes were looked for in the stools. Practically all that was known on the subject was included in the comprehensive works of Schmidt and Strasburger, who deserve the credit of having made the examination of fæces a modern science.

On the present occasion it is proposed to deal only with the special class of analyses which enabled us in Carlsbad to determine in patients suffering from disturbances of digestion how the food is utilised, and how the defective processes can be improved on the basis of these utilisation tests. The methods used differ from those generally employed only to a slight extent, and only in as far as requirements of the daily routine rendered certain modifications necessary. Some details of the methods to be described may be open to criticism, but, as will be pointed out, these methods have shown themselves to be practical, and they have been minutely tested for several years.

It must here be remarked that among the patients who visit the spas there are some who for the most part do not feel really ill, and who, while they readily swallow all sorts of pills, have a great objection to such diagnostic methods as the use of the stomach-tube and the examination of the fæces, but the increasing education of the public must lead to an improvement in this direction.

In practice the essential requisite is to find a suitable diet for the patient, in whom physical examination and symptomatology give more or less accurate information as to the nature and localisation of the disturbance of digestion. For the reason already mentioned it may be difficult to undertake an examination of the gastric secretion, and even if it were undertaken it must be remembered that this examination could only give information with regard to that part of the digestive activity which takes place in the stomach. On this account I avoid as much as possible making an estimation of the gastric secretion, since the usual method of syphoning out the stomach once after the trial meal fails to yield sufficient information in a large number of cases, and it often happens that the type of gastric digestion can only be recognised if the syphoning is repeated every half hour during three or four hours following the trial meal. In so-called "slow gastric digestion" the secretion of acid is insufficient at first and only reaches its maximum after several hours. This maximum may even exceed the normal. Examinations of this kind may be carried out in the case of hospital patients, but are quite impossible in private practice. As will be shown presently, this examination can to a certain extent be replaced by the examination of the stools.

It is necessary to give a trial diet for the purpose of making an examination of the fæces. The object is to determine how far each single group of food components is digested. The majority of patients suffering from disturbances of the alimentary canal have already excluded certain foodstuffs from their diet before they consult the medical man at the spa. This is done either because these articles of diet have been forbidden them by their family attendants; or because local circumstances or personal inclinations have led to the preference of starchy, vegetable, or albuminoid foodstuffs; or because certain substances have been found to bring on digestive troubles.

A variety of trial meals has been suggested by different authorities, and it has been proposed to mark the beginning of the trial meals sharply by means of indicators such as carmine, carbon, and some others. I however have always found it sufficient to require the patient to include the following substances in his dietary for about 48 hours: (1) milk, undiluted or mixed with coffee; (2) eggs; (3) animal food such as fish, poultry, beef, veal, boiled or roasted; (4) farinaceous food, including bread, potatoes, and rice; (5) the various green vegetables and roots; (6) stewed fruit; and (7) butter, bacon, ham, and the fat of meat. The choice of these articles, as well as the amount taken, may be left to the patient's taste. The aim of the examination is threefold—namely, to discover how he digests the various ingredients of his *ordinary* diet, what class of foodstuffs he might add to it, and what he ought to avoid. He is given an ordinary Boas's coproscope, a sort of glass box, which he is instructed to fill to the extent of about one-half. It is, however, necessary for him first to micturate and then to use the nightstool. In the first place, a macroscopical examination is made and any peculiar colouring or decolourisation, any macroscopically detectable mucus, or any large portions of undigested foodstuffs are noted. For the present purpose the presence of entozoa and the like need not be taken into account. The shape of the stool may be characteristic and may throw light on the nature of the intestinal movements (constipation, increased peristalsis).

The first chemical examination which is undertaken deals with the secretion of bile, a portion of fæces being stirred up in a concentrated aqueous solution of perchloride of mercury. Under normal conditions, after some hours, all the portions containing hydrobilirubin take on a red colour, while those containing bilirubin take on a green colour (mercuric chloride hydrorubin and biliverdin). An indistinct reaction shows that the secretion of bile is partly or wholly inhibited.

In the next place some fæces are placed in a Schmidt's fermenting flask and set aside for observation. It is by no means necessary to put the apparatus into an incubator; the ordinary atmospheric temperature suffices, but the fermentation proceeds more slowly. A distinct evolution of gas taking place within the first 12 hours indicates that the digestion of starches has been unsatisfactory, owing to the irritation of the mucous membrane produced by the products of fermentation (early fermentation). The reaction of the fæces under these conditions is found to be distinctly and increasingly acid. This occurs especially in catarrhal affections of the small intestine, which, as is well known, is practically the only situation where carbohydrates are digested. When gas is produced only after 24 hours or even as late as the end of the second day decomposition processes are certainly at work, which means that the albuminous substances are being split up by the increased alkalinity of the fæces. In the former case there is intestinal fermentation dyspepsia and in the latter intestinal decomposition dyspepsia. The gaseous products in the former are chiefly carbonic acid and occasionally volatile fatty acids, while in the latter they are offensive gases, especially sulphuretted hydrogen.

The examination of the digestion of fat is of especial importance in practice. It is carried out as follows. Since

[1] Abstract of an address delivered before the Medico-Chirurgical Society of Glasgow.

the quantity of fat ingested has not been weighed it is of no value to estimate the absolute quantity of fat found in the stools. The examination is therefore limited to the determination of the proportion of split-up fat to total fat.

The splitting up of fats into fatty acids, soaps, and neutral fats takes place under physiological conditions in the small intestine. It is therefore necessary to determine approximately how much of the total fatty substance present in the fæces appears as neutral fat, how much as soap, and how much as fatty acid. For clinical purposes rough determinations are sufficient. All that is required is to find out how the small intestine carries out its splitting-up functions. This is best determined by the employment of the usual extraction methods. A weighed quantity (from 2 to 3 grammes) of fæces is placed in the thimble of a Soxhlet's apparatus, and this is boiled for a short time in absolute alcohol which takes up a portion of the fat. The alcohol is then added to the chloroform in the flask of the Soxhlet's apparatus and the fæces are extracted for six hours. The extract is then evaporated over a water bath and the residue is weighed. This residue, which contains all the fats, is then titrated with an alcoholic solution of caustic potash corresponding to a decinormal solution of potassium hydrate and the result indicates the amount of fatty acid plus soaps—the triglycerides being calculated as stearic acid. According to F. Müller, the number of cubic centimetres of alkali used multiplied by 0·0284 gives the amount in grammes of fatty acid and soaps. The value 284 is the molecular weight of stearic acid, the fatty acids and soaps being calculated as this. The difference between the total fats and the fatty acids plus soaps represents the neutral fats. F. Müller has shown in his experiments that with normal activity of the small intestines and mixed diet about 75 per cent. of the fats ingested are split up into soaps and fatty acids and that the more this dissociation departs from the normal the greater is the proportion of neutral fats formed.

According to von Noorden and others, the average amount of fat ingested in a mixed diet is 125 grammes daily. This quantity would correspond normally to about 20 grammes of total fat in the fæces. The greater the quantity of total fat the more defective is the fat absorption. When the quantities of total fats are small, and at the same time the quantity of neutral fat is also small, it may be assumed that both the splitting up and the absorption are satisfactory.

Of all the numerous tests for blood, only the aloin test has proved itself satisfactory to me, because it is the only one in which the presence of iron in the fæces does not affect the result of the reaction.

Microscopical examination permits the physician to determine fairly accurately the condition of the digestive activity of the stomach and small intestines. The presence of a considerable amount of connective tissue and elastic fibres indicates a defect in the acidity of the gastric juice. In such cases a certain amount of coagulable proteid substance is usually found. These are recognised in the microscope field as casein clots and milk granules. It cannot be too forcibly emphasised that the defective dissociation of connective tissue and coagulable proteins definitely points to a primary gastric affection known as achylia gastrica, or Hayem's hypopepsia. On the other hand, elastic fibres are only prepared for digestion in the stomach and are actually digested in the small intestine. The appearance of these fibres in the fæces, if not associated with connective tissue and coagulated protein, must be regarded as a sign of good gastric but defective intestinal digestion. When a considerable amount of undigested muscle fibre with well-marked contours is found in the fæces the physician may infer that the small intestine digests meat badly—a condition which may be produced by the overloading of this organ with undigested connective tissue or elastic fibres. In other words, a small intestine, which under favourable circumstances can digest muscle fibres quite easily, may digest muscle fibres imperfectly if the above-mentioned undigested food elements are present.

A sufficient secretion of the pancreatic enzyme is necessary for the complete digestion of muscle fibres. The absence of this can be recognised by undigested pieces of muscular tissue in which more or less well-preserved cell nuclei are visible. This appearance is frequently coincident with a positive result of Cammidge's excellent urine test, and may be regarded as supplementary to it.

The digestion of cereal products, vegetables, and fruits has now to be considered. The cellulose-containing stroma behaves in an analogous manner to the connective tissue and elastic fibres in meat. This stroma is only broken down in an absolutely normal small intestine, free from all traces of catarrh. Imperfect digestion of bread, and especially of the coarser varieties such as brown bread, is recognised by the detection under the microscope of portions of husks, seed cuticles, and fragments of gluten cells. Badly digested vegetables and fruits are recognised microscopically in the form of spirals containing more or less chlorophyll. Large flakes, often impregnated with crystals containing oxalic and phosphoric acids, are derived from badly digested beans, peas, and the like. These form swollen and tenacious masses in the fæces and are usually recognisable on macroscopical examination.

A drop of Lugol's solution (iodine and iodide of potassium in solution) is applied to a smear of fæces on a cover-glass. If a considerable amount of blue-coloured starch granules is seen, since these granules are derived from potato, rice, tapioca, and similar amylaceous substances, the physician may assume that the patient's amylolysis is impaired. In these cases the normal alkalinity of the intestine is usually diminished down to neutral reaction. When the starch granules are unchanged and clumped together in masses it may usually be inferred that, as a result of deficient pancreatic enzyme, the proteolysis in the small intestines is also impaired. On the other hand, swollen starch granules almost always indicate a catarrhal affection of the small intestine, where the digestion of the starches chiefly takes place. The diagnosis may be confirmed by the character of the mucus. The fæces in these cases are always acid and fermentation dyspepsia is present.

It will now be convenient to consider the behaviour of the mucus. According to Nothnagel, mucus is found in the form of "cohesion" mucus in every normal stool. This mucus, however, is not macroscopically visible; our method of detecting it microscopically was suggested by Max Adler and has been found useful for the staining and differentiation of mucus in urinary sediment. A fæcal smear is stained with a 1 per cent. solution of alizarin sulphate of sodium. Normal mucus is evidenced by the appearance of small flakes and scales, stained faintly yellow. Pathological quantities of mucus, which can be detected with the naked eye, are separated from the fæces and removed by means of a platinum loop, rinsed in water to remove as much as possible of the bile pigment, and stained as before. Max Adler believes that it is possible to determine the section of the intestine from which the mucus is derived. The farther the mucus has to travel, or, in other words, the greater the distance between the situation where the mucus is formed and the anus, the more weakly is the mucus stained. Bright red, large flakes have their source in the lower part of the large intestine, whereas mucus particles from the small intestine are stained merely yellow, and the nearer the catarrhal affection is to the duodenum the paler is the colour.

Some practical applications of the inferences drawn from these analyses may now be given, and the following typical cases have been selected from the large number which have come under my care.

The first of these patients was a married woman, and the diagnosis, made before the examination of the motions, was chronic constipation with "specific intestinal colouration," without dilatation of the stomach. The internal organs were healthy. The subjective symptoms included a constant feeling of fulness, well-marked anorexia, and migraine. She had taken cascara sagrada for years. Prior to the beginning of the treatment it was necessary for her to continue taking pills in order to obtain a motion of the bowels. The stools were consequently loose and pale yellow; much undigested food was detected macroscopically and considerable quantities of mucus in fine lamellæ were floating about. There were also present a moderate amount of connective tissue, considerable quantities of coagulated proteid substances, a little muscle fibre, a fairly large quantity of total fats, many large spirals and large flakes with distinctly recognisable parenchyma of seed cuticle, a few small clumps of minute crystals, and some swollen starch granules. Slight early fermentation took place. The following deductions were drawn from these data: the presence of coagulated protein and the moderate quantity of connective

tissue pointed to an insufficient secretion of hydrochloric acid in the stomach. The small amount of muscle fibre revealed a relatively good digestion of meat in the small intestine; the amount of total fats that was found indicated a somewhat defective absorption of fats. The mucus occurring in small flakes was interpreted as being due to a superficial catarrh of the lower segments of the small intestine. The digestion of vegetables was obviously imperfect. The original diagnosis was therefore supplemented as follows: hypopepsia (stomach), fermenting dyspepsia (catarrh of the small intestine). The patient having been put on a suitable course of "waters," with massage, the next task was to determine a proper diet. Vegetables and fruits in every form, fat meat, and especially ham, on account of its connective tissue, had to be forbidden in view of the results of the analyses. The daily diet was composed as follows. Breakfast: tea or coffee with little milk, a small allowance of rusks, one egg, and butter. The possibility of absorption of the butter fat, which is readily melted, was improved by limiting the amount of starchy foods. Lunch: soup, boiled or steamed veal or beef, chicken or fish; with two tablets of acidol-pepsin to be taken during or after the meal. During the first two days no starchy food other than one rusk was allowed, but later on a small quantity of mashed potato was added. It is a matter of experience that superficial catarrhal affections of the small intestine disappear in a few days after starches are avoided. A little wine was allowed to assist the digestion of the fats. Tea: the same as breakfast. Supper: roast meat, with acidol-pepsin. Carlsbad "Sprudelsalz" was at first prescribed for the purpose of obtaining satisfactory motions, but it was afterwards found that the bowels regulated themselves. After about three weeks there was no macroscopically visible mucus in the motions, neither was there any connective tissue, but there were a few small muscle fibres, a small quantity of total fat, and numerous masses of large crystals; there was no early fermentation. For the purpose of this examination of the fæces a full mixed diet was substituted for the prescribed diet. It was thus apparent that the hypopepsia, as well as the fermenting dyspepsia, had disappeared. The patient, who had taken a considerable quantity of vegetables and fruit, was strongly advised to avoid these for a time. She was told that she could extend the rest of her diet as she pleased. She had gained weight considerably, her colour had improved as a result of the removal of the constipation, and her general condition and appetite were excellent. There was not a trace of mucus in the motions and the irritation of the small intestine had at last been got rid of.

The second patient was a married woman in whose case the diagnosis was atony of the stomach and intestine, chronic appendicitis, cholelithiasis, anorexia, and constipation. She was very much reduced in strength and in addition had been seized with acute indigestion on the journey to Carlsbad. The result of the examination of the fæces was similar to that in the first case, and it is therefore only necessary to deal with the most salient points. The fæces contained large quantities of absolutely undigested food, large quantities of muscle fibres, with well preserved cell structure (indicating defective pancreatic digestion), a considerable amount of connective tissue and elastic fibres, and very large amounts of coagulated proteid substance (indicating a defective secretion of hydrochloric acid), a little faintly tinged mucus from the lower part of the small intestine, a very large quantity of total fats (indicating a defective absorption of fat, connected with the disturbed pancreatic function), and large masses of crystals (indicating a defective digestion of vegetables and fruits); the secretion of bile was normal and the patient had not had any attacks of gall-stone colic for several months. The foregoing received full confirmation, as is shown below. The patient was at the time in a condition in which she was absolutely incapable of digesting any kind of food. The mixed trial diet naturally did not improve matters and it therefore became necessary, before beginning the course of treatment, to wash out the stomach thoroughly. An enormous quantity of mucus was found in the stomach in addition to undigested and fermenting food residue.

It may perhaps be advisable to call attention in this place to the fact that large quantities of fluid (usually from 10 to 20 quarts) are required for this form of lavage of the stomach. I use the water of the Sprudel spring for the purpose, and if the lumen of the soft stomach-tube becomes blocked I add bicarbonate of sodium and a few drops of concentrated acetic acid alternately. The acetic acid dissolves the mucus, while the liberated carbonic acid mechanically removes it.

The choice of foodstuffs was particularly difficult in the second case, as practically everything was badly digested. The first requisite was to determine what articles of diet must be forbidden at all costs. In the case under consideration these included vegetables, fruits, starches, and fats. The only thing remaining was therefore a nitrogenous diet, which had first to be rendered digestible. The high calorific value of these foodstuffs rendered it particularly inadvisable to exclude them, since the experience gained by these analyses has taught that when one class of food is excluded from the diet the digestive organs can deal with the remainder much more easily, especially if the work is artificially assisted. In the first place, the meat must be passed through the mincing machine twice, so that it being in a state of fine division offers an increased surface for the digestive fluids to act upon. The connective tissue is especially well divided.

The diet in the second case was similar to that prescribed for the first patient. Larger quantities of acidol-pepsin, however, were given, and in addition pancreon in tablet form was ordered to be taken before meals. Meat was only allowed once a day in the form described above. In the evening small quantities of sago, groats or ground rice boiled in milk were given. Pancreon was also given before the milk-puddings. The result justified the course adopted. The catarrh disappeared and the secretion of mucus was no longer to be found when the control analysis was undertaken on August 11th, 1909, while the digestion of all foodstuffs was practically normal. A rational diet had thus supplemented the Carlsbad course in this case in a most happy manner.

Carlsbad.

THE ADMINISTRATION OF THE PUBLIC HEALTH AND EDUCATION ACTS IN RELATION TO THE PREVENTION AND CURE OF DISEASES OF THE THROAT AND NOSE.

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(*Concluded from p. 24.*)

School Children and Throat Hospitals.

THE throat and nose taken together constitute one of the most important regions in the body of a child as well as one of the parts most liable to derangement. The results of medical inspection of schools which have so far been made public[1] show a great amount of hitherto unnoticed and unsuspected defects, more especially of nose, throat, ears, eyes, and teeth. If these are to be remedied or prevented in a satisfactory manner a vast accession of work may be anticipated.

So far as the throats and noses of children are concerned, in the vast majority of cases the question is one of nasal obstruction or of mouth breathing or of "adenoid" overgrowth. The treatment of these conditions is generally surgical, and that operative.[2] The operation referred to is that for the removal of tonsils and adenoids. Adenoid growths were first exactly described by Wilhelm Meyer of Copenhagen, 1868.[3] The name "adenoid vegetations" was

[1] Cf. Report of Dundee Social Union, 1905; Medical Examination of State School Children in Tasmania, 1906; Report on Medical Inspection of School Children in Leith, 1906; Annual Report on the Medical Inspection of School Children in Dumfermline, 1906; Report on the Physical Condition of School Children in Edinburgh, 1906; Annual Reports of the London County Council on School Inspection, &c.

[2] THE LANCET, 1901, vol. i.

[3] THE LANCET, 1904, vol. i., p. 804; Politzer, Diseases of the Ear, p. 721; Carstairs Douglas, Laws of Health, p. 153.

invented by Meyer. Before his time operation for this condition was practically unknown. Since his time the operation has, as will be shown, attained a very important place in surgery. The literature of the subject is by this time enormous in many languages. The preventive or prophylactic aspect of treatment is scarcely taken into consideration. It may be fairly expected that school inspection will supply the necessary engine for preventive medicine in this as in a great many other matters. Meanwhile it appears advisable to inquire upon what plan and to what extent this kind of throat surgery is done under existing conditions. The metropolis may be taken as an example.

In London there are at least 40 different institutions where surgical treatment of children's throats is carried out. These are: (*a*) general hospitals with or without medical schools; (*b*) children's hospitals; and (*c*) special hospitals for diseases of nose, throat, and ear. There are also a number of small dispensaries and cottage hospitals and the work of private practitioners.

It is difficult, if not quite impossible, to arrive at anything like an exact estimate of the amount of this kind of surgery (tonsil and adenoid) that is at present done. Some hospitals keep no records of it whatsoever. Others keep records but refuse access to their books. In many general hospitals these operations are done both in the casualty department and in the special department for diseases of the throat where such a department exists. A proper record may be kept in both these departments or in one only or in neither. Private practice will account for a certain number of cases, but it is extremely probable that this number is comparatively very small and rapidly diminishing. So that although it cannot, for numerous and obvious reasons, be known it is relatively unimportant. Estimates as exact as possible have been made for 25 institutions in London. Some hospital authorities were kind enough to supply the information required. Others demanded payment for the clerical work that was necessary. In most instances the work was done by personal research. In many instances the total number of cases in a given year was exactly determined. In others an average was arrived at by working out the figures for certain months, and thence deducing a statement for the whole year. The individual totals vary from 3282 down to 25 cases per annum. There is a curious discrepancy in the figures derived from the larger general hospitals. Thus one large hospital returns as high a figure as 2957, whereas another almost as large gives only 554 per annum.

The actual figures obtained in the case of the 25 institutions investigated, placed in order of magnitude, are as follows:—

1	3282	10	700	19	300
2	3200	11	660	20	210
3	2957	12	656	21	162
4	2581	13	592	22	153
5	1884	14	554	23	93
6	1300	15	550	24	85
7	1162	16	480	25	25
8	904	17	400		
9	742	18	347	Total...	23,979

We have here practically 24,000 operations per annum for tonsils and adenoids performed in 25 hospitals. The figure is sufficiently large to attract attention and to show the vast importance of this kind of surgery. It must further be remembered that up to the present it is more or less a matter of chance whether these children are brought for treatment or are left alone and neglected. The 25 hospitals mentioned include: general hospitals, 16; children's hospitals, 4; and throat hospitals, 5. The 15 hospitals for which no returns are available include: general hospitals, 12; children's hospitals, 3; and throat hospitals, 0. If it is permissible in this case to argue from the known to the unknown, there will be 38,400 per annum of these operations done in the whole of the 40 institutions. In the London list of the Medical Directory (1909) there are 6420 registered medical practitioners. If 1 in 4 of these does one of these operations in a year (which does not seem an unduly prosperous allowance) we get 1600 additional cases. This gives a round sum of 40,000 operations. This figure is certainly a crude one and of necessity crudely obtained, but as it is more likely to be below the truth than above it, it is, so far as it goes, reliable.

The majority of the patients concerned are children at or below school age. For the purposes of this estimation it is necessary to leave out of account the special children's hospitals, because in them all patients are at or below school age. Thus, taking nine institutions which are not special hospitals for children, we find a total of 4769 operations on patients from 1 to 20 years of age. The numbers at the different ages are given in the following table:—

Age	1	2	3	4	5	6	7	8	9	10
Total	62	160	349	438	484	448	370	317	263	255

Age	11	12	13	14	15	16	17	18	19	20	—
Total	281	299	286	219	142	149	81	64	56	46	4769

Age 1 to 14 = 4231 = 88·7 per cent. Age 14 to 20 = 538 = 11·2 per cent. So that nearly 90 per cent. of these patients are at or below school age. Also (within the age limits) the majority are children attending the public elementary schools. Further, most of them are on examination found to be suffering from one or more symptoms usually caused by the presence of tonsils and adenoids. This statement, put in another point of view, means that the parents bring or send their children to the hospital because of some defect or complaint which they have themselves observed. It is well worth noting that where the child is brought to the hospital on the recommendation of some school officer the parent has frequently no complaint to make as regards the health of the child. As a rule parents will only notice the more gross obvious defects arising from pathological conditions in throat, nose, or ear.[4] Even so they will not in all cases have the enterprise to seek a remedy. Still less are they capable of co-relating defects of the organs mentioned with habits of inattention, backwardness at school, and apparent defective intelligence. Considerations of this sort provide a basis for the supposition that school inspection must, at any rate for a period, produce a great increase of medical work.[5]

The operations are performed in nearly all cases under general anæsthesia. Those who perform them are most various as regards their skill and experience. General surgeons, throat specialists, house surgeons, clinical assistants, students, qualified and unqualified, male and female, take their share in the imposing total of operations for the proper performance of which a certain amount of skill is in all cases necessary. Such skill can of course only be acquired by practice, which, at any rate at first, ought to be combined with instruction and supervision on the part of some competent surgeon. These requirements are now met by many places of medical education, and it is open to any student to take advantage of the facilities so provided. It happens, however, that remarkably few are able to do so, without doubt because of the time and expense thereby added to an already ponderous medical curriculum. The legal minimum of medical studentship is at present five years, but actually the average time taken is more nearly seven years.

It may be remarked that although these operations are frequently quite simple, yet, as in other branches of surgery, cases of considerable difficulty are met with, especially in connexion with the tonsils. It follows that they ought to be the business of specialists—that is to say, of those who have found means of acquiring the necessary experience. These considerations have an obvious importance which will not be diminished in case the existing hospitals are unable or unwilling or unauthorised to carry out any increase of work produced by the medical inspection of schools. Many of the statements contained in this paragraph apply also to the anæsthetist. It is sufficient to say that a good anæsthetist is the best assistant to the surgeon in these cases, and that he is absolutely essential, not only for the safety and comfort of the child, but also for the rapid and efficient performance of the operation. In other words, another "specialist" is wanted.

There is no doubt but that a large number of parents elect

[4] Daily Telegraph, July 2nd, 1907; Mrs. Sidney Webb, p. 21 of Report on the Medical Services of the Poor-law and the Public Health Department of English Local Government.

[5] THE LANCET, 1909, vol. ii., p. 420.

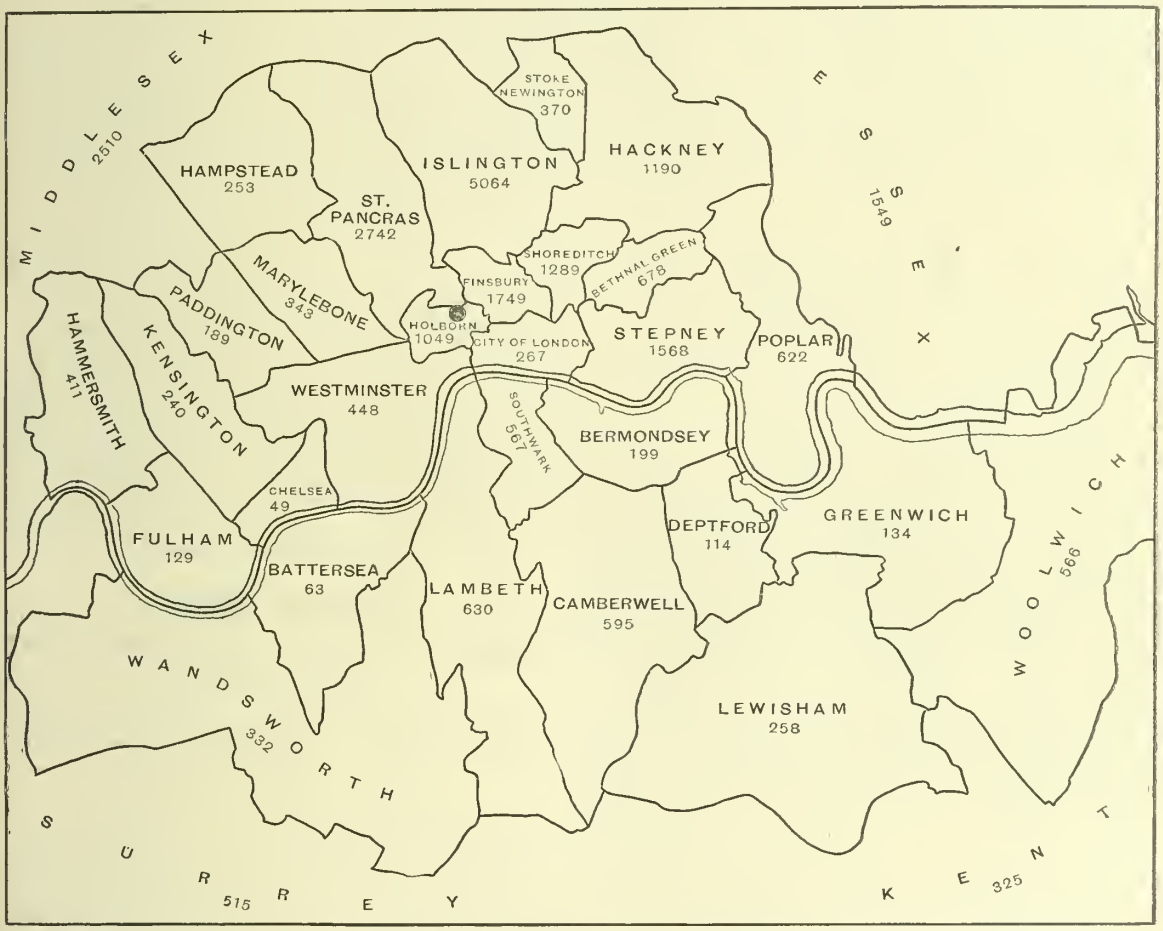
to take their children to that hospital which happens to be in, or nearest to, the district in which they live. But the books of practically all hospitals show innumerable instances where the people travel from remote parts of the town or even country. Particularly the special hospitals draw their clients from all parts indiscriminately. This is well shown in the annexed plan of London giving the distribution of patients attending the Hospital for Sick Children, Great Ormond-street, W.C. I am indebted for this and much other useful information to Mr. Stewart Johnson, secretary to that institution.

Numerous factors produce this peculiarity in distribution of patients. Having regard to the enormous increase during recent years in the numbers of hospital patients,[6] the said hospitals must to a certain extent have taken the place of private practitioners of all kinds—physicians, surgeons, consultants, specialists. Now, the same causes which lead people to consult this or that doctor probably lead them to attend this or that hospital. Anyone who happens to read this paper may be able to decide for himself what these causes are, at any rate in his own particular case. Now in this matter there are as many minds as there are men. Also, on inquiry it is found that many of these minds are hopelessly illogical. But whether illogical or not, it is certain that the principle of "choosing your own doctor" has to be taken into account. Mrs. A takes her second child to the hospital where her first child was cured. This on the surface is a logical proceeding and Mrs. A is perfectly satisfied, although the second child may be operated upon by an inexperienced house surgeon just entered upon office a few days previously. But what of Mrs. B who brings her child to a certain hospital because her husband died there from a fractured skull or because the hospital has the same name as her little girl? Anyone who takes the trouble to do so can often elicit the most absurd "reasons" for the selection of doctor or hospital.

To some extent the persons attending different hospitals are of different social standing. The very poor are for the most part obliged to be content with the nearest hospital, whereas the class of skilled artisans and such as earn good wages can and do pay the expenses of making long expeditions. It happens in this way that many out-patient departments are crowded with quite trivial ailments brought there at great expense of both time and money. Whatever its essential cause may be, there is a strong element of competition amongst hospitals of the present day, at any rate in London. Undoubtedly this has something to do with the distribution of the vast hordes of patients, inasmuch as it produces a large amount of advertisement of a more or less ordinary commercial type. It is true that this advertisement is mainly directed towards the acquisition of legacies, donations, subscriptions, &c., but another, possibly secondary, effect, if not object, is the attraction of patients. Moreover, increase of resources enables an institution to provide increased attractions in the way of fine buildings, elaborate appliances, expensive methods of treatment, and so forth. We have here one of the points where the hospital differs from the doctor, whose place it has largely taken, for to advertise is said to be contrary to medical etiquette. Hence, regarding the hospital doctor as part of the appliances of the hospital, he in this case does freely advertise—not for his own direct benefit, but for that of the prospective patient and rather his own detriment, as the patient is possibly, and often in these days probably, a person who might have paid a doctor's fee.

As has been said above, the majority of the patients with

FIG. 6.



Map showing the distribution of patients attending the Hospital for Sick Children, Great Ormond-street. The site of the hospital is marked on the north boundary of Holborn.

[6] THE LANCET, 1909, vol. i., p. 5.

which this paper is concerned belong to the classes which attend the public elementary schools. These classes[7] seem to be as numerous and as various as the classes which do not attend such schools. The only element common to them all is the fact that they obtain free, or practically free, medical treatment. In these days anyone may see on the benches of hospitals numbers of people who 30 years ago would as soon have thought of going to the workhouse as to the hospital. It is said by many competent observers that the failure of the Poor-law system is to a large extent the cause of the overcrowding in hospitals, and it is of course obvious that voluntary hospitals have done and still do what is, strictly speaking, the business of the Poor-law. But a "better class" of patients also helps to fill the hospitals. It cannot be doubted that a slow but radical change is occurring in the view taken of medical assistance by large numbers of the general public. Otherwise how is anyone to account for the enormous numbers of out-patients and out-patient attendances in the London district? I quote from the Howard Medal Prize Essay[8] read before the Royal Statistical Society on Jan. 19th, 1909, the following figures:—In 123 hospitals in Greater London for 1906 there were: new out-patients, 1,871,495; out-patient attendances, 5,200,705. Under these circumstances it is hard to see why there is not a rapid decline in the number of the medical profession. Probably it is because neither the public[9] nor the medical profession realise the state of affairs. The figure given here for the number of new out-patients is given with the explanation that it includes a certain number of "renewals." That is to say, one individual may be reckoned as two or more cases. If, however, the figure does not accurately represent the number of individuals, it is a good index of the amount of work done by hospitals. The figure for the out-patient attendances is not subject to this kind of fallacy and affords a still better index of the amount of work done. We find that the contribution of five special hospitals for throat, nose, and ear to these enormous figures is: new out-paticnts, 28,643; out-patient attendances, 138,441.

It might be invidious to make any criticisms upon the quality of this out-patient work in London, but as regards the 40,000 cases of tonsils and adenoids (operations) further discussion cannot be avoided. What becomes of them after the operation? What after-treatment do they receive? Most of the children are necessarily sent home a few hours after the operation, simple instructions having been given to their mothers about diet and mode of living during the next week. After that they are probably seen at the hospital once or twice. Sometimes they are given "strengthening medicine" for a week or two. Sometimes the parents receive advice and instruction about proper breathing habits, cleanliness, &c. That is about all that can be said on this point. That is the most that can possibly be hoped for at present. Indeed, we may safely say that it is far more than the public has any right to expect from the voluntary services of any profession. Yet it does not go far enough. The after-treatment of many of these cases is very important, sometimes more important than the operation itself.[10] It is unlikely that even the instructions alluded to above, simple though they are, are in all cases given to the parents. It is still more unlikely that those who do receive such instructions carry them out either regularly or for a sufficient length of time. There is no supervision and no guarantee that the improved physical condition provided by these thousands of operations is taken advantage of. Too much reliance is placed on the actual operation which is too often regarded as a conjuring trick capable of dissipating instantaneously many years' growth of disease and of faulty habits. For example, children who have for any length of time lost the proper way of respiration do not easily re-learn it. Under these circumstances we shall be justified in doubting whether the benefits resulting are at all commensurate with the amount of work and disturbance involved in so much operation, so long as such a hiatus exists in the after-treatment. In a limited number of cases the beneficial effect of the operation is immediate, striking, and permanent,[11] but in the majority it is hardly given a fair chance to justify itself.

[7] THE LANCET, 1909, vol. ii., p. 729.
[8] By Percy Braun, B.Sc.
[9] THE LANCET, vol. i., 1909, p. 1417.
[10] THE LANCET, 1909, vol. i., p. 1821.
[11] THE LANCET, 1901, vol. ii., p. 24.

The effect of the Education Act of 1907 is beginning to be felt in a variety of ways. In some hospitals the number of children attending throat and other departments has increased suddenly and rapidly so as to put further strain on the available staff. The British Medical Association has taken up the subject very vigorously and issued various manifestoes. Here and there general practitioners have complained of interference with their private practice. Generally speaking, an increasing number of children present themselves at the hospitals, not making any complaint of illness themselves but because they have been "inspected" and "advised." Some of these bring a note from a nurse or school teacher. Others bring a counterfoil torn out of a record book and perhaps signed by the medical officer. Others have no document of any kind, but say they have been advised "to see a specialist." Others again only give out under cross-examination that they are the products of school inspection. I have seen a considerable number of children on these somewhat crooked lines in a hospital and I cannot recall one instance where I received any information whatever about the patient. In no case was it explained why the patient was sent to the hospital, nor what amount of examination he or she had already undergone from the point of view of throat, nose, and ear. Nor, on the other hand, so far as I am aware, does any hospital send back any record with these children. Doubtless in the present chaotic state of affairs such a hopeless want of organisation is unavoidable.

To recapitulate: A very large number of operations for the removal of tonsils and adenoids are performed. The number is so large that it gives the subject importance apart from its more purely medical aspects. Nearly 90 per cent. of the patients are children at or below school age. The majority of them are already suffering from their throat affection in some way more or less serious. The operations are performed by persons whose degrees of experience are most various. The need of two kinds of "specialist"—namely, surgeon and anæsthetist—has been briefly shown. As regards the difficult question of distribution of patients, although the quality of the work and the results given by any particular place or individual ought to have most effect, yet numerous other factors come into action. Just as, apart from school inspection, these children come to hospitals more or less fortuitously, so after operation they are left to take their chance without any supervision or practical after-treatment.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON THE TREATMENT OF RUPTURE OF THE CALF MUSCLES.

BY L. A. HAWKES, M.D. EDIN.

THE following personal experience may be of service to anyone called upon to treat rupture of the calf muscles.

On May 20th, at 7.30 A.M., while hurrying down the steps to a platform on the Metropolitan Railway, I felt a pain in the calf of the right leg as if someone had struck me with a stone. As I had neither stick nor umbrella locomotion was difficult and the pain unpleasant. When I reached my destination in the Edgware-road a cold compress and bandage were applied. Owing to the impossibility of obtaining a cab after the Royal funeral procession I limped to the Great Central tube station and arrived home about 1.30. The leg was further examined. There was no ecchymosis but considerable swelling and much pain all over if any attempt was made to flex the ankle. About seven hours after the accident I applied a thick layer of very hot antiphlogistine covered with cotton wool and supported by a bandage from the ankle to the knee. The leg was kept rested as much as possible until 9 P.M., when the dressing was removed and very gentle massage given for half an hour, and then redressed with antiphlogistine. The massage was at first very painful, but towards the end of the time very soothing.

This treatment of antiphlogistine twice a day and massage once was continued for six days, at which time, as the effusion had almost disappeared, the former was discontinued.

Massage was kept up for a fortnight; the treatment increased in strength while passive movements at the ankle-joint were added. No ecchymosis appeared for three days; the first signs were at the junction of the muscle and tendon of the gastrocnemius; later there was an intense livid discolouration on the inner side from the back of the knee to the sole of the foot, and in patches on the outer side; these practically disappeared in 14 days. The leg has been, and is still, kept supported by a bandage.

For the first ten days walking was painful and it was impossible to advance the left leg, and any thrust or extra weight was extremely uncomfortable. The injury appears to have been to the muscle on the inner side, for the internal saphenous nerve down to the ankle became acutely tender to pressure; this has now disappeared. I have not been absolutely laid up the whole time, though it has been necessary to curtail outside work as much as possible.

My professional friends considered that I was—well, very unwise, not to lie up, with a back splint or a plaster-of-Paris case on my leg, but with the amount of effusion that there was rest would have resulted in organisation of lymph and formation of adhesions which would have taken weeks to break down.

Antiphlogistine properly applied in reducing the inflammation of traumatic effusions is of great value and not sufficiently appreciated by many practitioners. I am quite sure that the period of absorption was greatly reduced by its use. The massage must also be given by one who has the requisite skill; practically every evening small adhesions were found in the subcutaneous and intercellular tissue, and these required care and patience for their removal.

Amwell-street, E.C.

A CASE OF ACUTE POISONING BY ANTIPYRIN.

By G. D. H. WALLACE, M.R.C.S. ENG., L.R.C.P. LOND., D.P.H. CAMB.,
RESIDENT SURGEON, BIRMINGHAM GENERAL DISPENSARY.

A HEALTHY looking girl, aged 20 years, was brought to see me on April 2nd. She had been suffering from toothache and on the advice of a friend had sent to a druggist for ten grains of antipyrin. Within 15 minutes of taking it she complained of a feeling of faintness and suffocation, and her face became "blotchy" and swollen. When I saw her she was perspiring freely, the skin of the face and neck was œdematous, and there was a profuse urticarial eruption on the face, neck, and upper part of the chest. The pulse was 120, very soft, feeble, and irregular. The temperature was 95·5° F. Whilst being examined she suddenly collapsed, her face became very cyanosed, and she lost consciousness. Brandy by the mouth and strychnine hypodermically were administered and in the course of a few minutes she regained consciousness. She was put to bed, hot water bottles applied, and a calomel powder given. Three hours later the temperature had risen to 97°, the pulse-rate was 90, and the œdema of the face and neck had markedly diminished. She was kept on a milk diet for two days, by which time the temperature had risen to normal and the swelling and urticaria had completely disappeared. There was no diarrhœa or vomiting throughout, and the case differed materially from cases of ptomaine poisoning. Its most marked features were the rapid onset and recovery, the low temperature, and the great prostration. The patient had never had a previous attack (she had never taken antipyrin before), and a careful inquiry failed to elicit a history of anything eaten which might have caused the symptoms.

Birmingham.

A CASE OF EXTRA-UTERINE PREGNANCY OCCURRING TWICE IN THE SAME PERSON.

By GEORGE A. GORDON, M.D. EDIN.

IT must be an exceedingly uncommon thing for a woman to be the victim of an extra-uterine gestation on two distinct occasions, and it is this fact which makes me put on record the following case which came recently under my care. Beyond its rarity the case presents no points of exceptional interest.

The patient was married in August, 1904, and continued to menstruate more or less regularly until July, 1906. She then missed one period and shortly afterwards began to suffer some abdominal pain, which she imagined was a "bilious attack." She consulted Mr. T. W. Goldney of Richmond, who found considerable tenderness in the hypogastrium with distension of the abdomen; also the presence of a bloody discharge from the vagina. On vaginal examination he diagnosed the case as one of ruptured tubal gestation. The patient was removed to the Royal Hospital, Richmond, where Mr. H. R. Wadd, who operated, found the left tube ruptured and the pelvis full of blood. The tube was afterwards found to contain a fœtus of about seven weeks. The patient after a somewhat critical convalescence made a good recovery.

In June, 1909, almost three years after the operation, the same woman came under my care complaining of pain in the lower part of the abdomen and some blood-stained discharge from the vagina. She stated that since the operation she had menstruated regularly but had just missed one period. On examination I found great tenderness in the region of the right tube and some abdominal distension. Per vaginam, the uterus was found to be enlarged, and in the region of the right tube a swelling of about the size of a pigeon's egg was distinctly palpable. Suspecting the case to be one of extra-uterine pregnancy, I had the patient removed at once to the hospital. Dr. S. S. Burn, who operated, found that there had been some oozing of blood from the right tube, but that this had not ruptured. On its removal it was found to contain a fœtus of about six weeks. The patient made an uninterrupted recovery and is now in good health, her one fear being that she should become pregnant a third time.

Richmond, S.W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

MEDICAL SECTION.

An Auscultatory Sphygmometer.—Dorsal Percussion of the Thorax and Stomach.

A MEETING of this section was held on June 28th, Dr. J. MITCHELL BRUCE being in the chair.

Dr. GEORGE OLIVER read a paper on a Combination of Tactile and Auscultatory Methods of Reading the Systolic and Diastolic Blood Pressure. This procedure is accurate in determining the exact point of maximum systolic pressure and diastolic pressure in an artery. The method employed is to apply an ordinary Riva Rocci band to the arm and as the pressure is increased the observer listens to the artery below the band. At a certain pressure a "thud" becomes audible and persists till it disappears, when the maximum systolic pressure is reached. The middle of the period during which the "thud" is audible represents the diastolic pressure. A specially arranged phonendoscope is attached by a bracelet to the front of the elbow below the band, which enables one examiner to make a complete observation.

Dr. WILLIAM EWART read a paper on Dorsal Percussion of the Thorax and of the Stomach, in which he reviewed the present knowledge of the systematic dorsal percussion and plexigraphy of the viscera. This had hitherto remained incomplete owing to the omission of the stomach. He filled that gap by introducing a method of "post-gastric percussion," and described a clinical sign in the back, hitherto unpublished, called "the dorsal gastric nucleus of resonance." The dorsal gastric nucleus of resonance was normally circular, under three inches in diameter, hyper-resonant, and situated below the inferior scapular angle, and therefore above the diaphragm. With Piorry's nucleus of dulness its apparent analogy is much less than its contrasts. But in the field of diagnosis its behaviour resembled that of the latter. Its lateral enlargements corresponded with those of the underlying organ itself. There was, therefore, the same tendency to an ultimate belt-like fusion at the axillary base of the dorsal percussion outline with the anterior. As regards the wider subject of the dorsal percussion of the stomach, an early study of which was contained in a paper by Dr. Ewart on the dilatations of the stomach upwards and backwards,[1]

[1] Transactions of the Clinical Society of London, vol. xxxiii., 1896.

he again laid stress upon the neglected value of a dorsal percussion and upon the major importance of the dorsal variety of upward dilatation, which commonly remained unsuspected in spite of the gravity of its symptoms. Dr. Ewart, in concluding, said that visceral plexigraphy, as hitherto restricted to the præcordium and epigastrium, was still in need of greater accuracy and completeness. It should be extended to the back and utilised in any situation, and whenever it might serve a useful purpose. The range of "dorsal" plexigraphy was in reality the larger range for normal organography, particularly in connexion with the abdominal organs. Its list of normal findings included the heart and its left auricle, the liver, the spleen, an indication of the mediastinal structures, the kidneys, and an indication of the mesenteric structures, not to mention the pelvic district. For clinical purposes, too, considerably more pathology was revealed by percussion in the back than in front. "Vertebral" percussion possessed a field and a method exclusively its own. Besides its medical aspects, "vertebral" percussion was specially available for the early surgical diagnosis of spinal affections. New fields for diagnosis by the surgeon and by the physician alike were opened up by "dorsal" percussion in three most important regions inaccessible from the front—namely, the posterior mediastinum with its glandular, inflammatory, aneurysmal, tracheal, œsophageal, and other affections; the no less vital and no less remote "mesenteric" region in connexion with the varied affections of the central abdominal organs; and the "iliac" region, which was of special importance in these days of epidemic appendicitis. An accurate knowledge of the normal percussion value of individual vertebræ, on the skeletal plexímetric principle, might often afford the means of detecting at an earlier date some of these centrally situated abnormalities—e.g., vertebral or glandular disease before the formation of paravertebral abscess, œsophageal or tracheal disease before the advent of perforation and of pulmonary gangrene, &c The value of Grocco's triangular dulness for the diagnosis of empyema *versus* serous effusion, of supra-diaphragmatic *versus* infra-diaphragmatic fluid collections, &c., was still imperfectly understood, but was of growing practical importance? For stomach diagnosis a fresh departure was contained in the demonstration that normally the stomach was distantly accessible to our examination in the back. The percussion of the gastric nucleus would probably be regarded in the future as part of the routine of clinical examination. The existence, still practically unrecognised, of mainly dorsal varieties of gastric distension should render the dorsal examination indispensable in all "gastric" cases. Dr. Ewart urged that the evidence adduced (which also included a series of original tracings taken from the chest on transparent paper, showing the normal nucleus and its enlargements and deformities, and also its belt-like fusion with an enlarged Traube's semicircular resonance) might justify the plea for a systematic teaching of "dorsal" percussion and of "vertebral" percussion, and also the opinion that this would not be successfully accomplished until the prevailing prejudice against their only instrument of precision in percussion, a suitable plexímeter, was laid aside.—After Dr. A. M. GOSSAGE and Dr. BRUCE had spoken Dr. EWART replied.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—The new premises of this society were formally opened by Professor W. Osler on June 28th, in the presence of the principal physicians and surgeons in the city and the district around. There has been in the last year an increase of 60 in the membership, which now totals 180, justifying the acquisition of the new quarters, which are admirably adapted to the needs of the society. They include a large lecture-room, an excellent library, a capital billiard-room, and a card-room, and the premises will, therefore, serve the triple purpose of a library, a place of mutual instruction, and a club.—The President of the society (Dr. A. Fulton), who was supported by Dr. F. H. Jacob and Dr. H. Bell Tawse (honorary secretaries), recalled that the earliest record of the society was in 1828, when the Nottingham Book Club was founded. The meetings were at first held in the members' houses, and the first president was Dr. Howitt, whose family was still well represented in the membership. Later the books were removed to the office of the *Nottingham Journal*, and in 1835 the society moved to the Dispensary. In 1843 its title was changed to the present name, but the membership was not large. For a few years the society was in a state of suspended animation, until, in 1883, the present society was reconstructed, and many of the present members were at its birth. Again the meetings were at first held in the members' houses, and afterwards, till this year, at the Dispensary.—Professor Osler gave an address on the advantages to the profession and the public of unity and fellowship among medical men and the right method of keeping the general practitioner abreast of the modern developments. No men needed more acutely the benefit of coöperation, and yet they were notoriously difficult units to combine. They lived of necessity, after leaving the university, lives of isolation, of great loneliness, even in the cities, where a busy man might see very little of his colleagues. It was in the nature of the work, of course, that the physician must think of himself last, and the profession could never be organised on a commercial basis. It was difficult to combine the altruistic and the business sides of the work. The labourer was worthy of his hire, and in many callings obtained the cash equivalent, but that could never be so in the medical profession. Discord and jealousy often existed, largely owing to the attitude of the seniors towards the juniors, and Professor Osler laid down three rules for all: "Listen to no tales told by a patient of a doctor; believe no tale told of a doctor even if you know it to be true; tell no tale yourself, even if you are itching to do so." The medical society, he continued, should be a post-graduate school on a small or large scale, a sort of clearing-house of experience of the profession in any district. Good pathological specimens should be exhibited at each fortnightly meeting, and debates, among the younger men particularly, should be encouraged. The library was one of the most important things in connexion with the society, and he pointed out how it could be made to include all the new good medical literature. Secondly, the general hospital could be made a great factor in the organisation of the profession. They all needed advice and counsel, and the public needed first-class consulting physicians and surgeons. Such men could not be grown in a community without a first-class hospital, and it was for the profession to encourage the type of men who would do them best service in connexion with the general hospital. He should like to see the general hospital a consulting centre for the whole district, and the physician should take, not send, a difficult case there. The general hospital should be a genuine post-graduate school for the city and district in all departments, for a doctor without a post-graduate course was stale in five years, in a rut in ten years, out of which only a prolonged course would remove him, and in 20 years in a well, out of which nothing would bring him. There was no country in the world, said Professor Osler, in which there was such a high average of general excellence in the care of the patients in the hospitals as in England. Professor Osler, however, could not find words sufficient to condemn the general attitude in English hospital management towards the scientific side of medicine. In the public interest, to grow one's own consultants, and to enable the patients to receive the best ont of the profession, there should be good pathological, clinical, and chemical laboratories, well equipped, each under paid officials of the hospitals.—A hearty vote of thanks was accorded Professor Osler, on the motion of Alderman Dr. F. R. Mutch, the oldest member of the society, seconded by Dr. C. H. Cattle.

LONDON COUNTY COUNCIL: MEDICAL APPOINTMENTS.—The Asylums Committee of the London County Council has appointed Dr. Percy Charles Spark, the medical superintendent of the Epileptic Colony at Epsom, to be medical supcrintendent of Banstead Asylum in succession to Dr. D. Johnston Jones. Miss Mary Amelia Pilliet, M.B., Ch.B., until recently assistant house surgeon at the Glasgow Royal Infirmary, has been appointed a woman inspector in the public health department of the London County Council under the Midwives Act, 1902. The salary is £250, rising to £350 a year.

Reviews and Notices of Books.

Constipation and Allied Intestinal Disorders. (Oxford Medical Publications.) By ARTHUR F. HERTZ, M.A., M.D. Oxon., M.R.C.P. Lond., Assistant Physician, Physician in Charge of the Electrical Department, and Demonstrator of Morbid Anatomy at Guy's Hospital; formerly Lecturer on Pharmacology at the University of Oxford; and Demonstrator of Pharmacology and Physiology at Guy's Hospital; formerly Radcliffe Travelling Fellow of the University of Oxford. London: Henry Frowde and Hodder and Stoughton. 1909. Pp. 344. Price 10*s.* 6*d.* net.

Dr. A. F. Hertz, as the result of his own researches and of a careful review of the literature of the subject, gives in the book before us a useful and an original study of the physiology and pathology of the intestinal movements in the human subject. He has made a scientific study of the causes underlying the common condition of constipation, and he discusses the means of diagnosis and the appropriate treatment of its various forms, endeavouring to place them on a rational basis. The important observations of W. B. Cannon upon the intestinal movements of cats and dogs by means of X-ray examinations after the administration of a meal containing bismuth salts have been systematically applied to man both in health and disease.

The first part of Dr. Hertz's book deals with the physiology of the intestinal movements and of defæcation. He was enabled to demonstrate the phenomenon of "segmentation" in the small intestine of man, analogous to the process described in animals by Cannon. He found in studying the progress of a bismuth meal by means of the X rays that the shadow of the cæcum is observed on an average in 4⅜ hours after the meal has been taken, the hepatic flexure being reached between 5 and 8 hours after the meal, the splenic flexure between 7 and 14 hours, and the junction of the descending colon with the iliac colon between 8 and 16 hours. An interesting observation was that which demonstrated the marked effect of the taking of food upon the motor activity of the colon, and upon the intestinal movements generally. A careful description of the processes concerned in the act of defæcation is given, and the composition and formation of fæces are discussed in relation to the parts played in these matters by food residues, intestinal secretions, and bacteria.

The second part of the book is devoted to a detailed analysis of the causes of constipation. In order to give a precise meaning to the word Dr. Hertz suggests that it should be defined as "a condition in which none of the residue of a meal taken eight hours after defæcation is excreted within 40 hours." To determine this he advises the administration of two or three charcoal lozenges with the experimental meal. He divides the cases of constipation into two classes: First, those in which it is due to the slow passage of food material through the intestines; and secondly, those in which there is no delay in the arrival of the fæces in the pelvic colon, but in which their final discharge by the act of defæcation is not adequately performed. For the second form he adopts the term "dyschezia," originally introduced by Dr. Robert Barnes to denote painful defæcation. These two main classes are further subdivided, and the part played by various factors in the production of the constipation is carefully discussed. Among the causes contributing to the first class we may mention weakness of the intestinal musculature, deficient reflex activity and inhibition of the motor functions of the intestine, obstruction by alterations in the character of the fæces, and by narrowing of the intestinal lumen. Dyschezia may be due to habitual disregard of the call to evacuate the rectum, to weakness of the voluntary muscles accessory to the act, to unfavourable postures, to hard and bulky fæces, functional and organic stricture of the rectum and anal canal, and other causes operating in the rectum. In uncomplicated cases of dyschezia, treatment by diet and purgatives is, as might be expected ineffective, and enemata are usually required.

The third part is given up to a detailed account of the symptoms of constipation and to a consideration of the various diseases associated with constipation. It also contains an interesting description of congenital idiopathic dilatation of the colon, or Hirschsprung's disease, including a review of its pathogenesis and treatment. The conditions included under the name of muco-membranous colitis are also dealt with at some length. Dr. Hertz is of opinion that mucous colic and mucous colitis are varieties of the same condition, and bear the same relation to one another that asthma does to asthma complicated with bronchitis.

The treatment of constipation is carefully dealt with in a thoroughly practical manner in the fourth part of the book. The importance of adapting the treatment to the particular variety of constipation from which the patient suffers and the value of preventive measures instead of the routine prescription of purgatives or enemata are both emphasised. Dr. Hertz discusses the actions of various aperient drugs, and states that his own observations do not confirm the ordinarily accepted interpretation of the action of saline purgatives. He believes that they are absorbed from the small intestine and that they act from the blood upon the neuro-muscular mechanism of the colon, increasing its secretory and motor activity. There are a chapter on the treatment of constipation in infants, and an appendix explaining the choice of the oxychloride of bismuth for the bismuth meals.

We can commend Dr. Hertz's book as a useful contribution to practical medicine and rational therapeutics.

Praktische Anleitung zur Ausführung des Biologischen Eiweissdifferenzierungsverfahrens, mit besonderer Berücksichtigung der forensichen Blut- und Fleischuntersuchung, sowie der Gewinnung präcipitierender Sera. Von Professor Dr. P. UHLENHUTH und Dr. O. WEIDANZ. Mit 35 Figuren im Text. Jena: Gustav Fischer. Price M.6.50. Pp. 246.

THE title is a long one, but it expresses accurately the aim of the authors—viz., to determine by means of the "biological reaction" the specifically different forms of proteid that exist in blood or in meat and its various preparations. Milk and mummies; blood of geese and duck, dog and fox, sheep and goat, horse and donkey; blood of insect, man, and ape; flesh, putrid, fresh, or dried; liver, spleen, and adrenals; beans, peas, lentils—all alike find congenial application in regard to the biological reaction. We have travelled a long way since 1890, when a specific antitoxin in the blood serum in animals infected with diphtheria was discovered. This led on to the discovery of agglutinins, precipitins, and hæmolysins. And now by means of the biological test or reaction it is possible to differentiate between proteins which cannot be differentiated by chemical means.

The first part of the work occupies about 130 pages and is devoted to the study of blood in its forensic or medico-legal and other aspects. When human blood is injected into an animal the serum of that animal yields a specific serum which causes a precipitate in human blood. Nuttall has used this test to show the affinity between man and the higher apes. He found that human blood precipitin serum caused a larger result in blood of the apes of the Old than in those of the New World. The authors' object, however, is a practical one—viz., to use the biological reaction as a test of human or other blood. It does not matter even if the blood has undergone putrefaction or is as dry as a crust. It is the proteins present which are the cause of the production of

the specific antiserum. It appears that the protein of the crystalline lens is the only animal protein known which gives no reaction with the specific antiserum. A very full account is given of all the known tests for blood by chemical means. Above and superior to all these the authors place the biological reaction. First determine that the substance to be investigated is blood, and it is possible to determine the source of the blood. The technique of the process is fully described by the authors, who go so far as to say that so certain is the method that it may be used in criminal cases with perfect assurance. They cite a large number of cases from the courts, including cases of murder, to prove the accuracy of their contention. This part of the book should be read by every medical jurist. The practice has been officially adopted in Prussia, Austria, Würtemberg, Baden, and Alsace.[1]

The second part of the work is merely an extension of the same method to the investigation of different kinds of flesh—e.g., horse-flesh. Very strict are the regulations regarding meat imported into Germany. In Germany itself, where sausages of all kinds are more extensively used than here, it is a question of supreme importance to determine if horse-flesh or other flesh is mixed fraudulently in their composition. The authors maintain that the biological test is equally applicable to all kinds of flesh. It appears that there are four kinds of horse-flesh sausage used in North Germany (p. 149)—a classification that might have stimulated the pungent wit of Heine himself.

In an appendix an interesting account is given of investigations on mummified flesh and on Egyptian mummies themselves. In the latter case Professor Uhlenhuth's results were negative, but mummified organs after 66 years yielded positive results. The whole work is singularly interesting and should be studied by all who have to deal with medico-legal matters as well as by public analysts. It contains an immense amount of information and its price places it within the reach of all.

Housing and Town Planning in Great Britain, being a Statement of the Statutory Provisions relating to the Housing of the Working Classes and to Town Planning, including the Housing, Town Planning, &c., Act, 1909. By W. ADDINGTON WILLIS, LL B. Lond., Barrister-at-Law; joint author of Macmorran and Willis's "Law Relating to Sewers and Drains." London: Butterworth and Co. 1910. Octavo, pp. 201 + index, &c.

THE several statutes relating to the housing of the working classes now form such a complicated maze of cross references and inter-relations that clerks to district councils, medical officers of health, and, indeed, a large body of the lay public, will feel grateful to the author of this volume for the efforts which he has made to present the matter in a clear and by no means unattractive garb. The task which the author set himself, while avoiding undue detail, was "to weave together the whole of the existing legislation and to present the subject in such a form as, it is hoped, will be not only intelligible but also palatable." This was an ambitious and hazardous journey upon which to set out, and the chances of real success were remote. But although we opened the book with misgivings we must confess that, so far as is practicable in such an enterprise, the author has succeeded, and this in a relatively small space. Success was alone possible with a thoroughly intimate knowledge of the subject and the possession of a methodical mind.

The volume, which is light and runs only to a little over 200 pages in all, is divided into two parts. The first deals with the laws and procedure relative to the housing of the working classes, and brings out in a thoroughly understandable fashion the manner in which previously existing statutes have been modified by the Act of 1909. This portion of the work is preceded by a very useful table of statutes from the year 1838 up to the present time, as well as by an introduction treating of the outstanding features of the new measure. Part II. treats of town planning and provides a very readable synopsis of this part of the Act, while elaborate footnotes and references are furnished throughout. In view of the fact that nearly a third of the sections of the principal Act have been repealed by subsequent measures, inclusive of the recent Act, the numerous references furnished throughout are of special value It would, no doubt, have been preferable could there have been a new Housing Act embodying all previous legislation, for, as Mr. Willis observes, this legislation by means of amending Acts is clearly to be deplored. Still, no one who reads through the volume and appreciates the enormous power conferred by the Act of 1909 can question the desirability of proceeding with it rather than incurring further danger of shipwreck in the stormy and unknown channels of Parliamentary procedure. Certainly, as the author of the volnme under notice remarks, the most striking characteristic of the new Act is the amazing power which it places in the hands of the Local Government Board, and in this aspect alone the measure must become of great historical importance. It is this substitution in truly drastic fashion of a Government department for Parliament and law courts which will have to be justified or the reverse, by the experience of the next few years. Such substitution must certainly be regarded as a very great compliment to the inspectors of the Local Government Board, whose pnblic inquiries are models of patience and painstaking effort.

A Handbook for Midwives and Maternity Nurses. By COMYNS BERKELEY, B.A., M.B., B.C. Cantab., F.R.C.P. Lond., Obstetric Physician to the Middlesex Hospital, &c. With 58 illustrations. New and enlarged edition, with Appendices. London: Cassell and Co. 1909. Pp. 316. Price 5*s*.

THE fact that a second edition of this handbook has been called for so soon is proof that it has met with appreciation. In this edition the author has added three appendices, the first dealing with the symptoms of cancer of the uterus, the second with the revised rules of the Central Midwives Board so far as they relate to midwives, and the third containing the rules in force at the City of London Lying-in Hospital in the labour ward for hand disinfection, and vaginal examinations.

As Dr. Comyns Berkeley points out in the preface the question of the timely detection of cancer is one of the utmost importance, and it is most necessary that all women should be aware of the early symptoms of this disease. No doubt nurses and midwives can do a great deal in spreading such knowledge, and he is well advised, therefore, in taking the opportunity of the publication of this book, which no doubt will circulate widely among the members of this class, to call attention to these symptoms.

Perhaps the section of this handbook we should be inclined to agree with least is that on infant feeding. In our opinion home percentage feeding is quite unsuited to the ordinary nurse to carry out, and further than this, we have the greatest possible doubt whether in many cases the mixture in any way corresponds to the percentages which are laid down in the tables. When we remember the very varying analyses given by any two samples of milk, and when we further bear in mind the fact that even when carried out by skilled operators these mixtures

[1] THE LANCET, June 18th, 1910, p. 1669.

are often far from accurate, it seems to us most unlikely that they are in any sense accurate when prepared at home. Nor, indeed, in our opinion, are they often necessary—a view which we believe is shared by most of those physicians who make a special study of infant feeding in this country. We are surprised to find no mention made of the method of feeding premature children with peptonised milk, one which gives the best possible results, not only for premature but also for full-term babies. We think the statement that a mixture of two parts of water to one part of condensed milk is the right proportion with which to feed a new-born baby may be erroneous requires some modification. The proportions depend, of course, upon the brand of condensed milk employed; but using an average brand of condensed milk, containing, as it does, about 16 per cent. of proteid, this would require dilution with eight times its weight of water to render it a suitable mixture for infant feeding, and then it would be, as condensed milks always are, grossly deficient in fat. We also demur at the recommendation that peptonised milk should be diluted according to the age of the child; one of the great advantages of the use of peptonised milk for infant feeding is that it requires very little dilution and can often be given undiluted.

As will be seen, we disagree with the author in some of his recommendations, but we can recommend the book cordially to midwives and nurses with the reservations we have made.

American Practice of Surgery. Edited by JOSEPH D. BRYANT, M.D., LL.D., and ALBERT H. BUCK, M.D., of New York City. Complete in eight volumes. Profusely illustrated. Vol. VI. New York: William Wood and Company. 1909. Pp. 916. Price $7 per volume.

SEVERAL subjects of great importance are considered in this sixth volume of the "American Practice of Surgery." The first section deals with mechanical appliances for the restoration of missing portions of the face, nose, and larynx. This is a most important subject chiefly on account of the high degree of success which has attended the efforts of those who devote themselves specially to this branch of surgery. We are indebted in no small degree to the work of American surgeons and mechanicians for many of the appliances which are now in use. Dr. Charles R. Turner of Philadelphia has written this chapter, and we are glad to be able to express complete approval of the manner in which he has fulfilled his task. The value of artificial dentures in the restoration of various functions such as mastication and speech is not fully appreciated, for in most cases the cosmetic purposes are considered of more importance. In many cases clefts of the palate are more satisfactorily treated by plates than by plastic operations, and this part of the subject is described fully. Artificial noses are also in many cases far preferable to the results of plastic operations, and the illustrations given show how well the artificial nose may simulate nature. The artificial larynx is in many cases of value, and the account given should prove of interest. After resection of the lower jaw some prosthetic appliance is generally required, and if properly chosen it proves of great value. An account of splints for fractured lower jaw is also given.

Dr. H. T. Mosher of Boston, Massachusetts, has dealt with the subjects of surgical diseases and wounds of the nasal cavities and accessory sinuses. Perhaps the most interesting portion of this chapter is that dealing with deformities of the nose; for a violently hooked nose the author prefers an external incision, through which he removes the amount of bone and cartilage required, and he tells us that an incision a quarter of an inch long is sufficient. The account of the method of injecting paraffin in saddle-back noses is too brief to be of any real value in practice. We would especially commend Dr. Mosher's account of the diseases of the accessory sinuses, and the illustrations which accompany it are excellent.

Dr. G. E. Armstrong of Montreal has contributed the chapter on surgical diseases and wounds of the mouth, tongue, and salivary glands. The account of malignant new growths of the tongue, which is admirably illustrated with some coloured pictures, is specially good and the bibliography concluding the chapter will be found useful.

Dr. John M. Elder of Montreal has dealt with the subject of surgical diseases and wounds of the neck. He gives some valuable illustrations of cervical ribs, and describes amongst other things the aneurysms affecting the carotid artery. Dr. Francis F. Shepherd of Montreal is responsible for the chapter on the surgical diseases of the thyroid and thymus glands. Goitre seems to be very common in French Canada, the New England States, and Mexico; as to its etiology the author says very positively that goitre is no doubt produced by a specific organism, and we agree that there is much to be said in favour of this theory. The description of the pathology of goitres is good. As to the treatment of exophthalmic goitre, Dr. Shepherd lays stress on the importance of operating only in properly selected cases, and he tells us that the more recent the case the less is the danger of the operation. An account is given of status lymphaticus, but the author contents himself with saying that it has been stated that to this cause may be attributed some of the sudden deaths which occur during anæsthesia.

Dr. Norman D. Carson of St. Louis has written the chapter dealing with the surgery of the thorax and spinal column. This is concerned mainly with the bony thorax and not with the surgery of the contents of the chest. The more important portion is that which treats of the surgery of the spinal column; it includes also the treatment of lateral curvature and of tumours of the spinal cord and its membranes. Dr. Harvey G. Mudd of St. Louis has contributed the account of the surgery of the female breast. He gives a very good account of the operations for malignant disease, and lays great emphasis on the need of extensive removal of the skin.

Dr. W. P. Graves of Boston, Massachusetts, has supplied the description of the surgery of the genital organs in the female. He appears to us to over-estimate the value of operations on lacerations of the cervix, but this is the only criticism suggested by his article. The surgery of the male genital organs has been contributed by Dr. Franklin G. Balch of Boston. We concur in the approval he expresses of Beck's operation for hypospadias. Dr. Hugh Cabot of Boston has described chancroid and gonorrhœal urethritis; he is in favour of irrigating the urethra in cases of acute urethritis, as are most of those who have had much experience in the treatment of this condition. In this section is also contained the surgery of stricture of the urethra.

An important chapter is that by Dr. Joseph C. Bloodgood of Baltimore on the surgery of the jaw, and this concludes the volume. The standard of the articles is high, and when finished the work will be a valuable contribution to the surgery of the day.

LIBRARY TABLE.

The Medical Annual: a Year-book of Treatment and Practitioner's Index. Bristol: John Wright and Sons, Limited. 1910. Pp. 991. Price 8*s.* 6*d.*—The present volume of this well-known publication forms the twenty-eighth issue. The high standard which has characterised its predecessors is well maintained, and the book is an excellent *résumé* of the work which has been carried out during the past year, especially in reference to practical medicine and surgery. The general mass of the book is occupied with a description of the advances which have been made in the treatment of disease, but in addition a few separate articles are

published dealing with special subjects. Dr. A. Butler Harris, medical officer of health to the Loughton urban district, contributes an article entitled "An Introduction to the Treatment by Bacterial Vaccines." He draws a clear distinction between "vaccine therapy" and "serum therapy," accepting Sir A. E. Wright's definition of the former—viz., "A vaccine is any chemical substance which when introduced into the organism causes there an elaboration of protective substances." Dr. Harris gives a brief summary of our knowledge on the subject of bacterial vaccines, which will well repay perusal. A short description of hormones is given by Dr. Emil Novak (Baltimore). Dr. Robert Simon (Paris) writes on "Injections of Sea-Water." A description is given of the preparation of sea-water for injection, and of the technique of its administration. Then follows an account of the therapeutic results which he has obtained in various disorders. He states that the rapid action of sea-water is seen to best advantage in newborn infants suffering from gastro-enteritis and malnutrition. He remarks that almost all physicians agree in forbidding those who suffer from inflammatory lesions of the skin to stay at the seaside, but, he says, it is quite otherwise with the injection of sea-water, and he contends that its action may be regarded as fairly well established in cases of eczema, psoriasis, varicose ulcer, and wounds of the skin, whether simple or specific. The accounts he gives of the progress of several cases, and the photographs which are reproduced exhibiting the cutaneous conditions before and after treatment, are certainly remarkable, and this therapeutic measure would undoubtedly seem worthy of more extended trial. The progress which has been made in radiology and electro-therapeutics is recorded by Dr. E. Reginald Morton. Special reference is made to the use of radium. He rightly speaks with due caution, for further experience is necessary before any definite conclusions can be arrived at, especially as regards its effect on cancer.

Umfang und Art des jugendlichen Krüppeltums in Deutschland. (*The Scope and Nature of Juvenile Deformity and of Measures for its Relief in Germany.*) By Dr. CONRAD BIESALSKI. With 12 illustrations and statistical tables. Hamburg: Leopold Voss. 1909. Pp. 484. Price 30 marks.—This work is the outcome of a statistical inquiry which was instituted in 1905 with the object of ascertaining the number of cripple children in the German Empire. The inquiry was confined to children of the poorer classes and was conducted on a social economic basis. The children who were interviewed on behalf of the census were, roughly speaking, classed under two headings—those who were *Heimbedürftig* and those who were *Nichtheimbedürftig;* in others words, those whom it would be impossible to benefit permanently otherwise than by institutional care, and those who were suitable cases for home treatment. To attain absolute accuracy in a statistical count of this nature over an enormous area amounts to a logical impossibility, but it may be safely accepted that the figures given err on the side of understatement rather than the reverse. It is, again, difficult to bring the term "cripple" within hard-and-fast margins. For the purposes of this inquiry, however, Dr. Biesalski defines a cripple as "an individual who is handicapped in the business of life either as the result of congenital imperfect bodily development, or of accident, or disease." The census is the first of its kind that has been carried out in any country, and much credit is due to Germany for the manner in which the difficulties which lay in the path of its accomplishment have been overcome. It was initiated by the German Central Children's Care Association in coöperation with the Berlin-Brandenburg Association for Cripple Care, and it received that measure of Imperial backing-up and practical and financial support which is never wanting in Germany where the interests of the national health are involved. The costs amounted to £730, towards which the Kultus-Ministerium contributed £150. The inquiry brought to light the following facts. In 1905 the population of Germany was 60,600,000, which included 21,000,000 children under 15 years of age. It was estimated that there were at least 75,000 cripples among the class of children who attend elementary schools, or that there were 15 of these cripples to every 10,000 of the population. Of these 15 children 8 were cases which could only be satisfactorily dealt with in an institution. Dr. Biesalski estimates that there are 56,000 children who are in need of skilled treatment. Germany has now 39 cripple homes with a total of 3371 beds, which shows how very much has already been done towards mitigating the miseries of crippled children in that country. Since the inquiry was set a-foot their number has largely increased, but there still remains a great deficiency of beds. To meet this deficiency Dr. Biesalski suggests that a cripple home with 200 beds should be forthcoming for every million of the population. A prominent feature in the proposed scheme is the teaching of suitable trades to crippled children and their training to habits of independence. 91 per cent. of the cripples tabulated were mentally normal; 16 per cent. were cases of infantile paralysis, in 15 per cent. of the cases the deformity was due to tuberculous lesions and in 9 per cent. to rachitis; 12 per cent. were cases of advanced scoliosis. Germany is now devoting much attention to scoliosis as a school disease, for which there exists ample reason, as it has been stated that hundreds of thousands of the 12,000,000 German school children suffer from it. Dr. Biesalski is to be congratulated on having brought an exceedingly arduous and tedious task to a successful conclusion, and his interesting publication is worthy of careful study. A valuable bibliography containing the titles of 237 works in different languages is appended.

Die Serodiagnose der Syphilis. By Dr. CARL BRUCK. Berlin: Julius Springer. 1909. Pp. 166. Price 4.80 marks.—The great importance attaching to a trustworthy serum reaction for syphilis makes this authoritative monograph from Wassermann's laboratory especially welcome. The volume is well arranged and the conclusions are clearly set forth, together with the large collections of statistics on which they are based. After a historical introduction, the author gives a review of the current theories as to the fundamental nature of the reaction. This depends on an immunity, established not against the spirochæta itself, but against certain products of its action on the animal organism. In this way is explained the fact that a positive reaction is obtained in trypanosomiasis, yaws, and leprosy. Chapter III. deals with technique, and supports the original method as against the newer simplifications and improvements. The crux of the whole procedure is, however, the preparation and control of the extract used as "antigen." This is liable to alteration on keeping, as is shown by Wassermann, Neisser, and Bruck's own work; and, given a competent antigen preparation, some of the simpler methods will probably be found to give results at least as satisfactory as the original method. 15 pages are devoted to diseases other than syphilis in which positive reactions have been observed. The onset of the reaction and its variations in different stages of the disease are treated in Chapter V. In experiments on apes it was found that a positive reaction usually appeared three or four weeks after infection, disappeared with the formation of the primary chancre, and soon came into evidence again with ever-increasing strength. The reaction was not found positive before the infection had become general, as shown by inoculation into a second ape of the organs of the animal

tested. In man the reaction becomes established a week or more after the primary sore, and was observed in about 70 per cent. of all primary cases. In the secondary stage about 94 per cent. of positive reactions were obtained, in the tertiary stage 80 per cent., and in latent syphilis 30 per cent. Chapter VI., on hereditary syphilis, suggests that when more observations are to hand we may have to alter somewhat our views on the transmission of the disease. The two last chapters are, perhaps, the most interesting in the book. The effect of specific treatment is to abolish the reaction, for a time at least, and it is urged that no treatment should be considered effective unless this has been accomplished. The reaction, once abolished, may, however, reappear, and this is to be regarded as a warning of a probable relapse. On these lines it is proposed to control treatment by systematic serum tests instead of using previously defined "courses," or of continuing treatment for a specified period from the disappearance of lesions. Of course, time will be required to test the value of this suggestion. Passing to consider the results of the test in various conditions, probably syphilitic in origin, a positive reaction is given by nearly all cases of general paralysis, aortic insufficiency, and aneurysm, and by a large percentage of tabetics and cases of aortitis. Similarly interesting results are found in ophthalmological and laryngological practice. There follow an appendix and an excellent bibliography.

Kompendium der Roentgen Therapie. (*Compendium of Roentgen Ray Treatment.*) Von Dr. H. E. SCHMIDT, Berlin. Second, enlarged, edition. With 36 illustrations. Berlin: August Hirschwald. 1909. Pp. 158. Price 3 marks.—This is a convenient little work intended for the use of those who wish to understand the theory of application of X rays in treatment. The first 50 pages contain a short, but on the whole sufficient, account of the technical side, the various portions of the apparatus being described, the source of the primary current, the coil, the break, and the tubes being taken in turn. The second part, and on the whole the more important, begins with an account of the action of the rays on the normal tissues of the body, while the harmful effects which may follow the use of Roentgen rays are discussed. Then come indications for treatment. In the first place are considered those diseases of the skin for which X rays have been employed. On the whole, the claims made for success are fully justified, though here and there, as might be expected, a little more benefit is attributed to the rays than all would be willing to admit as proven. Following this section we find an account of the use of the rays for diseases of internal organs, and here also there is a little disposition to overvalue the power of the rays. We are learning every year to apprise more exactly the power and the limitation of the Roentgen rays, and this small work will bring home to the reader the value of the therapeutic effects resulting from Roentgen's discovery.

CENTRAL MIDWIVES BOARD.

A MEETING of the Central Midwives Board was held at Caxton House, Westminster, on June 30th, with Sir FRANCIS CHAMPNEYS in the chair. The following resolution was unanimously passed:—

That the hearty congratulations of this Board be accorded to its chairman on the distinguished honour conferred on him by the King, an honour they feel he so well deserved for the dignity, courtesy, and impartiality with which he has presided over the Board's deliberations since its commencement.

A letter was considered from Miss F. M. Bernard-Boyce, inspector of midwives for the county of Norfolk, stating that the period of suspension for the purpose of disinfection in that county has now been reduced to seven days. The Board passed the following resolution:—

The Board considers that it is unfortunate that the arrangements for disinfection in the county of Norfolk are so far from adequate, and hopes that they will be provided without delay.

A second letter was considered from Miss Bernard-Boyce inquiring whether the local supervising authority has power to suspend a midwife for the purpose of preventing the spread of infection, on the ground that she has been in attendance on a case of puerperal fever as a maternity nurse and not as a midwife. The Board decided that Miss Bernard-Boyce be informed that the local supervising authority has power to suspend a midwife in the circumstances mentioned.

A third letter was considered from Miss Bernard-Boyce suggesting that women whose names have been removed from the roll on their own application should be entitled to receive from the Board a document vouching that they had been duly certified by the Board, and that being desirous of retiring from practice they had voluntarily resigned their certificate. The Board decided that in the case of certificates voluntarily surrendered the cancellation should be effected by writing across the face of the certificate the words, "Cancelled at her own request." The certificate may then be returned to the holder.

A letter was considered from the Right Honourable G. W. Palmer, of Marlston House, Newbury, as to the difficulty of maintaining midwives in country districts by voluntary efforts, and the necessity of their provision by the State. The Board instructed the secretary to reply that the Board had considered the question at the instance of the President of the Local Government Board, and thought that it was desirable that the State should subsidise midwives for poor and sparsely populated districts unreached by existing institutions.

A letter was considered from the British Medical Association as to the danger of midwives employing their pupils as substitutes, and suggesting that a midwife should be made directly responsible for any misconduct on the part of her pupil. The Board decided that the British Medical Association be informed that a midwife employing a pupil is already responsible to the Central Midwives Board for any breach of the rules by her pupils.

A letter was considered from Mr. J. Lloyd Davies of Newport, Mon., complaining of the conduct of a certified midwife. The Board agreed that Mr. Lloyd Davies be informed: (1) That as regards the complaint it does not appear to come under the jurisdiction of the Board; (2) that as regards the alleged breach of the Board's rules on the part of the midwife, the proper quarter to which complaint should be made in the first instance is the local supervising authority. If that body finds a *primâ facie* case within the meaning of Section 8 (2) of the Midwives Act to be established against the midwife the Board would then proceed to deal with the matter.

A letter was considered from Sir Donald MacAlister, President of the General Medical Council, as to the practice of midwifery by unqualified men. The Board decided that a copy of the Board's resolution of May 26th, 1910, dealing with the practice of midwifery by unqualified men, be forwarded to the President of the General Medical Council.

A letter was considered from the clerk of the Worcestershire county council, suggesting an amendment of Clause 17 of the Midwives Bill, 1910. The Board suggested that the Worcestershire county council should communicate direct with the Privy Council on the subject of the amendment of Clause 17 of the Midwives Bill, 1910.

Correspondence which had passed between the Secretary and the Monmouthshire training centre for midwives as to an application by that body for the grant of exemption from supervision by the local supervising authority was considered. The Board directed that the secretary's reply, pointing out that the Board has no power to grant exemption from supervision further than that which is automatically conferred by Rules E. 24 and 25, be confirmed.

ROYAL ALBERT HOSPITAL, DEVONPORT.—As a result of a "street demonstration" which was recently held at Devonport in aid of the Royal Albert Hospital the sum of £60 has been raised for the funds of that institution.

THE LANCET.

LONDON: SATURDAY, JULY 9, 1910.

The Prevention of Consumption.

WE pointed out last week that the duty of the public in regard to the tuberculosis problem was not discharged with any general enthusiasm, the main problem in the combat against tuberculosis being to arouse the nation from its apathy and indifference in the matter. There can be no doubt, however, that the National Association for the Prevention of Consumption and Other Forms of Tuberculosis are really now making an impression upon the public mind, and the important conference just held in Edinburgh will bear valuable fruit. The public will see and appreciate that the annual meeting of the conference this year has coincided in a remarkable manner with the full fruition of the Edinburgh scheme of dealing with tuberculosis. Within the last few months something like a definite working coöperation has been established between the Royal Victoria Dispensary and the Public Health Department of the city, and a yearly financial grant has been given by the municipal authorities which will permit an increased staffing and an extended working of the dispensary. A farm colony at Springfield, Lasswade, in connexion with the hospital has now sprung into being. The city of Edinburgh has thus obtained the following coördinated plan of dealing with the problem of tuberculosis—the Royal Victoria Hospital for the treatment of early cases, supplemented by the farm colony at Springfield for cases where an extended therapeusis with graduated exercise is required; pavilions and shelters in the City Hospital for the isolation and treatment of advanced cases; the tuberculosis dispensary, which, along with the public health department, form the central bureau for the collection of information regarding the distribution of the disease, for the administrative control of cases, for supervision of contacts, for disinfection and general sanitary measures, and for education of the patients and their friends in preventive measures and in treatment. In that scheme the dispensary is the centre connecting all the other activities. From the point of view of therapeutics merely it is the important coördinating part of the machine, but in the larger question of prevention its work is even more valuable and predominating. The original conception of the dispensary, and of its place in an organisation dealing with tuberculosis, is due to Dr. R. W. PHILIP. Dr. HERMANN BIGGS, the well-known American physician, speaking at the annual meeting of the Royal Victoria Hospital on Friday, July 1st, paid a just tribute to this work when he said "that Dr. PHILIP initiated the movement for the prevention of tuberculosis by the establishment of the tuberculosis dispensary 23 years ago in Edinburgh. From that beginning there had been gradually elaborated in Edinburgh a scheme which might now, he believed, be considered the most complete in the world. That had been done to a very large extent through the voluntary efforts of Dr. PHILIP and his co-workers, and those who had so generously contributed to the work." This is bountiful praise, but none the less deserved.

It is to be hoped that other great and thickly populated communities suffering from the scourge of tuberculosis will soon be in a position to announce the possession of an inclusive and coördinated scheme, under which prevention and treatment can proceed hand in hand in an orderly manner, intelligible to the public; for when the people understand how much is being done in the fight against tuberculosis as well as how much more can be done the rout of a terrible foe will be assured. The publicity which is at present being given to the subject of tuberculosis in the lay press renders it a matter of great importance that the funds subscribed and the enthusiasm awakened shall be directed into the most profitable channels, and that not all of it shall be expended in a somewhat one-sided campaign against the bacillus, leaving the opsonic index of the patient to look after itself. All authorities on the subject are agreed that tuberculosis is very largely a social disease, intimately bound up in one way or another with the problems of poverty and notably with the housing and feeding of the poorer classes. It is unnecessary here to waste time in arguments as to the precise manner in which housing acts; it suffices to know that tuberculosis is found in intimate association with back-to-back houses, overcrowding, and under-feeding, and that the removal of these states and conditions is followed by a diminished death-rate from pulmonary tuberculosis. So much is this the case that could there be a general crusade both in urban and rural districts against bad housing a greater effect, in the opinion of many persons qualified to judge, would probably be produced upon the rapidly declining tuberculous death-rates than would be likely to ensue from any other single event—greater, perhaps, than might be expected from all the other agents of prevention combined. The remarkable fall in the mortality from pulmonary tuberculosis which took place amongst the Guards as the result of increased cubic space in barracks and better ventilation, and the fall in the death-rate amongst prisoners in response to more wholesome surroundings, might be held to suggest to some minds that the best way to become immune to tuberculosis would be to enter the army or a prison. But a more modern illustration of the value of better housing in promoting an almost phenomenal decline in the mortality of tuberculosis was drawn attention to in THE LANCET last week in an article by our Special Sanitary Commissioner, in which he treats in interesting and historical fashion of the housing problem at Liverpool. His story of how the slums were first attacked will be read with appreciation by all who have had to do with housing problems and the administration of local Housing Acts; especially will that portion of the article which tells of the housing of the slum-dwellers appeal to those who have been practically concerned with housing schemes. These schemes usually result, not so much in the re-housing of the actual slum-dwellers themselves as in providing good accommodation for a certain number of

respectable persons very few of whom were inmates of the slum property destroyed. But in the case of Liverpool it has been necessary, in order to be accepted as a tenant of the municipal dwellings referred to, to furnish evidence that the occupant really inhabited one of the houses demolished by the sanitary authorities, or that he was proceeded against as a dweller in overcrowded or insanitary property, or that he was turned out of a cellar dwelling. To some extent the statistical conclusions arrived at with reference to tuberculosis are open to criticism by the rather amusing circumstance that the advantages of being a municipal tenant have induced several persons to deliberately overcrowd their houses or, to live in cellar dwellings, in the hope of being proceeded against by the sanitary authority and thereby of qualifying for admission to the municipal elysium.

The experience gained in Liverpool in the generous re-housing of the submerged would seem, according to our correspondent, to be of hopeful augury. The municipal tenements are, he tells us, the scene of a veritable process of resuscitation, both moral and physical. With respect to the mortality from pulmonary tuberculosis we have the high authority of Dr. E. W. HOPE, the medical officer of health of Liverpool, to the effect that in these new habitations, notwithstanding the deplorable history of the occupiers, the rate amounted to but 1·35 per 1000 in 1907–08, a figure which was lower than that for the city as a whole, and much below that of the districts in which the municipal dwellings are situated. If, as is alleged, these people are really all the old slum dwellers, the figure is extremely hopeful, although the rate relates to one year only. The National Association for the Prevention of Consumption, now, we are glad to think, so much in the public eye, are sure to turn their attention and some of their energy to stimulating local authorities throughout the country to a better sense of their responsibility relating to the housing problem. We are glad to see that the association are sending round to their subscribers and others copies of the truly statesmanlike address delivered by Mr. JOHN BURNS at the Whitechapel Tuberculosis Exhibition in June of last year, and the President of the Local Government Board is to be cordially congratulated upon the fact that the hope then expressed by him that before the session then in progress closed the Housing Bill would be upon the statute book has since been realised. No single measure could do more for the decline of tuberculosis than this Act energetically and intelligently administered. In his last annual report Dr. HOPE, while commenting upon the statistics dealt with above, observes that "no practical sanitarian would suggest that if, instead of spending the money in demolishing the slums, purchasing the sites, and erecting the dwellings, it had been spent in providing sanatoria and in removing and maintaining the diseased people therein, the results would have been at all comparable either in benefit to the city or to the inmates of the dwellings themselves." But the work of abolishing the slums, which is going forward vigorously, is mainly preventive in its purpose, and we have among us an enormous crowd of infected persons still amenable to curative measures; and while our great urban communities must not slacken in their efforts at re-housing, they should also strive to deal with the problem of treatment in the comprehensive way that is being accomplished in Edinburgh.

The London County Council and the Medical Treatment of School Children.

WE are not disposed to congratulate the London County Council upon the position which it has taken up with regard to the medical treatment of the children in its public elementary schools. We published in our issue of July 2nd, p. 50, a report of a recent meeting of the Council at which there came up for discussion estimates for the maintenance of public education in London, and at which proposals were made for the increase of these with a view to the provision in certain cases of treatment calculated to remedy defective physical conditions in children under the care of the Council as education authority. For many years public elementary education existed without that direct legalisation of the medical inspection of school children which those interested in the matter felt to be desirable, and which under some school boards was introduced tentatively and at some risk of its being found to be beyond their powers to institute or to pay for. Whatever the true legal position may have been, no serious exception, we believe, was taken to the innovation, and now the medical inspection of children is a means recognised by the law by which an education authority may render its work more useful to the public. At the same time such inspection necessarily draws attention to conditions the remedies for which ought undoubtedly to be supplied by the parents where they are able to do so, which will be so supplied where the parents are not only comparatively well-to-do but anxious to perform their duty towards their offspring, but which certainly cannot be paid for in the case of a large class of parents, and will not be where they are indifferent. What, then, is the duty of the community as represented in this case by the education authority, when the inspection of its medical officer points to remediable defects in children, which if left to exist, and perhaps to develop, without interference will inevitably have marked results of defectiveness when the children grow up?

The more immediate duty of the community, it will be said, is towards the children themselves, with whose education it has charged itself, and whose capacity for instruction may suffer if, for example, their defective teeth cause them to lapse into ill-health or their defective eyesight hinders them in learning to read and write. The more important duty of the State, or civic unit, however, when the matter is looked at from a broader standpoint of principle, is towards itself and towards the maintenance of its own position in the future. It has to consider the coming generation of adults represented by the children of the day and to bring them to the age of citizenship as men and women capable of being, and of breeding in their turn, worthy and independent

citizens. Elementary education is provided for out of the public funds for no other object, and all reasonable means should be taken to secure that end and to prevent educational effort and expenditure from being wasted. The whole matter, no doubt, depends upon the answer to the question what is reasonable when all the circumstances are considered. Parents have duties which the State should not lightly undertake in their place. The cost of public elementary education has grown enormously during recent years, and the results secured are not so striking, in the opinion of many, as to justify further expenditure upon matters which are but indirectly connected with education and to which the attention of our fathers was never directed at all. These are considerations which no doubt weighed with the majority upon the London County Council when the votes referred to were taken. Let us hope that they considered each case carefully as individual councillors and criticised every amendment upon its merits without reference to any question of adherence to a policy adopted and enforced upon its members by a municipal party. Against the view which they expressed it may be pointed out, and indeed it was pointed out to them, that the ranks of the unemployed and unemployable, who at a maturer age become dependent on the rates not for their education but for their entire maintenance, are largely recruited from those who grow up from a physically defective childhood into physically and intellectually defective men and women.

It may not be an ideal course to spend money in supplying to the children of the poorer classes treatment which we know they are in need of, and to do so out of rates which are largely paid by those who derive no direct benefit from the provision of public elementary education. We do not, however, live in an ideal state, but in one in which the practical defects of everyday human existence are painfully apparent. We have to select frequently the least objectionable of two courses, neither of which would commend itself to us if we had a free choice, and it must surely be better to secure by a comparatively small additional expenditure the fullest possible effect for a great payment which we have bound ourselves to make, and from which we expect and desire to obtain important advantages. We are spending a huge sum annually on education and a comparatively small sum on medical work, which, so far as it consists of inspection only, just serves to put us in the mortifying position of seeing where our loss and waste take place without enabling us to prevent them. Meanwhile, we spend every year a no less formidable amount on maintaining those who, if our medical inspection were to be reinforced by treatment, might in future generations be represented by independent workers earning their living for themselves. Possibly the London County Council will one day modify an attitude which we regret, and take the lead in a movement capable of effecting results of lasting benefit to the country. Whether treatment is made by arrangement with hospitals or by a development of clinics it will require money, and the fact that there is no exact consensus of opinion as to the best way in which the money should be spent does not relieve the London County Council wholly of the onus of finding some more adequate supplies.

The Census and Estimates of Population.

THE refusal of the Government, under Treasury influence, to make provision for an intermediate quinquennial enumeration of the number, sex, and age of the population of the United Kingdom in 1916 is seriously discouraging to medical officers of health and others who cannot fail to recognise the inadequacy of a decennial Census as the basis of trustworthy vital statistics, which are so essential for the promotion of local health progress. The results of the last three Censuses have abundantly proved the wide, nay, incalculable, fluctuations in the rate of the growth of population in the large towns in England and Scotland, and the consequent depreciation of the value of their vital statistics during the latter half of an intercensal period of ten years. It is, moreover, impossible to doubt that since the last Census in 1901, quite apart from greatly increased emigration, various causes have operated exceptionally to affect the growth of our large towns and to distribute it more widely beyond their arbitrary administrative boundaries, thus causing a very general reduction of the rate of increase of population that prevailed during the last intercensal period, 1891–1901. As a natural consequence of this obvious decline in the rate of increase, the population of many of our large towns is now very considerably over-estimated by the official method of assuming that the rate of increase prevailing between 1891 and 1901 has been maintained during the current intercensal period.

In the Registrar-General's Annual Summary for 1909, recently issued, it is assumed, for example, that the population of the County of London had increased by 288,955 during the eight years preceding the middle of last year, equal to an increase of 6·3 per cent. The rate of increase of the population within the County of London during the last three completed intercensal periods since 1871 was successively 17·4, 10·4, and 7·3 per cent., thus showing a continually increasing decline in the rate of increase of population. Moreover, a special intermediate London Census was taken in 1896, which showed that while the increase of the population of the County of London was equal to 4·8 per cent. in the five years 1891–96, it declined to 2·4 per cent. in the following five years 1896–1901. These facts make it impossible to accept as trustworthy the assumed increase of 6·3 per cent. in the London population during the eight years 1901–09, and no one who considers the subject can well doubt that the London population is at the present time very considerably over-estimated, and that consequently the recently published rates of marriages, births, and deaths in London are distinctly understated. Probably still larger over-estimates of population are now being used in the construction of official and local vital statistics for the metropolitan suburban districts of Willesden, Hornsey, East Ham, and Walthamstow, where very exceptionally high rates of increase prevailed during the ten years 1891–1901, the maintenance of which it seems unreasonable to assume.

Bearing in mind the constantly increasing importance of approximately correct estimates of the number, sex, and ages of our population for education, trade and commerce, and for other branches of State administration, as well as for

the promotion of public health, it is matter for surprise, as much as for disappointment, that Parliament has so far failed to recognise the necessity for securing an intermediate enumeration of our population in 1916. We have taken as a matter of convenience the County of London as an example of a community whose vital statistics are probably vitiated by an incorrect estimate of the population; it would have been easy to mention cities where this very point has given rise to serious disagreements in medical opinion.

Annotations.

"Ne quid nimis."

MALTA FEVER AND GOATS' MILK.

WHEN Sir David Bruce and his colleagues on the Malta Fever Commission reported that the disease was spread in Malta mainly by goats' milk, and that the boiling of that fluid before use was sufficient to prevent the infection, there were not wanting some persons in this country and in Malta who scoffed at so simple a solution of what had hitherto been considered an obscure problem. But the adoption of this precaution in the barracks and hospitals of Malta has resulted, as is now well known, in an almost complete disappearance of the disease from the naval and military garrison of the island, in this way clearly demonstrating the correctness of the conclusions arrived at by the Commission. It has been quite recently announced in Parliament that the inquiry is to be carried a step further by the appointing of a fresh Commission to investigate the manner in which goats become infected by the Micrococcus melitensis. In this connexion it is of interest to remark that reports from various sources tend to prove that Malta fever has a much wider distribution than was formerly believed; and lately accounts received from France show that the disease has appeared at a number of places in that country, particularly in the departments of Var, Bouches-du-Rhône, Hérault, and Gard. It has been suggested that these recent outbreaks in France are probably associated with the importation of Maltese goats through Marseilles, where an agency for the purpose is established, the goats from Malta being especially sought after on account of their superior milk-giving qualities. An account of a recent epidemic of this kind, involving both man and goat, is given in the current number of the *Annales de l'Institut Pasteur*,[1] the investigation having been carried out with the assistance of a subvention from that institution. The scene of the outbreak was a sparsely populated and remote district situated on the outlying spurs of the Cevennes, inhabited by agriculturists of the poor peasant class living in isolated cottages or small farms, each family keeping one goat or more to supply them with milk. No cows or horses were kept, the only other animals raised by the peasants being pigs, poultry, and rabbits, though some of the better off people kept a few sheep. In this remote region an epizootic appeared in December, 1908, among the goats, of which, it was ascertained during the inquiry, 164 had suffered; of these no fewer than 63 aborted. In January a sudden and severe outbreak of illness, diagnosed at first as "infectious influenza," attacked the peasants, of whom some 179 suffered. It was remarked that the epizootic of the goats and the epidemic in man were both limited to a well-defined area comprising three parishes somewhat shut off by the physical characters of the country from the adjacent communes. Owing to the protracted nature of the illness, in some instances lasting several months, suspicion was aroused that the prevalent malady might be Malta fever. As a preliminary measure specimens of the blood of five convalescent patients were sent to an expert for examination, and he reported that the serum in four instances agglutinated the micrococcus melitensis in dilutions of 1 in 20 and 1 in 60. The main investigations were made more than nine months after the occurrence of the outbreak, but it was found that in 75 out of 80 cases in which the agglutination test was tried, a positive result was obtained. A modification of the agglutination test was employed for the goats' blood, and of the 63 goats which had aborted during the period in which the epizootic prevailed it was found that 71 per cent. gave positive results. The blood also of 96 rabbits was tested, and in 20 of them agglutination occurred. The goats and rabbits, it may be mentioned, were housed in the same sheds under extremely filthy conditions. In the districts surrounding the infected zone no similar illness in man or animals had been observed, and none of the goats had aborted. The houses where the goats were kept in the three communes which suffered from the illness were scattered, singly or in small groups, over a somewhat wide and hilly area, and had few conditions common to them all. But in August and September 146 goats out of 164 attacked had been taken to a particular farm within the affected area to be covered by a buck goat kept there. Although the precise manner in which the farm came to act as a focus of the infection has not been ascertained, it is surmised that a recently purchased goat from a distance had been brought to the farm and had set the mischief agoing. The investigators of the outbreak were satisfied that the disease which attacked the goats in December was Malta fever and was the same as that from which the peasants and their families suffered in January, and that the infection was conveyed to man by means of the goats' milk. With a view to prevent such occurrences it is recommended that traffic in Maltese goats should be strictly controlled at Marseilles, so as to secure that no infected animal will be permitted to enter France. It is also suggested that a series of investigations should be undertaken to discover how long the micrococcus melitensis can survive in the cheese which is made from goats' milk, and which may possibly be a cause of the spread of the disease.

[1] Une Épidémie de Fièvre de Malte dans le Département du Gard; Contribution à l'Épidémiologie de la Fièvre de Malte en France; par MM. P. Aubert, P. Cantaloupe, et E. Thibault, Annales de l'Institut Pasteur, tome xxiv., No. 5, 1910.

LIVE AND DEAD WEIGHT.

THERE is a popular notion that the weight of the living body is less than that of the dead one. In a recent issue of the *Pioneer Mail* a correspondent discusses this question in connexion with the behaviour of a crocodile which he shot dead while it was basking asleep on a quicksand. When shot the crocodile began to sink and almost disappeared before it could be reached. The correspondent is clearly inclined to accept the popular notion of an increase of weight at death but for the fact that "recent experiments undertaken by some learned authorities in America had proved that a dead body was lighter than a living one. From this they (the learned authorities) deduced that the soul had a definite weight in pounds avoirdupois." It is possible that some of our readers are unfamiliar with the experiments to which the correspondent of the *Pioneer Mail* refers. They will be found in *American Medicine* for 1907, New Series, Vol. II., p. 240, and were made and recorded by Dr. Duncan Macdougall of Haverhill, Mass. Patients were weighed in the act of dying. The scales used recorded any increase or decrease beyond the fifth of an

ounce—not a particularly delicate instrument for estimating the weight of that part of the living body which is usually regarded as immaterial and imponderable. In the first of a series of six experiments Dr. Macdougall placed a man dying from pulmonary tuberculosis on the scales. The patient lost weight at the rate of one-sixtieth of an ounce per minute until the moment of death, when "the beam end dropped with an audible stroke," showing a sudden decrease of three-quarters of an ounce in weight. What was the cause of the sudden decrease? Dr. Macdougall, after excluding the loss due to escape of breath and fluid contents of the body by evaporation or other natural means, concluded that the marked and sudden decrease was due to escape of the "soul-substance." In this particular instance the "soul" was evidently a very material one, weighing three-quarters of an ounce. The experimenter extended his observations to dogs, but the results gained were negative. At the moment of death the dog's body refused to show any alteration in weight. We are of opinion that the correspondent of the *Pioneer Mail* in seeking to explain the disappearance of the shot crocodile in a quicksand, need not take his "learned authorities" too seriously. Dr. Macdougall's observations are to be explained by a peculiar bias on the part of his scales or on the part of the "friends" who assisted him. At least the scales used by other investigators have refused to reveal any sudden diminution in the weight of the body at death. In the usual acceptation of the term, "death" occurs when respiration and circulation have ceased, but in a more strict sense the death of the body is gradual, the muscular system, for instance, being really alive some hours after the apparent death of the individual.

RECURRENCE AFTER REMOVAL OF INNOCENT TUMOURS OF THE BREAST.

IN the *Edinburgh Medical Journal* for June Sir George T. Beatson has called attention to the fact that recurrence after removal of tumour of the breast is not, as is generally supposed, distinctive of malignancy. He reports the two following examples. A married woman, aged 35 years, who had one child, was admitted into hospital with a swelling of the right breast. She had noticed it about four months, and in the last three weeks it had grown rapidly. Three years before a small tumour had been removed from the upper part of the same breast. Examination showed a hard, somewhat nodular, tumour in the lower and outer quadrant, which was moveable with the breast over the pectoral muscles. The skin was not adherent to the growth, the nipple was not retracted, and enlarged glands could not be felt in the axilla. On Oct. 31st, 1901, an incision was made, and both the tumour and breast were found to be cystic. The whole breast was therefore removed. The pathologist reported that the breast was the seat of that variety of cystic disease characterised by intra-cystic growths. Good recovery followed, and the patient was not seen again until November, 1908, when she sought advice for a small hard nodule in the outer edge of the great right pectoral muscle near the scar. She noticed this first five months previously, and it was becoming larger. She was in excellent health. On operation the tumour was found embedded in the fibres of the great pectoral muscle, some of which were removed with it. When cut into it proved to be cystic and contained dark sanguineous fluid. Dr. J. H. Teacher made the following report on the specimen: "There is a solid mass within a thin-walled cyst. The mass presents the characters of an intra-cystic adenoma (or in parts papilloma). Although it is very cellular I am of the opinion that it is innocent." In the other case a woman, aged 56 years, was suffering from rapidly growing tumour of the right breast. On Dec. 23rd, 1907, an operation was performed. The tumour was encapsuled, the mammary tissue being pushed aside and thinned. The whole breast was removed, but the axilla was not interfered with, as the glands did not appear to be infected. The pathological report was that the tumour was a fibro-adenoma with the stroma in an active state, as shown by its cellular character, and that the glandular acini in it were dilated and lined with layers of epithelium. On Feb. 11th, 1910, the patient was readmitted with a hard swelling on the inner side of the scar. She had remained well until six or eight weeks previously, when she noticed a small hard lump near the scar. It gradually enlarged and at times was painful. She looked healthy and well nourished. The tumour was of the size of an orange and consisted of two rounded portions with a depression between. It was moveable on the deep structures, but on movement there was slight puckering of the skin over the upper part. The tumour was removed and Professor R. Muir reported on it as follows. "The tumour is an adenoma, the acini being comparatively few and large. They are lined by a single or double layer of epithelium. There is no trace of epithelial infiltration. The stroma is very abundant and cellular and almost sarcomatous in appearance. The tumour corresponds to the 'adenoma-sarcoma' of writers, but I doubt if it is malignant. The stroma is more cellular, and there is less epithelium than on the previous occasion." This favourable report was at variance with the clinical history, which indicated malignancy. Sir George Beatson thinks that the first case furnishes an explanation which may harmonise them. In the first case the second tumour was not due to incomplete removal of the primary tumour, but to cystic degeneration after an interval of years of a remnant of the parenchyma of the mammary gland. Recent investigations have shown that the gland has a much wider distribution than was supposed and that ramifications extend in all directions, even into the substance of the great pectoral muscle. In the second case probably the same kind of growth as occurred primarily in the main body of the breast manifested itself after an interval in an outlying portion left behind. Sir George Beatson also suggests that the cancerous nodules which appear near the scar many years after operation for cancer of the breast arise from portions of normal mammary tissue left behind. If, as is usually held, they are due to incomplete removal of the primary tumour, it is difficult to understand their prolonged latency.

THE CO-EDUCATION OF MEN AND WOMEN AS STUDENTS OF MEDICINE.

WE published a leading article in THE LANCET of May 21st referring to the suggestion in the April number of the *London Hospital Gazette* that women medical students should be admitted as students at the London Hospital Medical School and generally to the service of the London Hospital. In the June number of the *Magazine of the London (Royal Free Hospital) School of Medicine for Women* there is a letter from the editor of the magazine (Dr. Mary A. Blair) expressing surprise on learning from the *London Hospital Gazette* that there is a proposal to open the London Hospital to women medical students. Dr. Blair writes: "We are even more surprised to hear it suggested that there must have been considerable demand for it on the part of the women!" for she thinks that there can be no general requirement of the sort among the women medical students of London, while the innovation would inevitably damage the Royal Free Hospital. On this point she writes that "the removal of 10 or 12 students yearly to another medical school would be a serious financial loss to a school of the size of our own, and would

undoubtedly diminish the efficiency of our medical school." Finally she says, "we consider it more desirable that women should be trained apart from men." Dr. Blair's statements certainly merit careful consideration from those authorities contemplating widening the scope for the medical education of women. We are not prepared to dogmatise on the broad questions involved, taking for our example the particular and present position of women medical students in London, but we must not be blind to the fact that there is a rapidly widening demand nowadays for outlets for the superabundant energies of women. Hospital authorities will naturally feel reluctant to attempt to stem, even if they wished so to do, what is the manifest current of progress desired by educated women.

THE PHARMACY OF THE BRITISH PHARMACOPŒIA.

THE second report of the Committee of Reference in Pharmacy to the Pharmacopœia Committee of the General Medical Council has been published in order that its suggestions may be submitted for professional criticism. It embodies the results of work accomplished in connexion with the revision of the British Pharmacopœia from Nov. 18th, 1908, to Dec. 16th, 1909, together with recommendations supplementary to those contained in the previous report of 1908. The first report dealt with the monographs from Acaciæ gummi to Extractum gentianæ, and included a series of suggested alterations in the tests for lead and an appendix on the quantitative colorimetric lead test. The present report deals with the monographs from Extractum glycyrrhizæ liquidum to Liquor magnesii carbonatis, and in addition suggests a new monograph for Extractum belladonnæ liquidum and gives a general description of the process of repercolation which, it is suggested, should be introduced into the appendix. It is evident from the carefully detailed suggestions for alterations in the various monographs that the committee have expended a large amount of time and brought experienced consideration to bear upon the work entrusted to them. In the opinion of the committee the present formula for extractum glycyrrhizæ liquidum should be retained, but they suggest an improved method of working the official process by which the acidity that rapidly develops in hot weather may be avoided. The monograph on extractum ipecacuanhæ liquidum, which it is proposed to substitute for the present one, does away with the use of lime and produces a liquid extract containing 2 grains of the alkaloids of ipecacuanha root in 110 minims. In the proposed new monograph for extractum nucis vomicæ calcium phosphate is used as a diluent instead of milk sugar; the opinion is expressed that the present standard of 5 per cent. of strychnine should be adhered to, notwithstanding that the extract of nux vomica of the Brussels International Agreement is standardised to contain 16 per cent. of total alkaloids, the committee's reason for the divergence from the International Agreement being that standardisation in terms of strychnine is considered essential, inasmuch as the toxicity of the drug is almost entirely due to this alkaloid, and the proportion of it in the total alkaloid varies within somewhat wide limits. New monographs are suggested for extractum nucis vomicæ liquidum and extractum opii, but the alkaloidal strengths of the two preparations remain unaltered. An improved process is submitted for the manufacture of extractum sarcæ liquidum and in the preparation of extractum taraxaci liquidum percolation with 30 per cent. alcohol is suggested, as by this means an extract is produced which keeps better than that made by the process at present official. A new method is recommended for the manufacture of ferri carbonas saccharatus which yields a product containing more ferrous carbonate and keeps better. The limit of arsenic in ferri sulphas is fixed at 1 part per 1,000,000 and in ferri sulphas exsiccatus 2 parts per 1,000,000. Ferrum redactum should be required to contain not less than 80 per cent. of metallic iron instead of 75 per cent. as at present; arsenic should not be present in greater proportion than 200 parts per 1,000,000. An extended description of filix mas is suggested in order to render its identification more precise, and the description of fœniculi fructus is modified so as to include the varieties rich in volatile oil and fenchone, and exclude those that are poor. The requirements of gentianæ radix are made more stringent so as to prevent sophistication as far as possible. A new monograph for glycerinum is submitted which allows of the presence of not more than 2 parts per 1,000,000 of arsenic. In the formula for glycerinum acidi borici, boric acid in crystals is substituted for fine powder, as the former gives a clearer solution. A new formula is suggested for glycerinum plumbi subacetatis and also an improved description of glycyrrhizæ radix, which requires the root to be dried. Hydrargyri iodidum rubrum is required to contain at least 98·7 per cent. of mercuric iodide, and it is suggested that the name hydrargyri oleas should be altered to "hydrargyrum oleinatum." The solubility test of hydrargyri perchloridum is altered to 1 in 18 of water (instead of 1 in 16) and 1 in 4 of alcohol (instead of 1 in 3). A test showing the absence of more than traces of mercuric chloride is introduced in the monograph on hydrargyri subchloridum. It is suggested that foreign-grown biennial henbane should not be excluded. Iodum should be required to contain at least 99 per cent. of pure iodine. Fuller characters and tests for ipecacuanhæ radix are submitted, and the resin yield of jalapa is reduced from "not less than 9 or more than 11" to "not less than 7 or more than 9 per cent." The percentage of jalapæ resina soluble in ether is raised from 10 to 15. It is suggested that kino should be heated to boiling before evaporation to dryness. A basis for lamellæ is suggested for inclusion in the appendix, with which to prepare discs of atropine, cocaine, homatropine, and physostigmine. It is suggested that linimentum aconiti should be made from a liquid extract standardised to contain 0·4 per cent. of alkaloid, and that the tincture of aconite should also be prepared by diluting the liquid extract so as to contain 0·05 per cent., the strength adopted by the international agreement. It is proposed to prepare liquor arsenicalis without the use of potassium carbonate in order that the dangerous incompatibility of this solution with solutions of alkaloidal salts may be avoided. As liquor atropinæ sulphatis is used for dropping into the eye the committee suggest that it should be freshly prepared without salicylic acid. It is proposed that the name liquor iodi fortis should be altered to "pigmentum iodi," that the name liquor magnesii carbonatis should be altered to "liquor magnesii bicarbonatis," and that under glucosum a monograph for liquid glucose should be introduced. It is expected that the final report of the committee will be ready by May next year.

THE COLD AND SHOWERY WEATHER OF LAST WEEK.

AFTER a generally dry and warm fortnight or so the weather broke up on the 22nd or 23rd of last month with violent thunderstorms, after which it was extremely showery, often dull, and unseasonably cold. The table below shows the temperature, sunshine, and rainfall of last week for a few scattered localities which may be taken to represent fairly well the whole of Great Britain. When compared with the average the temperature readings might be almost called abnormally low for the time of year. In London, for

instance, the average maximum is above 71° or about 8° higher than that of last week, while at Bath and Nottingham the divergence was almost as striking, and although the difference from the normal was not so great at the stations further north it was very appreciable. The temperature of the nights was also low for the season. The departure from the normal, however, was much less marked at night than during the day; in many places it was only about 2°. In many parts of the kingdom the showers were very frequent, and as the intervals between were not always accompanied by a clear sky the total duration of sunshine was generally very small. In London and some other places there were only 28 hours, an average of four hours per day, a considerable proportion of which was recorded before the world was awake, and at Manchester the figure was no more than 13 hours. Several spots along the south and east coasts, and a few inland, such as Bath, were more fortunate, but over the kingdom generally the sunshine was very meagre for the time of year.

	Mean maximum temperature.	Mean minimum temperature.	Mean temperature for week.	Number of hours of sunshine.	Days with rain.	Total fall in week.
	°	°	°	Hours	*	Inches.
London (Westminster) ...	63·4	50·9	57·2	28	6	0·99
Bournemouth	63·6	52·4	58·0	50	4	0·60
Margate	63·7	51·9	57·8	28	4	1·49
Bath	62·3	50·7	56·5	58	6	0·81
Nottingham	62·0	49·0	55·5	27	6	0·89
Harrogate	58·6	48·6	53·6	33	4	1·12
Liverpool	58·7	49·6	54·2	28	7	1·23
Manchester	58·6	50·6	54·6	13	6	1·75
Aberdeen	57·7	46·1	51·9	20	7	0·72

* Days with at least 0·01 inch.

THE NERVES OF A TELEPHONE OPERATOR.

THERE have recently been public allusions made to the prevalence of nervous breakdown among telephone operators, and, whether the prevalence be exaggerated or not, it is certainly a fact that the public scarcely realises the excessively trying nature of the work which the telephone exchange operators perform. At present the everyday attitude to the officials at the exchanges can scarcely be called a long-suffering one. A man goes to the telephone, takes up the receiver, and rings up the exchange; if the response is not prompt he is annoyed and shows it; if, on having given the number he requires, an immediate answer is not forthcoming he is again annoyed and again shows it; and when he is put on to a wrong number—but there is no need to tell the full story of a sad loss of self-control. Everyone is not so unreasonable, but it seems that an appreciable portion of the public believe that the operators make mistakes out of pure and unalloyed wickedness, aimed either against the mass of the subscribers in general or against the individual sufferer. We would urge, even while we admit that the number of stupid mistakes made by telephone operators does appear large, that some thought should be given to the fact that the operators are not mechanical contrivances, and that any individual operator with whom we get into communication is, himself or herself, part of a great and complicated scheme any failure in which may often be felt at a distance from its cause. It is silly and unjust to conclude if any hitch should occur that the particular exchange operator who is then in communication must be the delinquent—the deliberate and frigid delinquent. And although the exhibitions of temper which too many of the public allow themselves to manifest may be received with apparent equanimity by the operator, we cannot doubt that they must have a wearing effect. For life at the telephone exchanges is neither a quiet nor a pleasant one. The work is trying and puts a constant strain on the attention, while rigid self-control is asked for in anyone who during long business hours has to enter upon incessant dialogues with a public that is generally in a hurry. Recently, Mr. H. Samuel, in answer to a question in the House, stated that in view of the large number of cases of hysteria and other nervous troubles reported amongst the operators, an investigation had been instituted. He added that the results of this investigation were receiving careful consideration. We hope that the publicity which has been given to the matter may do something towards ameliorating the attitude of the public to the telephone operators, and may help the public to remember that these operators are human beings and not machines.

FOREIGN MEDICAL PRACTITIONERS IN ITALY.

THE General Medical Council has received from the Privy Council copy of a despatch from His Majesty's Ambassador at Rome, enclosing a report on recent legislation affecting the position of foreign medical practitioners in Italy. He states that under the new law British medical practitioners will in future, in virtue of the reciprocity granted by Great Britain, enjoy unrestricted freedom of practice in Italy, instead of the limited rights hitherto conceded them of practising only among foreigners. As matters now stand this concession only benefits British practitioners, Great Britain being the only country that grants reciprocity to Italy. This reciprocity was accorded in 1901 when on March 9th an Order in Council was issued putting in force the second part of the Medical Act of 1886.[1] Our Italian correspondent referred in detail to these changes in the letter from Italy published in THE LANCET of June 18th, p. 1724, and we refer our readers thereto for full information.

THE WORLD MISSIONARY CONFERENCE AND THE ABUSE OF OPIUM.

A GREAT English consultant of the nineteenth century pronounced opium and its pharmaceutical derivatives to be the "gift of God to man," and medical practice throughout Christendom has ratified his dictum. But, like alcohol and other powerful agents operating on the nerve centres, opium and morphia may become not a blessing but a curse, causing disease and death physically, and degeneration and disaster morally and socially, if indulged in without medical warrant and consumed habitually to excess. Evidence to this effect was brought before the recent World Missionary Conference by speaker after speaker, particularly by those whose evangelising work had lain in the far East, where, in China particularly, the consumption of opium had deepened and widened and intensified into a racial calamity, arresting all healthy evolution and proving a well-nigh insurmountable barrier to the nation's falling into line with the march of civilisation. The Chinese themselves have long been feelingly persuaded of this, and their organised attempts to reduce the opium habit, and finally to restrict its use to medical prescription, have for years been strenuously in operation. But, lamentable to admit, it is the "Christian civilisation" from whence proceeds the temptation, and the means, to contract and to continue the habit—the evidence of this adduced by the medical missionaries being simply appalling. From Edinburgh itself, the chosen seat of the World Conference, there was, according to Mr. D. D. Main of Hangchow, a brisk export

[1] See London Gazette of March 9th, 1901.

of pills, nominally designed to break the habit of opium-smoking, but by their composition, largely impregnated with morphia, only encouraging the habit under another name. The pills, said Mr. Main, "sent out and labelled as kegs of bicarbonate of soda," were a secret preparation; "no manufacturer would tell where they were exported to," and yet, he added, "most of the morphia that found its way to China had its place of origin in Edinburgh." Other speakers, to similar purport, followed, and the Rev. Dr. Griffiths, giving his experience of Assam, assured the Conference that the tribes in that country were, thanks to the indulgence, "in a state of disintegration." Young and old, men and women, even children of tender years, were slaves to it—mothers even selling their offspring, after their husbands had sold their cattle, for means to buy the drug! Difficulties no doubt—difficulties arising from commercial interests protected by treaty rights—confronted the movement to antagonise and ultimately to modify the opium traffic so as to restrict it to purely medical requirements, and the members of the conference were assured, on the authority of more than one political delegate, that responsible statesmen like Lord Morley and Sir Edward Grey were in full sympathy with the restrictive policy, and doing their best towards its consummation, in which they had no more sincere and energetic auxiliaries than the Chinese themselves. A resolution submitted at a meeting held in connexion with the Conference and carried *nemine contradicente*, urged "(1) that the opium traffic, morally indefensible, should, in response to China's heroic efforts, be ended much more speedily than the existing 10 years' arrangement contemplated; (2) that meanwhile China should be left free to control the import of opium as she finds best in her own interests; and (3) that the invitation from the United States to an International Conference be accepted by the British Government so that the principles embodied in the Shanghai Conference may be fully carried into effect." This resolution was declared by its mover, Mr. Theodore Taylor, M.P., to prelude a "crusade against the unauthorised (that is, the non-medical) use of all dangerous drugs," a crusade which would be strengthened by the new allies which, from no profession more largely than that of medicine, would be brought into the field.

EPIDEMIC POLIOMYELITIS.

IT is probably no exaggeration to state that acute poliomyelitis is endemic in London and the south of England. Fresh cases of the disease appear with unfailing regularity at the out-patient departments of our hospitals all through the summer months, and, indeed, during other seasons of the year as well. But acute poliomyelitis in epidemic form is practically unknown in this country. The same was true of Germany till last year, when the first real epidemic of the disease ever recorded in that country began to rage in the district of Rhenish Westphalia. It has consisted of hundreds of cases, moderately severe, and it has been especially noteworthy for the occurrence of gastro-intestinal symptoms. The curious fact that epidemics of poliomyelitis have followed outbreaks of cerebro-spinal meningitis in various parts of the globe (this has been the case in the German epidemic referred to above) is suggestive when we remember the recent epidemics of the latter disease in Scotland and Ireland, as well as in England. The epidemic of acute poliomyelitis in Greater New York in the summer and autumn of 1907 was the first to be reported in any of the larger American cities, when at least 2500 cases occurred. Recognising the importance of the subject, the New York Neurological Society appointed a Committee of Investigation in October, 1907. The New York Academy of Medicine and the Department of Health of New York City at once gave their coöperation, and the Rockefeller Institute of Medical Research also lent its active support to the work of the committee. Under these happy auspices the labours of the Collective Investigation Committee have been most productive, if we are to judge by the report[1] which has just been published. To put briefly the more important of their conclusions, it may be said that epidemic poliomyelitis differs widely from the old-time conception of infantile spinal paralysis; that it is an infectious, if not a contagious, disease, which may involve the lower portion of the brain-stem as well as the spinal cord; that it behaves like other acute infectious diseases of childhood; that in some instances the general symptoms of infection are as prominent as are the symptoms of paralysis; that it is a more fatal disease than was supposed, and yet recoveries are more common than was suspected; that meningeal symptoms are unusually common in the earlier stages of the disease; and that epidemic polioencephalomyelitis occurs, though rarely. The disease can be transmitted from man to animals through several generations, and some light has already been thrown on the properties of the virus of epidemic poliomyelitis. As regards the epidemiology of the disease, the epidemic began in June and reached its height in September. The "date of onset" curve is very similar to that given by Wickman for the cases in the epidemic in Sweden in 1905, except that the latter reached its height in August. The disease spread rapidly along ordinary lines of communication into the surrounding country, appearing more particularly in the state of Massachusetts. The fact that of 750 cases reported only two occurred in negro children is remarkable. While the disease was moderately communicable, about as much so as epidemic cerebro-spinal meningitis, the path of infection could not be determined, although some evidence pointed to the upper respiratory tract as being the route of invasion. In the epidemic there were 18 houses each with two cases, and five houses each with three cases. The estimated mortality was 5 per cent., which is low, as far as epidemics go; in other words, the infection was of a mild type. Evidence points to an incubation period of less than ten days. Among the symptoms preceding the onset of the paralysis, fever, restlessness, and vomiting were common; rigidity of the neck was remarkably frequent, pain and tenderness almost universal. Sometimes the pain was excruciating. It was commonest in the lower extremities, less frequent in the spine and trunk, and least common in the neck and arms. The well-known flaccid paralysis typical of poliomyelitis was reported in 632 patients, and yet *rigid* paralysis was distinctly recorded in 38 patients. This is to be regarded, no doubt, as a symptom of sensory irritation reflected in the motor neurons, and it may be due, also, to some meningeal involvement. All sorts of combinations of paralysis of face, arms, and legs were noted: the face is specifically referred to as having been paralysed in 27 cases; in 681 it was not affected. The left side of the body was more frequently affected than the right. In 47 per cent. of reported cases there was a marked regression of all symptoms except a residual paralysis, and in 5·3 per cent. a complete disappearance of all paralysis was noted. Much the most common residual palsy was in the peroneal, anterior tibial, calf, quadriceps, or deltoid group. Bulbar cases and cases closely resembling Landry's acute ascending paralysis occurred. The pathology of epidemic poliomyelitis has been recently referred to in THE LANCET.[2] The chapters in this report dealing with the subject are contributed by Dr.

[1] Epidemic Poliomyelitis: Report of the Collective Investigation Committee on the New York Epidemic of 1907. New York: Journal of Nervous and Mental Disease Publishing Company. 1910. Price $2. No. 6 of Nervous and Mental Disease Monograph Series.

[2] THE LANCET, Feb. 19th, 1910, p. 524.

Simon Flexner and Dr. Paul Lewis of the Rockefeller Institute and by Dr. Strauss of the Cornell Medical School. The evidence brought forward by these investigators is of the greatest value and importance. As was pointed out in a leading article in THE LANCET,[3] it is now certain that a disease similar to acute poliomyelitis in man can be produced by inoculation of the human cord into monkeys; in addition reinoculation from monkey to monkey is possible and may apparently be kept up indefinitely. Histologically the lesions in poliomyelitis are very like those in human rabies. Moreover, the manner in which the monkey is infected is identical with the route of infection used in the production of experimental rabies. Further, there occurs a type of ascending paralysis in rabies which is clinically identical with that of acute poliomyelitis. These facts point to a possible analogy between the infective agents in both conditions and to a possible means of immunisation.

GRAIN ITCH.

Dr. J. F. Schamberg of Philadelphia has recently published an account of a disease which has appeared in Philadelphia and its neighbourhood. Late in the spring of 1901 there appeared in Philadelphia and the surrounding country an eruptive disorder which was entirely new to the physicians of that district. Every year it has recurred, usually in the month of May and the beginning of October, and it was especially widespread in 1909. Public attention was drawn to the disease by an outbreak occurring among 20 sailors upon a private yacht docked in the Delaware river, and the disease was investigated by Dr. J. Goldberger and Dr. Schamberg. The conditions obtaining on the yacht were thoroughly examined, and it was discovered that a number of new straw mattresses had recently been received on board and that the disease was confined to those who had slept upon the mattresses or had placed their clothes upon them. Information was also obtained that a similar eruptive disease prevailed on four other boats on the Delaware river, and investigation showed that these boats had also received new straw mattresses, and further that only those were attacked who had slept upon the mattresses or had otherwise come in contact with them. In addition to these cases some 70 other instances of this disease occurring in 20 different households in Philadelphia and in its neighbourhood were investigated, and in almost every instance it was found that the patient had either recently slept upon a new straw mattress or had freely handled one. All the incriminating mattresses were supplied by four mattress makers, and it was discovered that all the manufacturers had made them up from wheat straws supplied by one dealer. When the straw from the mattress was carefully sifted through a fine flour sieve it was seen that some slight movement was occurring in the siftings, and the microscope showed the presence of a very minute mite which was identified as the pediculoides ventricosus. Dr. Goldberger exposed his arm to the straw of the mattress for an hour, and 16 hours later characteristic lesions appeared, and the siftings had a similar effect upon some other volunteers. The disease was characterised by an eruption consisting of wheals, many of which were crowned with minute vesicles. In a few hours the vesicles became pustular. The extent of the eruption varied greatly in different subjects. Usually it was profuse, especially on the neck, chest, abdomen, and back; the face, hands, and feet were nearly always exempt. The itching may be intense. During the early days of the attack the patient may feel cold, and in some cases nausea and even vomiting are present and mild rigors may occur. The temperature may reach 100° F. or even 102° F., or possibly higher, and this pyrexia may last for several days; on the other hand, it may be entirely absent. There appears to be not the faintest doubt that the disease is due to the acarus mentioned above. Wheat straw is liable to give rise to the disease, but the straw of barley and other grains may also be contaminated with the acarus. The pediculoides has an economic importance because it tends to protect the grain crops by destroying the larvæ of several insects which prey upon grain. A similar affection has been described many years ago in France, Germany, and Russia. As to the treatment, it seems to be fairly easy to destroy the acarus, and Dr. Schamberg recommends especially an ointment containing 30 grains of beta naphthol and 40 grains of precipitated sulphur to the ounce of benzoated lard. It will be of interest to know if any cases of this disease have been seen in this country.

[3] THE LANCET, Feb. 19th, 1910, p. 512.

BLEACHED FLOUR.

WE are glad to note that a question was put to the President of the Local Government Board in the House of Commons last week in regard to the bleaching of flour with nitrous acid. Mr. Burns replied that he had already directed an investigation into the matter by one of the inspectors of the Foods Department of the Local Government Board. We are sure that Mr. Burns will be interested to know how legislation has been brought to bear upon the subject in the United States, according to an account recently sent to us by our own correspondent. In regard to a certain consignment of flour bleached by a well-known process depending upon the production of nitrous and nitric acids from the air by electric sparking, the United States Government held that the flour contained poisonous and deleterious ingredients—namely, the nitrites produced during the process The flour was condemned and ordered to be forfeited. The evidence of well-known authorities on dietetics, chemistry, and physiology was unanimous in condemning the practice. Dr. Gustav Mann stated that there is always a distinct change induced in the starch as a result of bleaching. From actual experiments he found that the bleached flour was digested to only one-third the extent of the unbleached. The injurious action of the nitrous acid developed in the stomach from the nitrites would be proportional to the amount of nitrites present in the flour. Thus, two molecules would put out of action two molecules of hæmoglobin or two of nucleoprotein and would inactivate two molecules of any ferment (enzyme) that might be present. The bleaching of flour not only causes a loss in food value, but renders digestion of the food made from it 20 to 75 per cent. more difficult. As regards the effects of the nitrous acid on the human body, there is danger that a dose which under ordinary conditions is normal might cause death in feeble individuals. Dr. Mann concluded that the bleaching of flour should not be permitted. Dr. Hamilton P. Jones said that the use of nitrogen peroxide in bleaching flour would tend to impair the digestibility of the bread and produce gastric irritation. Dr. John Marshall gave evidence that the general effect of the addition of nitrites to food made from wheat flour is to endanger the health of the consumer. Confirmatory evidence was given by Dr. John H. Musser, Dr. David L. Edsall, Dr. Otto Folin, Dr. Augustus H. Gill, and others. In the absence of authoritative statements rebutting this overwhelming array of evidence against the use of flour bleached with nitrogen peroxide, it would seem that the health of the people demands the abandonment of the process. The slightly creamy colour of unbleached flour is certainly more appetising than the bluish-whiteness of bleached flour, and the loss of odour and taste as a result of bleaching are sufficient objections to the process, even without taking into consideration the probable deleterious action of the nitrites on the system.

THE King has been pleased to become Patron of King Edward's Hospital Fund for London. His Majesty has, on the recommendation of the Lord Chancellor, the Prime Minister, and the Governor of the Bank of England, in accordance with the Act of Parliament, appointed as Governors of King Edward's Hospital Fund for London the following: H.S.H. the Duke of Teck, G.C.V.O., the Viscount Iveagh, K.P., and the Speaker of the House of Commons.

His Majesty has appointed His Serene Highness Prince Alexander of Teck to be Grand President of the League of Mercy, and Her Royal Highness Princess Alexander of Teck to be Lady Grand President of the League. His Majesty now becomes Patron of the League and Sovereign of the Order, and has intimated the continuance of his personal interest in its welfare.

THE annual meeting of the Association for the Oral Instruction of the Deaf and Dumb (11, Fitzroy-square, W.) will be held at the Portman Rooms, Baker-street, W., on Thursday next, July 14th, at 4 P.M., when a short illustration of the system will be given.

No meeting of the Obstetrical and Gynæcological Section of the Royal Society of Medicine will be held during July.

THE Education Committee of the London County Council on July 6th unanimously decided to ask the Home Secretary to receive a deputation whose object should be to urge the need for legislation to enable provision to be made for the care of sane epileptics on the lines recommended by the Royal Commission on the Feeble-minded.

INTERNATIONAL CONGRESS OF RADIOLOGY AND ELECTRICITY.—An International Congress of Radiology and Electricity will be held at Brussels on Sept. 15th, 16th, and 17th, which promises to be well attended and the proceedings of more than ordinary interest. A perusal of the programme shows that the physical side of the subjects included in the scope of the congress will receive a share of attention seldom attempted before, and the number of scientists whose work in this field has been of the greatest value that are taking an active part is quite remarkable. We may mention among others a paper by Sir J. J. Thomson on Positive Electricity; one by Professor Rutherford on The Radium Emanation. Turning to the medical section, we notice papers are promised by Dr. Haenisch and Dr. Köhler from Germany, from Dr. Béclère, Dr. Belot, Dr. Dominici, and Dr. Wickham from France, and Mr. C. Thurstan Holland and Dr. E. Reginald Morton from Great Britain. Further contributions are invited, and those wishing to participate should write to Professor E. Rutherford (President of the Committee for Great Britain and Ireland), Physical Laboratory, the University, Manchester, regarding communications for the physical sections, and for those relating to the biological and medical sections they should put themselves into communication with Mr. W. Deane Butcher (one of the secretaries of the committee), Holyrood, Ealing, W. The other secretary is Dr. W. Makower, University of Manchester. Intending members should, however, communicate directly with the general secretary, Dr. J. Daniel, 1, rue de la Prévôté, Brussels. It is of interest to note that the Brussels Exhibition will still be in progress, and that members of the Congress will be accorded free access to the exhibition on production of their membership card. The work of the Congress will be organised in three sections, the first dealing with terminology and radiometry, the second with physical science, and the third with biological sciences, with a sub-section for medical radiology. The following English scientists are members of the general committee: Sir W. Crookes, Sir W. Huggins, Sir O. Lodge, Sir W. Ramsay, Lord Rayleigh, and Professor Rutherford Schuster. We published a list of the presidents of the committees in each country in THE LANCET of Nov. 13th, 1909, p. 1449.

THE CONFERENCE AT EDINBURGH ON THE PREVENTION OF TUBERCULOSIS.

Annual Meeting of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Edinburgh, July 3rd.

THIS Conference forms a new departure, for the annual meetings of the National Association for the Prevention of Tuberculosis have hitherto been held in London. It was felt, however, that the work of propagandism would best be served by visiting different towns, a practice observed by most other congresses and conferences which depend on public support for ultimate success. In selecting such a place of meeting Edinburgh was naturally preferred, as the Edinburgh antituberculosis scheme is not only the most complete in theory, but, with the inauguration of the Royal Victoria Hospital Farm Colony at Springfield, which took place on Saturday, July 2nd, it may also be said to be complete in all the important details of practical application. Therefore the Conference meets at Edinburgh to celebrate this happy event and, incidentally, to congratulate its chief promoter, Dr. R. W. Philip. But before the actual business of the Conference was commenced a sort of skirmishing line was thrown forward to prepare the way and to awaken public attention. The real discussions were announced to begin on Monday, July 4th, but the tuberculosis exhibition was opened on Friday, the 1st, and several lectures were delivered on Saturday morning, the 2nd. Then 600 invitations were issued to assist at the inauguration of the Farm Colony in the afternoon. Even the Sunday was utilised by holding a semi-religious meeting of University students who listened to an address from Professor Osler, Regius professor of medicine at the University of Oxford, on "Man's Redemption of Man."

The Annual Meeting of the Royal Hospital for Consumption, Edinburgh.

The Exhibition and the Conference are being held at Rainy Hall, where the annual meeting of the Royal Victoria Hospital for Consumption, Edinburgh, took place on Friday afternoon, under the presidency of Lord Provost BROWN, who congratulated Dr. Philip on the practically completed scheme for the treatment of tuberculosis in connexion with the Royal Victoria Hospital—a scheme upon which Dr. Philip had set his heart.

Opening of the Tuberculosis Exhibition.

After the meeting Her Excellency the Countess of ABERDEEN opened this exhibition, an honour which her ladyship supposed had been conferred on her because she had experience of the good done by similar exhibitions in Ireland. She, too, congratulated Dr. Philip and also his colleagues on the fruit of their labours during 20 years in combating tuberculosis. The first tuberculosis exhibition, she said, was held at the Dublin International Exhibition in 1907. Subsequently this show was divided into two exhibitions, one going north and the other south, and thus tuberculosis exhibitions were held in 80 different districts of Ireland. Not content with this, the Women's National Health Association of Ireland, under the guidance of their medical friends, had started travellings vans, and these had visited 223 places in Ireland, giving popular lectures and explaining how best to ward off the danger of tuberculosis. They were very proud indeed when they heard that at the Tuberculosis Congress in New York they had been awarded a prize of $1000 for the most effective work done by any voluntary association in the world. One of the results was that they had open windows all over Ireland now and the death-rate from tuberculosis had already fallen substantially. After Lady Aberdeen had declared the exhibition open, Sir ALEXANDER CHRISTISON and Sheriff CRAWFORD proposed the usual votes of thanks.

It is unnecessary to describe in detail the exhibition, which is similar to those which have been held in various parts of the country, and which have been from time to time

described in the columns of THE LANCET. The many interesting object-lessons with regard to the benefits to be derived from fresh air attracted a large number of visitors, the models and photographs of sanitary and insanitary buildings, the exhibits in connexion with milk-supply, and French gardening for consumptive patients creating great interest. The large sanatoriums were, of course, well represented. An exhibit which appealed to the more educated section of the visitors was a picture of a health temple in Greece *circ.* 400 B.C., and a work by Galen, in which that celebrated physician recommends milk mixed with honey and the Egyptian climate as remedial measures. The pathological section, though not attracting so many visitors, no doubt served a useful purpose.

Professor E. J. McWeeney on the Prevention of Tuberculosis.

On Friday evening the first of the series of popular lectures was delivered by Professor MCWEENEY of Dublin at the New College Buildings. He first insisted on the debt we all owed to Villemin, who in 1865 proved that tuberculosis was infectious, and secondly to the late Robert Koch, who discovered the micro-organism of infection. He compared tubercles to the bites of insects which deposited their eggs in plants and produced the swellings called "galls," and explained how easily the disease was spread by careless people. While recognising that there was a difference of opinion, he thought children ran a great risk when they drank milk from cows with tuberculous udders. Such cows should be eliminated from the milk-supply. Professor McWeeney concluded by insisting on the necessity of popular education on these prophylactic questions.

"Tuberculosis Morning" in the Edinburgh Schools.

On the Saturday morning no less than six lectures were delivered in six different schools for the purpose of teaching both teachers and pupils what all should know in regard to tuberculosis. Thus, at the Broughton School, Professor MCWEENEY held forth once again, explaining in simple language the etiology and development of the disease and insisting that it was quite as much a social as a medical problem.

At the Boroughmuir Higher Grade School Dr. Arthur Latham was announced to lecture; but, being detained, was replaced by the Countess of ABERDEEN, who insisted on the virtues of deep breathing, oatmeal porridge, and tooth-brushes, and advocated a crusade against flies. On all sides we were to proclaim that consumption was preventable, and it was the duty of thinking persons to take a full part in every international effort to banish the disease from the world.

Professor G. SIMS WOODHEAD at the Royal High School pointed out that the prevalence of tuberculosis had already been reduced by one half. It was a disease of poverty, bad housing, bad feeding, bad air, dirt, and certain dangerous trades. Of the latter, those who worked in public-houses suffered the most, but a medical man could not alter the customs and constitution of a public-house. The chairman of the public health committee of Edinburgh could do far more than the members of the medical profession. If in 50 years tuberculosis had been reduced by half there was no reason why, if the public supported the profession, the disease should not be eradicated altogether in another 50 years. For this it was necessary to spend some money, as special schools, special hospitals, and the money to take the sufferers away from their work were required. Great social reforms were costly.

Dr. A. CHARLES GRAY lectured at the Drummond-street School, and having proclaimed himself an Edinburgh man congratulated his own city on having the most complete plan for dealing with consumption of any town in the world. In London in one year more people died from tuberculosis than were killed during the whole of the South African war. In dealing with the whole question at issue Dr. Gray made a special point of denouncing the disgusting and dangerous habit of spitting in the streets and public places.

At the Bruntsfield School Dr. J. E. SQUIRE gave in a popular manner an account of the origin and treatment of the disease, saying that if medical advice was obeyed the disease could be stamped out in a generation. He described the attack by the germs upon the body cells, and said that the cells, to repel them, must be kept in sound health by proper food, fresh air, exercise, and cleanliness; then the cells would be able to defeat and to destroy the invading germs of tuberculosis. It was also necessary to know where these germs originated so as to reduce the frequency of such invasions. In answer to a question, Dr. Squire said it was not necessary to exclude children with swollen glands from school if there was no discharge.

Dr. JANE WALKER spoke at the Flora Stevenson School, addressing an audience of girls and boys. Mr. CUNNINGHAM, a member of the school board, presided, and explained that sanitation and health questions were taught in all the schools, though he readily recognised that such teaching was as yet inadequate. Dr. Walker, among other matters, insisted on the necessity of good cooking and good teeth. Dirt, darkness, dust, and drunkenness were the foes which, in common with the other speakers, the lecturer energetically denounced.

Thus, commencing with six of the principal schools of Edinburgh, has the work of popular education begun. Such instruction is one of the chief objects of the Conference, and it will be seen that it has been pursued with energy before the Conference commenced its official sittings.

Inauguration of the Royal Victoria Hospital Farm Colony at Springfield.

On the afternoon of Saturday two special and closely packed trains took many hundred people to the station of Polton, about half an hour's ride from Edinburgh. Here we slowly ascended a wooded hill well away from town and smoke. At the summit there was a delightful manor house, and on the luxuriant grass of the lawn several tents were pitched, the largest of which was to serve for the inaugural meeting of the supporters of the Royal Victoria Hospital Farm Colony; the others served the needs of the guests of the hospital at a garden party. Sir ALEXANDER CHRISTISON presided over the meeting, and Sir GEORGE M'CRAE spoke on behalf of the Scotch Local Government Board. He gave a short history of what had been done, how Dr. Philip began first by establishing his base, which was the Lauriston Dispensary. Then came the hospital and sanatorium, great institutions for finding out the weak points in our social system. As a result of so many efforts the number of deaths from tuberculosis in Scotland had fallen from 6800 in 1906 to 5700 in 1909. In 1906 not a single Scotch municipality had established compulsory notification of tuberculosis, but at present notification was obligatory for practically half the population of Scotland. Sir George M'Crae was warm in his congratulations of Dr. Philip and those who had been associated with him in his great work. The results were likely, he thought, to prove stupendous—it was not possible to apply a limit to them.

The duty of declaring the farm colony open devolved upon Lady Dunedin, who explained that this was the first farm colony in Scotland and the finishing touch of the Edinburgh scheme for fighting tuberculosis. The complete work was an achievement for which no praise could be too warm. Lady Dunedin, after echoing the numerous congratulations to Dr. Philip, went on to say that much was also due to Miss Guy and her staff at the Victoria Hospital for their management of the patients. After a few more felicitous compliments she declared the Springfield Farm Colony open.

The object of this farm is to provide for patients from the Royal Victoria Hospital for Consumption an opportunity of going through a hardening process before they return to their usual life and occupations. The farm outdoor work is for those who are considered to be cured and is organised to prevent a relapse. The patients have gained weight at the hospital, now, in popular phrase, this has to be converted into muscle. The patients are set to work, but, unlike work under commercial conditions, they only work gradually, commencing with the lighter tasks. I need not, however, describe to medical readers the routine of graduated labour. Dr. Macpherson, who in is charge, sees that by working hope is encouraged but that none work too hard. The general verdict is that the patients work better and more willingly than the ordinary paid labourer. The farm overlooks the valley of the river Esk. There is beautiful scenery on all sides and much fine timber. It is situated 280 feet above the sea level and has a most productive soil. The farm has 50 acres of land where all sorts of vegetables and fruit can be grown, and these are

supplied to the Victoria Hospital, so that the patients who are ill eat the vegetables grown by the patients who have been cured. Then, poultry are kept here and the patients will thus not depend on the trade for fresh eggs. They will have their own bacon also, for there is to be a piggery. Though only just formally inaugurated, there have been patients on the farm since last February, so that it is already possible to see how well the scheme works. Certainly the many hundred visitors who assisted at the inauguration ceremony were highly gratified by what they saw, and fortunately the beauty of the scenery, the fine old trees, and numerous flowers were illuminated by the rare advantage of a little sunshine.

MONDAY, JULY 4TH.

The Conference commenced its work in real earnest this morning at 10 o'clock, but the method of procedure adopted is one that does not, in the opinion of many thoughtful persons, make for the progress of science very quickly. The real advantage of conferences should be that subjects can be thoughtfully and thoroughly discussed. The idea probably was that a paper upon some aspect of the prevention of tuberculosis should be read to introduce the subject and then discussion would follow. Thus this morning Dr. Sims Woodhead opened the discussion on the Avenues of Infection. He spoke to a large extent extemporarily, and discussion might advantageously have ensued. But other authorities had written out papers, and it was felt that the taking of so much trouble merited the reward of a hearing. Thereupon first one paper and then another, all of which certainly dealt with the question at issue, were read; but the papers had no definite connexion or sequence, and when they had all been read there remained in the morning but a few minutes for discussion. At the afternoon sitting the position was worse still, for the papers could not be read in the allotted time, and though the meeting was prolonged beyond the hour fixed for closure, still there was no time for discussion, and any attempt to hold a debate before the much attenuated audience at such a late hour would have been quite futile. Dr. Hermann M. Biggs of New York opened what should have been a discussion on the Preventive Measures and the Administrative Controls of Tuberculosis by describing what had been done in New York. But the foreign delegates who attended the International Congress on Tuberculosis held at Washington in 1908 heard and saw a good deal of this work, and many then declared that but few European countries could tolerate such autocratic modes of procedure. The patients were isolated by force, while rigour was shown towards the speculators who built the "death traps" or "death block" where 360,000 rooms have no windows giving on to the outer air. These are serious matters and the light of discussion was much needed. Again the death-rate from tuberculosis has been reduced in New York, but a large part of the population is composed of newly arrived immigrants and no one with the slightest trace of tuberculosis is allowed to land in America. In no other part of the world is the population thus specially selected. These are points with which Dr. Hermann M. Biggs is thoroughly familiar and could have handled to the confusion probably of his critics had there been time to put questions and to elicit discussion. On the other hand, all the papers that were read were interesting and instructive, and I hope to describe those of them in detail for which the necessary space for publishing at length cannot be found, when the meetings of the conference are concluded.

The principal papers on Monday were the Administrative Control of Pulmonary Phthisis, by Dr. W. Leslie Mackenzie, member of the Local Government Board of Scotland; Dr. Hermann Biggs's and Professor Sims Woodhead's paper, to which I have alluded; Pulmonary Tuberculosis as a Problem of Administration, by Dr. A. K. Chalmers, medical officer of health of Glasgow; Preventive Measures and Administrative Control, two papers with the same object, by Dr. E. W. Hope, medical officer of health of Liverpool, and Dr. H. Scurfield, medical officer of health of Sheffield.

TUESDAY, JULY 5TH.

The second day of the Conference proper proved more interesting and more practically successful than the first day. There was more time for discussion and at least one important decision was arrived at.

The Frequency of Tuberculosis in Childhood.

PRIV. DOZ. DR. FRANZ HAMBURGER (Vienna) was the author of the following address in opening a discussion on the Incidence of Tuberculosis in Childhood, in the morning, the paper being read by Dr. Philip. Dr. Hamburger wrote:—In conjunction with R. Monti I have endeavoured by extensive investigation to determine the incidence of tuberculosis among the children of Vienna. We adopted the method of examining only children who were suffering from acute infectious diseases (scarlet fever and diphtheria). In this way we obtained material which represented fairly accurately the real state of child life in Vienna. All the children were first tested by Pirquet's cutaneous reaction. Those reacting negatively were, after two days, subjected to a subcutaneous tuberculin injection of 1 milligramme. Those of the children who showed a distinct inflammatory reaction at the injection point of at least three days' duration were looked upon as tuberculous, as well as those showing a positive reaction. Monti and I found that out of 532 patients suffering from diphtheria or scarlet fever 271 reacted positively—that is, about 50 per cent.

Out of	23	children	in the	1st	year	0	reacted =	0 per cent.
,,	46	,,	,,	2nd	,,	4	,, =	9 ,,
,,	56	,,	,,	3rd	,,	11	,, =	20 ,,
,,	75	,,	,,	4th	,,	24	,, =	32 ,,
,,	50	,,	,,	5th	,,	26	,, =	52 ,,
,,	63	,,	,,	6th	,,	32	,, =	51 ,,
,,	46	,,	,,	7th	,,	28	,, =	61 ,,
,,	30	,,	,,	8th	,,	22	,, =	73 ,,
,,	35	,,	,,	9th	,,	25	,, =	71 ,,
,,	26	,,	,,	10th	,,	22	,, =	85 ,,
,,	29	,,	,,	11th	,,	27	,, =	93 ,,
,,	19	,,	,,	12th	,,	18	,, =	95 ,,
,,	17	,,	,,	13th	,,	16	,, =	94 ,,
,,	17	,,	,,	14th	,,	16	,, =	94 ,,

These results show how the frequency of tuberculosis in childhood increases from year to year.[1] When childhood is divided into six periods the following percentages with regard to the frequency of the disease are obtained: (1) First year,[2] 2 per cent.; (2) second year, 9 per cent.; (3) third to fourth year, 27 per cent.; (4) fifth to sixth year, 51 per cent.; (5) seventh to tenth year, 71 per cent.; and (6) eleventh to fourteenth year, 94 per cent. It follows that nearly all persons in Vienna of over 14 years of age are already "tuberculous"! This fact appears extraordinary and almost incredible. It is only appreciated when we investigate the fact further, and consider that tuberculosis in childhood is a relatively *harmless* disease. The tuberculosis runs its course commonly without giving any symptoms of disease. This explains the fact why so many children give a positive tuberculin reaction without at the same time developing any stronger symptoms of disease. It can even be said that the majority of children who are only affected by tuberculosis after the fifth or sixth year show no signs, or at least very few signs, of disease. This is the result of the constant increase of the frequency of tuberculosis on the one hand and the decrease of the tuberculous morbidity with increasing age on the other. This is further demonstrated by Pollak's clinical observations. It must be fully understood that tuberculous infection and tuberculous morbidity are two conceptions which it is difficult to separate. While in the first and also in the second year the majority of children infected with tuberculosis give also clinical manifestations of disease, older children overcome the primary tuberculous infection, the more probably the older they are at the time of the infection, without giving stronger symptoms of disease. The prognosis of tuberculosis developed in the several years becomes better from year to year. According to an approximate calculation the mortality from fresh tuberculosis in the several periods is as follows: (1) First year, 70 per cent.; (2) second year, 10 per cent.; (3) third to fourth year, 7 per cent.; (4) fifth to sixth year, 2 per cent.; (5) seventh to tenth year, 2 per cent.; and (6) eleventh to fourteenth year, 1 per cent. It is therefore clear that tuberculous morbidity decreases from year to year, although the incidence of tuberculous infection increases from year to year. The statistics regarding the incidence of tuberculosis among the children of Vienna by means of tuberculin reaction are confirmed by post-mortem results in recent years. Since the necropsy of children of over 6 years has been made with special attention

[1] The percentage for the first year is not reliable because the number of children examined (23) is too small. The real incidence of tuberculosis in this age, according to Sperk, is about 2 per cent.

[2] Corrected figure according to Sperk.

to the probable existence of a tuberculous focus, an almost equally great frequency of tuberculosis in Vienna has been determined by necropsy as by the tuberculin test on the living patient. If in former years the statistics obtained by necropsy as to the incidence were much lower, this is explained by the fact that the examination was not sufficiently searching. It must be specially emphasised that the figures obtained by Monti and myself refer only to the poorer population of Vienna. Probably in the wealthier population a much lower percentage of positive tuberculin reaction would be obtained than is the case in the poorer classes. In the case of the well-to-do, open pulmonary tuberculosis—the only source of tuberculosis in childhood—is not only much more rare than in the case of the poor, but the wealthy protect themselves much more carefully from every infection. The question now is whether the figures obtained by Monti and myself in Vienna are applicable to other towns as well. I think they are. If Ganghofer obtained lower figures in Prague than Monti and myself in Vienna, this is explained by the fact that the cutaneous reaction does not reveal all tuberculosis. The "Stich" reaction—that is, the local subcutaneous reaction—must also be employed if every case of tuberculosis is to be detected. That the frequency of tuberculosis is approximately as great in other large towns as in Vienna is supported by a recent publication by Nothmann, who gives almost the same figures for Düsseldorf as Monti and myself for Vienna. One can assume the same figures with regard to the incidence of tuberculosis in childhood in all the larger towns as I now present in regard to Vienna. In the country the incidence is probably rather less, and above all, more irregular, than in the town. Since the majority of persons develop tuberculosis already in childhood we cannot be surprised that tuberculous symptoms are so common in childhood. Indeed, tuberculosis in children usually offers very different symptoms from those of adults. In conclusion, let it be stated that tuberculosis very commonly is latent without any symptoms of disease. Especially is this so if the infection dates from the third to fourth year. Conclusions: 1. The majority of persons become infected by tuberculosis in childhood. 2. The frequency of tuberculous infection increases from year to year, while tuberculous morbidity—that is, the frequency of manifest tuberculous disease—decreases from year to year. 3. The prognosis of tuberculosis in childhood becomes more favourable the older the person is at the time of the first infection.

A debate followed on this paper, the discussion revealing the comparative frequency of abdominal tuberculosis among children. It appeared that this frequency was very marked in Edinburgh and Glasgow, but was dependent upon bad milk-supply and not bad air, as cases were cited where town-bred children had derived tuberculosis while in the country from drinking tainted milk warm from the cow.

The Working Man in Relation to Tuberculosis.

In the afternoon this subject was opened for discussion by Mr. C. H. Garland, who thought that neither the machinery of the Poor-law which failed in the direction of prevention, nor any insurance agencies as yet active, nor the existing voluntary organisations met the difficulties. He forecast State interference.

A resolution was then moved by Dr. CHALMERS to the effect that this council of the National Association for the Prevention of Tuberculosis, seeing the enormous cost of any effective action, should urge upon the Government the desirability of considering a general scheme of insurance against this disease. An amendment was brought forward by Dr. MCVAIL, not in opposition to the principle of State intervention or compulsory insurance, but against special legislature for tuberculosis. The amendment proposed to give a prominent place to the prevention of tuberculosis in the scheme actually promised by the Government of insurance against invalidity and unemployment. A considerable number of votes were given both in favour of the original motion and the amendment, but the latter was carried. The Conference was unanimous as to the issue, the only difference being whether the desired legislature should be part of a general scheme or a law dealing only with tuberculosis. Professor OSLER, in winding up the Conference, said that it had succeeded in its purpose, had awakened public attention, excited enthusiasm, while the attendance had been good.

So far as could be ascertained there were about 300 persons present at the meetings, consisting of members of the association against tuberculosis, of delegates from the public bodies, friendly societies, and other organisations interested in the question. The museum on tuberculosis remains open for the rest of the week and there are to be popular lectures every evening.

I understand that the Council of the Royal College of Physicians of Edinburgh has awarded the Victoria Jubilee Cullen Prize, which is conferred every fourth year for meritorious work in medical science, to Dr. Philip for his investigations and work in connexion with tuberculosis.

THE PROHIBITION OF THE USE OF UNWASHED FLOCK FOR BEDDING.

DEPUTATION TO MR. BURNS.

A DEPUTATION representing the Manufacturers' Association of Great Britain, the London and Bristol centres of the Furnishers Chambers of Trade, and various bedding and flock manufacturers, was received by Mr. Burns with Mr. Herbert Lewis, M.P., at the Local Government Board on June 29th. Among the gentlemen present were: Mr. T. R. Freeman, Mr. Ben H. Morgan, Mr. Peter Fyfe, Mr. H. E. Kershaw, Mr. Maggs, Mr. Midwood, Mr. Nicoll, Mr. J. Osborne, Mr. Weaver, Mr. F. Wookey, J.P., Mr. Adolphe Smith, representing THE LANCET, and others.

Sir JOHN BARLOW, introducing the deputation, said this was a subject in which he had taken great interest. He had been very much impressed with the difference in flock before and after it had been cleansed. He pointed out that, so far as could be ascertained, the trade was unanimous in its desire for legislation of the kind which the deputation would ask for.

Mr. T. R. FREEMAN said that the deputation had been called together by the Manufacturers' Association of Great Britain. The movement for legislation to compel the washing of rag flock was not a new one, since the agitation had originated as far back as 1902. He referred to the report recently made by Dr. R. A. Farrar of the Local Government Board on the manufacture and sale of unwashed rag flock, which effectively supported the agitation which had been going on for so many years. He did not think that the requirements of such a Bill as they were asking for would impose any hardship on manufacturers, furniture and bedding makers, or the public generally. It might raise the selling price of the commoner classes of goods, but not sufficiently to cause any hardship. The importation of unwashed rag flock should not, of course, be permitted. The question had been taken up from the point of view of public health by many corporations and public bodies. Amongst those who had passed resolutions on the subject were the Glasgow corporation, the Brentford urban district council, the Bristol corporation, the Bath corporation, and the Hereford corporation. Other public bodies, amongst whom were the Portsmouth town council, the Devonport sanitary committee, and the Crewe corporation, had expressed themselves in favour of the movement for legislation to prohibit the sale of unwashed rag flocks for the making of beds, &c. He would like to mention that the press had taken the matter up very strongly, more especially the medical press. He did not think that any opposition to the proposed measures would be forthcoming from any section of manufacturers of rag flock.

Mr. BURNS asked to what extent Mr. Freeman was justified in saying that the trade was unanimous.

Mr. FREEMAN replied that they did not in that statement include the cotton flock manufacturers of Lancashire, because their goods hardly came under the heading of rag flock.

Mr. BURNS said that he had in his hand a letter from a gentleman who said he had been 30 years in the trade and had never had so much as a day's illness, although he was handling these flocks every day of his life. The writer was of opinion that this agitation was for legislation of the grandmotherly type. He admitted that if all the flock makers were compelled to wash their rags it would mean an improvement in the cleanliness of the mattresses, but at the same time it would increase the cost 50 per cent., and as this material was only used for making up articles for the poorer classes the extra cost as a hardship to them should be taken into consideration. He had thought it better to let Mr. Burns know

that there were two opinions upon this subject, although the deputation might appear to be unanimous.

Mr. WEAVER said he was not a rag flock manufacturer; he bought immediately from the manufacturers and made beds for local distribution. He would very much like something to be done for the purification of common flock. He had not bought any but washed flock for a good many years, and he had not lost thereby.

Mr. MAGGS said that his firm employed upwards of 100 men in the manufacture and remaking of bedding; they never used anything but washed flock. The difficulty they laboured under was that whereas they had to ask from 12*s.* to 14*s.* for a mattress, those using the unwashed flock could undersell them to the extent of 2*s.* or 2*s.* 6*d.* Many people besides the very poor seemed to think that cleanliness in bedding did not matter as it was out of sight. He could vouch for the absolute accuracy of the state of things described in Dr. Farrar's report. He believed it could be obviated if the Bill they asked for were passed into law.

Another speaker said he had pleasure in substantiating the report of Dr. Farrar and the articles that had appeared in THE LANCET.[1] His family had been in the trade for more than 100 years.

Mr. NICOLL (of Messrs. Atkinson and Co., London) said they were users of rag flock; they had never gone in for the inferior bedding that was so much complained of, although they had had it sent to them to be remade; they had in many instances found the material positively unfit to be reworked and had destroyed it. A mattress could be made up with clean new flock at a cost of only 2*s.* or 3*s.* more than with unwashed flock.

Mr. PETER FYFE said the report of Dr. Farrar stated very clearly that the extra cost of clean as compared with dirty flock was from 1*s.* 8*d.* to 2*s.* 6*d.* per bed, and that manufacturers had agreed that 2*s.* was about the average extra cost. He drew attention also to the fact that food was often stored in the same room as that in which the bed was kept, and that milk, broth, and foodstuffs of that kind were liable to gross contamination in houses where beds containing dirty flock were in use. He described some experiments which had been carried out in Glasgow, and which proved that the making of the beds caused a great deal of dust containing bacteria to be deposited in milk standing in the rooms in which the beds were made.

A flock manufacturer of 40 years' experience, who "knew as much about rags as most people," corroborated Dr. Farrrar's report. Nowadays anything that would go through a tearing machine was put into beds. He had put up washing machinery at a large expense, but it was standing idle; the trade refused to pay for washing and he could not afford to do it for nothing. He considered the trade was in a worse state than ever before and that manufacturers wanted protection against themselves.

Mr. F. WOOKEY (Dublin) said the leading bedding manufacturers in Ireland were totally in accord with the views put forward by the deputation.

Mr. MORETON (Glasgow) said the health committee of the corporation was very anxious that something should be done to prevent the use of filthy material for beds.

Mr. ADOLPHE SMITH said the washing of the flock would not advance the price of a bed more than it was now raised by fluctuations in the price of rags, so that the hardship to the poor would be no greater than they already suffered when rags were dear. He also drew attention to the fact that unwashed rags were frequently contaminated by human dejecta and often contained the specific germs of disease.

Mr. BURNS, in reply, said he was pleased to see so representative and unanimous a deputation. The past attitude of the Local Government Board had been to a great extent in accord with the general representations made as to the necessity of ensuring the cleanliness of rag-flock used for mattresses, pillows, &c. So far back as 1885 Dr. H. F. Parsons, on behalf of the Local Government Board, had gone into one aspect of this question and recently Dr. Farrar, at his special request, had made careful inquiry into the whole question and had submitted an admirable report upon it which was as strong as it was moderate and as moderate as it was forcible. He was very glad to know that both flock manufacturers and flock users endorsed Dr. Farrar's general findings, and he hoped they would regard this report as a general earnest of the desire of the Local Government Board to carry out the reasonable objects the deputation had in view. He wanted if possible to carry the trade with him in this matter, and he therefore noted with pleasure that the trade were practically unanimous. All the public health authorities were agreed that on sanitary and medical grounds, as well as on grounds of decency, a case had been made out either for legislative or administrative action. He had previously conveyed to Sir John Barlow his view that perhaps the shortest and simplest way to accomplish what was desired would be a Bill giving the Local Government Board power, such as it had in respect of public health matters, to make regulations to deal with this particular evil. Such regulations could be easily and quickly varied to meet changes in the trade, whilst any amendment of an Act of Parliament would involve considerable time and expense. But whether the matter was accomplished by a direct enactment or by regulations did not particularly concern them at the present moment, so long as the object they had in view was reasonably and practically carried out. In this matter other Departments, such as the Home Office and the Board of Trade, must be consulted, but so far as the Local Government Board were concerned he would frankly tell the deputation they were kicking at an open door. He believed that this was an evil which ought to be mitigated and perhaps abolished. He hoped that next year it might be possible to do something in the way of legislative and administrative action, but he was afraid this was as soon as action could reasonably be expected. At any rate, they might rely upon it that he would do all he could to give practical effect to what was reasonable in their demands as soon as opportunity presented itself.

[1] THE LANCET, Sept. 7th, 1907 (p. 727), and Jan. 23rd. 1909 (p. 280).

ANNUAL MEETING OF THE POOR-LAW MEDICAL OFFICERS' ASSOCIATION.

THE Poor-law Medical Officers' Association of England and Wales held its annual meeting in the council chamber in the town hall, Halifax, on July 1st. The President, Surgeon-General G. J. H. EVATT, C.B., occupied the chair, and amongst others accompanying him were Dr. Major Greenwood (London, secretary), Mr. A. A. Napper (Cranleigh, treasurer), Mr. J. Smith Whitaker (medical secretary of the British Medical Association), and Dr. A. Drury (local secretary). There were also present the Mayor and Mayoress (Alderman and Mrs. F. Whitley-Thomson), the Rev. Prebendary Burn, D.D., vicar of Halifax, the Ven. Archdeacon Norris, Dr. J. T. Neech (medical officer of health of Halifax), and many local medical practitioners.

The MAYOR, welcoming the Association, recognised the obligations which laymen were under to the medical profession, who were so self-sacrificing to the community and did such a great deal gratuitously to relieve the suffering of those less comfortably circumstanced. Among the medical profession none were more generous in that way than the Poor-law medical officers.

The PRESIDENT, replying, remarked that however much they might differ on the Poor-law Commission's Reports, the great principle they stood by was the value of human life. If they built on that rock they would not go astray.

The report, a copy of which bad been posted to each member, was approved, as also was the financial statement, submitted by Mr. Napper, showing a balance in hand of £153 2*s.* 4*d.* The retiring officers were re-elected. The secretary reported that an unfortunate accident the previous day prevented the attendance of Mr. D. B. Balding, of Royston, the oldest member of the association. He had dislocated bis arm.

Dr. MAJOR GREENWOOD read a paper on Poor-law Medical Reform: What it Should Aim At. He urged that the carrying out of the medical proposals of either the Majority or the Minority Reports of the Royal Commission would not only disintegrate their service but would bring about in addition ruinous changes in the whole profession of medicine.[1]

Dr. JOHN C. MCVAIL, next read a paper on

The Medical Profession and Poor-law Reform.

Poor-law reform, he remarked, was coming and would not be long delayed. The appointment of the Royal Commission was the result of anxious suspicion on the part of the thinking

[1] The paper was published in THE LANCET last week.

public that reform is necessary. The Commission's reports have proved that the anxiety was more than justified and the proof has quickly penetrated and permeated the national mind. The State is suffering seriously owing to the defective physical condition of many of its members. It is suffering both financially and morally, both nationally and internationally. The defects are to a large extent remediable, but remedy on wrong lines might bring in its train evils as serious as those which it is sought to remove. It is essential that the sense of individual and family responsibility and independence be maintained, and, where it has already lapsed, that it be restored. The State, whilst doing its own duty, must make it part of that duty to see that the individual does his. It is along this path that reform should travel. "You will agree with me," he said, "that the medical profession ought to be in the reform movement. It should be so as a matter of public duty: it should be so also in order to protect its own legitimate interests. If, in respect of the medical aspects of the question, the profession were to lag behind, if it were by any chance to forget for a brief time what we all recognise, that the patient is not made for the doctor but the doctor for the patient, that the public is not made for the profession but the profession for the public, then in the eyes of the world we would be discredited and condemned. Fortunately, reform, as it appears to me, does not require the sacrifice of the interests of medicine. On the contrary, any scheme worth the name will be bound to include a very great amelioration in the existing conditions of practice amongst the wage-earning and poorer classes. For the medical questions in respect of pauper and wage-earner are so related to each other that they cannot effectively be dealt with apart. The defects requiring to be remedied include those relating to (1) medical charities, (2) the Poor-law medical service, and (3) club and friendly society practice. The sufferers in each of these three classes include both the patients and the doctors.

"1. Under *Medical Charities*," said Dr. McVail, "the patients suffer by that insufficiency of attention which frequently it is alone practicable to give to individual cases in crowded dispensaries and outdoor departments of hospitals, by the fact that many cases are not dealt with from their beginning to their end, and by the moral deterioration which inevitably results from the acceptance of charity by persons who do not require it, but who are tempted to ask it because of the fact that it is so easily obtainable. The doctors suffer by the deprivation of fees which rightly belong to them and which they badly need, and by the sore and rankling knowledge of the injustice under which they labour.

2. The defects of the *Poor-law Medical Service* as they appear to this association were brought before the Royal Commission by Dr. Major Greenwood. The rubric of his Statement contains as its first item 'Inadequacy of salaries of Poor-law medical officers and dangers therefrom.' The dangers referred to are public dangers. As the Statement points out: 'If the Poor-law medical service is underpaid the sick poor will sooner or later suffer from the inadequacy of the salaries paid to the district medical officers in many parts of the country.' In this meeting it is unnecessary to labour that argument, nor do I require to quote from other parts of the Statement relating to such matters as unsuccessful applications made to boards of guardians for increased salaries, operation fees, midwifery fees, anæsthetists' fees, nor to the hardships which the district medical officers suffer from indiscriminate medical relief, nor to Dr. Greenwood's observations on the frequent failure of boards of guardians to act on a principle laid down by themselves. It is, indeed, easy to understand Dr. Greenwood's evidence that 'It has been the desire of the Poor-law medical service that they should come under some central authority rather than be, as it were, at the mercy of many boards of guardians.' The central authority here referred to is, of course, a Government authority. Any of you who may have read my own report to the Commission must know how strongly I hold that the present system is defective alike as regards the Poor-law medical officers and the poor themselves.

3. Concerning the third class of defects, those relating to *Club and Friendly Society Practice*, they are essentially similar, and need not be dilated on to this audience, many of whom must be acquainted with them by actual daily experience."

What was to be the nature of the reform and how was it to be achieved? A common policy beneficial to all and covering the whole field of reform was practicable if, laying aside what were wrongly believed to be group interests, the profession took united action towards its achievement. The policy was the establishment throughout the country of a system of medical provident institutions, open on the one hand to all medical men whose conduct did not render them unworthy of the service, and on the other hand to all the wage-earning and poorer classes.

"Having," said Dr. McVail, "well considered the details, the profession ought to adopt and organise such a system, as being the method under which any man belonging to the classes in question could, for himself and his dependents, be assured of medical attendance whenever it might be required. The terms and conditions would, of course, have to be reasonable, otherwise the whole machinery would remain inoperative. The necessary annual contributions would be made either directly by the beneficiaries, or partly or wholly by others, who might be private individuals, or charitable organisations, or public authorities. All who make whole or partial contribution on their own account would have a choice of doctor, but if the contribution were wholly by a public authority then it, and not the beneficiary, would have the choice. Unless the State were to make a definite offer to contribute, the scheme would have to be organised by the medical profession. There would be a central committee in general control, but local committees would have a very large measure of autonomy, as details would have to vary according to circumstances. If there were a State subsidy, paid out of either rates or taxes, then the State would have a share in the management. As regards the amount of annual contribution required on behalf of each insured person the decision would be with the local medical committee, subject to central approval, the organised medical men being simply in the position of stating to the public on what terms they would provide attendance through the institution. Age at entry would be one factor in deciding the amount, the condition of health would be another. Any special or additional services would have to be the subject of special additional payment. In my view parents ought not, as a general rule, to be allowed to select only certain of their children for entry; all up to a given age should be included, but this might be subject to exceptions according to circumstances. There would be a wage-limit varying to some extent according to the number and earnings of a man's family. To prevent illegitimate competition for patients by the excessive prescription of needless bottles of medicine all medicines should be supplied at wholesale price from a dispensary belonging to the institution and should be paid for by the patient. Doctors guilty of touting or unethical conduct would be liable to expulsion by the committees. An important question is, How will a poor labourer be able to pay the contributions for himself and his family? The answer is two-fold. Private benevolence and organised charity would find a much better field in paying part, or occasionally the whole, of such contributions as are required for a man's wife and children, than in subscribing to charitable dispensaries which are so largely abused by the comparatively well-to-do. And as regards the labourer himself, there is every prospect of the early establishment of a great national scheme of invalidity insurance, under which contributions would be made partly by the State, partly by the employer, and partly by the workman. In my own view, indeed, the contribution of the State ought to extend not merely to the workman but to his wife and family. The country should bear some share of the burden in the interests of national health, but the individual should also bear a share in the interests of personal and family health. There should be mutual outlay for mutual benefit, and the results would include diminution of chronic pauperism due to ill-health, so that the State would be remunerated in this as well as in other directions for its expenditure."

Dr. McVail continued his interesting paper as follows: "What now are the medical objections which have been raised to such a scheme? I can only refer to a few of them. 1. There is the financial question. It is urged that if the scheme were largely adopted, the loss of private practice amongst the poorer classes sustained by medical men would be greater than their gain in provident institution practice. The reply is that that would altogether depend on the terms

of the service, and these terms would be fixed by the profession itself. Naturally the charges would not be so high as to debar entrants desirous of obtaining the benefits of the system. But neither ought they to be so low as to result in loss to the doctors. Fundamentally the scheme should be not charitable but provident. It is to promote insurance against the serious liability to illness involving heavy costs for medical attendance. It is to prevent the patient from being harassed in sickness and hampered in convalescence by the fear of doctor's bills. It is to prevent the doctor from being worried in mind and crippled in means by bad debts or long-delayed payments. A properly adjusted scheme would pay both doctors and patients. If it were to fail as regards the former it would be the profession's own fault in not fixing a reasonable scale of payment. Common sense would determine in each locality what the charges should be and how they should be levied. Of course, a man who in any year had an excessive amount of illness in his home would pay less than if he had not been insured, and the doctor would have got more from him as a private patient. But that is of the very essence of the scheme. All the gain is not to go to the doctor nor all the loss to the patient. Please let me insist on your realising the essential distinction between charity and insurance. A fire or life insurance society is a valuable organisation, but it is not a charity. It is valuable both to the proprietors or shareholders and to the insured. The latter are protected from a danger against which they cannot guard by personal savings, a danger which might ruin them, and they get a financial security and a mental ease which are more than worth the money. At the same time the proprietors or shareholders receive interest on their investment. There is no charity on either side, but the arrangement pays both. That is what should be aimed at by medical provident institutions, and the medical profession have just the same right to fix their terms as the insurance society have. In fixing these terms let me say again that it will not profit them to charge either too much or too little, as in the one case they will drive away custom and in the other they will punish themselves. 2. It has been alleged that the scheme would involve a great increase in gratuitous medical work. That is, perhaps, the most surprising of all the charges that have been made against it. One of its main objects would be to minimise such work, and I believe it is calculated to effect that end. It will always be open to the medical man to exercise voluntary charity towards the needy and unfortunate whose condition may appeal to his sympathies, but the scheme ought to cause a very great diminntion in the involuntary gratuitons work done by the exploitation of the services of medical men in public dispensaries and in the semi-gratuitous work done for friendly societies and clubs. 3. The scheme has been denounced as equivalent to a great extension of contract practice. But in that connexion I beg you not to be led away by mere words. In the House of Commons Mr. Balfour and Mr. Asquith heartily agreed in denonncing labelling as counterfeit coin for reasoning. Contract practice is good, bad, or indifferent according to circnmstances; in fact, it has been mainly bad, because of individual bargaining, say between the doctor and the club, or the doctor and the guardians, or between the doctor and the provident dispensary under lay management. And such contract practice will go on indefinitely unless the medical profession unite to stop it.

These remarks on contract practice bring me to the question which must specially interest this association—namely, the relation of such medical provident institutions to the existing Poor-law service. Of the ten questions submitted to yon by the council the fifth was, 'Are you in favour of a Public Assistance Medical Service based on provident dispensaries, dispensaries subsidised by the State, and contract practice generally?' And by an overwhelming majority—by 83 per cent. to 12 per cent.—you have replied in the negative. If this decision were irrevocable further discussion would be unavailing so far as the Poor Law Medical Officers' Association is concerned, but as it still requires confirmation I would venture to urge on your attention the view that Poor-law practice could be improved by being conducted through the medium of medical provident institutions. And in the first place, as regards safegnarding the interests of the existing district medical officers, it is to me inconceivable that the profession as a whole would approve of any scheme which did not fnlly protect the 3500 doctors who are already engaged in district work. If local Poor-law bodies, whatever they may be, were to enrol in the provident institutions all paupers on their permanent lists they would still employ the present district medical officers, not directly, but through the institntions. As the generation gradually dies out each local authority would exercise its judgment as to appointing a single successor or from time to time making a choice from the list as they might deem best. Security of tenure of the present officers would, under any just scheme, in no way be affected.

Looking to the exact terms of the question submitted to you ('Are you in favour of a Public Assistance Medical Service based on provident dispensaries subsidised by the State, and contract practice generally?') I trust the Council will not think me trespassing on their courtesy if I suggest that the last four words 'and contract practice generally' seem to me rather to tend to confuse the issue. Give a dog a bad name and you may as well drown him. Contract practice has, under bad conditions, obtained a bad name and the reference to it in the question may possibly have prejudiced the answer. Also, I am not quite clear how the question as it stands is to be construed. Is it to be read as referring to 'a Public Assistance Medical Service based on provident dispensaries subsidised by the State and based also on contract practice generally'? If so, how could it be based on both at once? The State contribution would be precise in amount, and the whole contract would be not general but perfectly specific. Or, if the objection is to 'a Public Medical Service based on contract practice generally,' is not every one of you already paid by contract with the guardians, the contract being an annual salary for your work? If so, the choice would be between two sorts of contract whose comparative merits would depend on their terms. And the doctors themselves would manifestly have a much greater say in fixing terms under a medical provident system than they have in individual negotiation with the guardians. You yonrselves know, and have complained to the Royal Commission of your difficulties on that score. As a third alternative it seems out of the question to suggest that there are two separate queries under the one heading: (*a*) Are you in favour of a Public Assistance Medical Service based on provident dispensaries subsidised by the State? and (*b*) Are you in favour of contract practice generally? If that were so then the two queries would, of course, have to be put separately. Anyhow, it does seem possible that if the question had ended without including its last four words the majority might have been less than 83 to 12. Next, I trnst I will be pardoned for commenting on part of the council's fifth resolution:—

> That the medical treatment of paupers, or State patients, by provident institutions is strongly to be condemned. That what is done for the State should be paid for by the State *at an equitable rate*. That the payments accepted at provident dispensaries in order to encourage individual thrift cannot form any sound basis for State payment for the medical charge of the destitute.

No one will deny the axiomatic statement 'that what is done for the State should be paid for by the State *at an equitable rate*.' Manifestly, it ought to; but why assume that the State would not contribute equitably? If it is replied that present State payment to the Poor-law Medical Service is inequitable, then that is a reason against the present system but not against any other. Nor is it justifiable to assume that the payments now accepted at provident dispensaries will be accepted under any new scheme. That is the very argument which has been nsed against a medical provident system applied to the wage-earning classes independently of the Poor-law. It has been urged that club practice is bad—that doctors are sweated and patients sometimes neglected, and therefore it is alleged, provident dispensaries are not the remedy. But, once more, it is for the profession to determine on what terms it would insure people under a new system. Another assumption in the resolution is that under the suggested scheme there wonld be no difference in the charges for ordinary members and for paupers. But both age and health would be considered in the case of every ordinary applicant, and the same principle would apply to paupers. They would often be paupers because of their ill-health, and manifestly these could not be accepted as healthy. If in addition to ordinary medical attendance the State were to wish, as I personally trust would be the case, periodical medical inspection independently of illness, that work would have to be

paid for. And if the local Poor-law authority were to insist on the absurd amount of clerical work which the district medical officer is at present called on to perform, that also would have to be thought of in fixing the terms as compared with cases involving no such duty."

Referring to one of the motions of the council of the Association, to be placed before the meeting as a resolution, he observed how well it would be fulfilled under a medical provident scheme. The council are of opinion, according to the resolution—

That a system of "part time" is better for the interests of the sick poor. That it is better for the latter to be attended by the same doctors as the rest of the community, rather than by officials appointed to attend only on the poor.

"Manifestly," said Dr. MacVail, "that would be exactly the effect of the system which I have been advocating. I think that the answers to Question 5 and the resolution giving effect to these answers are based on serious misconception. I am most sorry to disagree with you. It would be much easier and pleasanter to concur or be silent, but you have asked me to address you and I am bound to express what I so strongly believe. To do otherwise would be unjust both to yourselves and to me. The fundamental importance of union on the part of the medical profession in respect of this great subject is manifest, and I ask you to pause before committing yourselves to the resolution. My time is exhausted and there are many important points which it has been impossible even to mention, but no doubt these will be brought forward in the course of discussion.

In this morning's newspapers I read the important announcement by the Chancellor of the Exchequer that he hopes next year to introduce a great scheme of invalidity insurance, to apply to 13,000,000 of male and female workers, or well on to a third of the total population of the United Kingdom. Contract practice on a very large scale appears to be coming, whether you like it or not. The question is, Will the profession be prepared to meet this crisis by having an organised and reasonable scheme of medical insurance ready to be submitted to the Government when the time comes, or will each section take its own course and throw the Government's scheme into the hands of the sick clubs as being the only bodies in a position to deal practically with the new problem? If the latter, then the last state of the general practitioner will be worse than the first."

Discussion on both papers was then invited. On the agenda were seven resolutions, all bearing on the subject of Poor-law reform, and founded on the answers sent to the council of the Association by their members. It was decided to take them separately.

Dr. GREENWOOD proposed the first, which was in the following terms:—

That it is not desirable that there should be a "break up" of the present Poor-law system; that proper reform of existing institutions would be better for the welfare of the sick poor and the good of the nation.

Mr. DRURY formally seconded.

Mr. SMITH WHITAKER remarked that in dealing with this matter there were three sets of questions to consider: (1) the question of the actual terms of employment of the existing officer or any officer of the future, whether he was fairly treated and received a fair day's pay for a fair day's work; (2) as a body of practitioners they were interested in the question as to what was going to be the bearing of it on the interests of the medical profession as a whole; (3) there were the broad questions of social policy, some of which hardly seemed to concern them as a medical profession at all, though they did concern them as citizens.

The PRESIDENT said he was not afraid of the State and he had no grievance whatever against it. In the Poor-law, as in the army, there must be both full-time and part-time men. The Poor-law medical officer and the sanitary authority must come together.

Mr. V. BATESON (Bradford) thought that if the Poor-law were broken up medical officers would not be left as free-lances, but would come under some other authority. The guardians were experienced men, and if they were abolished there would be a new element with authority but without the knowledge of past service.

Mr. W. HOLDER (Hull) suggested that it was too early for them to express an opinion as to whether boards of guardians should be changed. What they had to do was to press that justice should be done to them and, through them, to the poor for whom they acted.

After further discussion it was agreed to postpone consideration of all the resolutions until the next meeting, to be held a month hence in London, the meeting being of opinion that at the present juncture it was inadvisable to express a definite opinion by resolution on the question.

On the conclusion of the meeting the Mayor and Mayoress received the visitors in the Mayor's parlour, where afternoon tea was served.

In the evening the annual dinner was held at the White Swan Hotel, the President being accompanied, amongst others, by the officers of the association, the Mayor and Mayoress, the Rev. Dr. Burn (vicar of Halifax), the Ven. Archdeacon Norris, Mr. J. W. Miller, J.P. (chairman of the Halifax Board of Guardians), Mr. Smith Whitaker, Mr. P. H. Bagenel (Local Government Board Inspector), and Dr. J. T. Neech (medical officer of health of Halifax), who represented THE LANCET.

In addition to the loyal toasts the following were submitted: "Poor-law Medical Officers' Association," proposed by the Rev. Dr. Burn and responded to by Dr. Greenwood; "The Mayor and Mayoress and the Corporation of Halifax," proposed by the President and responded to by the Mayor; "The Guests," proposed by Mr. Drury and responded to by Mr. J. W. Miller, Mr. Smith Whitaker, and Mr. P. H. Bagenel; and "The President," proposed by Mr. Holder.

During dinner selections were played by an orchestral society, and between the speeches songs were given by Mrs. Drury, Mr. John Needham, and Mr. Leeming (Huddersfield), Mrs. Drury also officiating as accompanist.

The local arrangements for the meeting and dinner were made by Mr. Drury and everything passed off satisfactorily.

THE EXTENSION OF THE ROYAL BATHS AT HARROGATE.

THE corporation of Harrogate does not mean to lose sight of the fact that only by maintaining the service and efficiency of its baths and medical treatment can the place hope to rival, or possibly outstrip, its continental competitors. The recent action of this body, at all events, carries such a conviction. On Saturday last, July 2nd, a large party of medical men and representatives of the press from all parts of the United Kingdom visited Harrogate to witness the opening of the new buildings attached to the Royal Baths which are to be devoted to the application of the latest achievements of balneo-therapeutic practice. As a result of this visit it has become abundantly clear that the members of the corporation have approached the question of the future of Harrogate as a health resort, its baths, its sanitation, and its social attractions in a perfectly systematic and scientific way. They have taken a great deal of trouble to find out what the experience of health resorts at home and abroad could teach them.

In some matters it was evident that Harrogate furnished an example which might be followed with advantage by other places; in others it was acknowledged that its position was capable of further progressive movement. To-day Harrogate offers facilities for treatment by hydrotherapy, electric application, and so forth, which leave it unrivalled as a spa in this country, presenting advantages to the patient which he is so prone to think (but wrongly so) can only be conferred upon him by health resorts abroad. It is not realised sufficiently how rich, as a matter of fact, this country is in regard to natural mineral waters, and how varied in character these waters are, in spite of their occurrence in the confines of these islands, narrow compared with the large areas of France, Germany, and Austria. And yet Great Britain has its remarkable thermal waters at Bath and at Buxton, its saline aperient waters at Cheltenham and Leamington, its alkaline waters, sulphur and magnesian waters at Harrogate, its brine baths at Droitwich, its iodo-water at Woodhall, its chalybeates at Tunbridge Wells and elsewhere, and various mineralised waters in Wales. It is doubtful whether such a number and variety of waters can be claimed in a similarly limited area elsewhere in the world. But this fact is very largely disregarded, and British enterprise receives in this matter but scant acknowledgment, and these valuable resources of the country do not receive that patronage which they undoubtedly merit. There is no reason for regarding the natural mineral waters and springs

of this country as of less medicinal value than those abroad. On the contrary, they may rightly be counted as medical assets in the same way as similar waters are esteemed elsewhere. Moreover, apart from the valuable therapeutic properties characteristic of the natural waters of our home watering-places, it is a step of unquestionable importance that the authorities who are responsible for organising the various methods of treatment are rapidly beginning to realise the value of various accessories to hydro-therapeutic practice—as, for example, the installation of electrical appliances, radiant light and heat treatment, inhalation and atomisation for throat treatment, Plombières treatment (bowel irrigation), steam poulticing, treatment in peat baths, and so forth. In this direction Harrogate has recently made very notable advances, and the up-to-date appliances in the new buildings, which are situated close to the Winter Garden, were inspected with considerable interest by the medical visitors present on the occasion of the inaugural ceremony of Saturday last.

Previously to this ceremony the Mayor of Harrogate (Councillor A. B. Boyd-Carpenter), at a reception held in the Winter Garden, introduced his audience to some remarkable facts illustrating the increasing popularity of Harrogate as a place for cure. Harrogate has claimed to have ministered to the needs of 628,000 water-drinkers and 116 000 bathers during the year. This number is growing rapidly, and in some departments of treatment, where in the past in the course of 12 months the patients numbered a thousand or so, they now number in a little over half the time nearly 9000. Such an extraordinary advance in the number of patients applying for treatment in a short period has amply justified the corporation in embarking upon the present extension scheme, which has cost £10,000, bringing the total amount of money represented as an investment in mineral waters and baths by the corporation to nearly £250,000. The new extension is shown in the accompanying picture.

The Royal Baths Extension at Harrogate.

After the formal opening of the extension of the Royal Baths by the Mayor of Harrogate, the medical visitors were shown systematically over the baths in small groups under the guidance of one of the local practitioners and of one of the officials. Every opportunity was afforded them of studying the character of the baths and the methods of their administration, and the orderly and thorough manner in which this was done is worthy of special commendation. The valuable sulphur baths, which together with its numerous waters have earned Harrogate its reputation, are too well known to require special description. There are two varieties—the saline sulphur baths and the alkaline sulphur, both given in various strengths. The saline sulphur baths are specially used for gout, rheumatoid arthritis, and for the reduction of increased arterial tension, while the alkaline sulphur baths are chiefly used for diseases of the skin. In order to utilise to the full every means devised as a result of modern advances in spa treatment, the various forms of bath in use at continental spas have been introduced at Harrogate, and an imposing list of baths is now at the disposal of patients under the direction of their medical attendants. Among these are various forms of bath combined with massage, including what is described as the Harrogate massage douche on the Aix-les-Bains system and the Vichy douche. In both instances the duration of the bath is 20 minutes, and they are prescribed for cases of chronic gout, for gouty and neurasthenic dyspeptics, and for some cases of obesity. It is claimed that the general tendency of the Aix douche is to lower blood pressure while the Vichy douche tends to raise it.

The facilities for the application of the method of treatment carried out at Plombières-les-Bains, using certain of the Harrogate waters for irrigation of the large intestine, have been considerably increased, and this ingenious method of treatment is being extensively used in cases of mucomembranous colitis, as well as in chronic simple colitis and chronic constipation. Since the introduction of the Plombières treatment at Harrogate in 1905 the number of patients undergoing it has greatly increased, and this fact is one of the reasons which have necessitated the enlargement of the baths. There can be no doubt that this treatment can be carried out effectively at Harrogate. A new installation is that for the use of atomised mineral water, medicated if desired, on the system employed at Bad-Ems. This will

enable 16 patients to be treated simultaneously. Various forms of apparatus were seen in working order for the application of sprays to the nose, post-nasal region, larynx, and bronchi. Some of the Harrogate waters are stated to exert a stimulating influence on the mucous membrane of the respiratory passages, others a sedative effect. The installation is a good one and should prove a useful addition to the means of treatment available at Harrogate.

The Nauheim type of bath and the peat or mud baths are also available. A new apparatus for preparing and mixing the peat was shown in the new wing to the visitors. The peat is obtained from the Yorkshire moors, and in the baths sulphur water or brine may be added. The numerous varieties of hot air, vapour, and electric baths are all installed at Harrogate. An interesting apparatus for cataphoresis and ionic medication was also on view and was explained to the visitors. This method of treatment is given in some cases of neuritis, sciatica, lumbago, and neuralgia.

The baths are conveniently arranged and are luxuriously fitted up, the general comfort and convenience of the patients being considered in great detail. The corporation of Harrogate appears to realise the importance of making a health resort as attractive as possible to those visiting it. It is claimed that the bracing character of the climate of Harrogate, which it owes to its relation to the Yorkshire moors, obviates the necessity for the after-cure which is so often recommended after the course of treatment in continental spas visited by similar types of cases. There can be no doubt that it owes much to its situation as well as to its waters and baths. It is certain that many cases which now go to foreign health resorts can be as successfully treated at Harrogate, and that equal facilities for treatment are offered, and there is every reason to anticipate that the enterprise of its corporation will be rewarded and that the popularity of Harrogate will increase every year.

In the evening a banquet given by the Corporation and Medical Society of Harrogate was held in the Hotel Majestic, when there were about 300 guests present. The Mayor occupied the chair, and he was supported on his left by Sir Dyce Duckworth, Mr. E. C. Meysey-Thompson, M.P., Sir Thomas Oliver, and others, and on his right by Major-General Bullock, Sir Malcolm Morris, Mr. Mayo Robson, and councillors of the corporation. Mr. S. A. Vasey represented THE LANCET. The toast of "The Mayor and Corporation of Harrogate" was given by Sir Dyce Duckworth, and that of "The Harrogate Medical Society" by Sir Malcolm Morris. The banquet was an obvious success and the whole proceedings were splendidly organised. At the conclusion of the banquet the guests proceeded to the Kurhaus, where an excellent programme of music was provided. It was generally conceded by the company that the arrangements provided by the corporation in regard to social comforts, amusements, recreation, and so forth, as very important adjuncts to treatment at Harrogate, were most commendable.

It remains to be added that the North-Eastern and Great Northern Railways furnished an excellent example of the expedition and comfort offered to travellers to Harrogate by their services. The journey from King's Cross was accomplished in exactly four hours.

METROPOLITAN HOSPITAL SUNDAY FUND.

UP to Thursday morning, July 7th, about £43,000 had been received at the Mansion House, the collections at the churches generally showing an increase. Among the additional amounts are:—

	£	s.	d.
Christ Church, Lancaster Gate	961	0	0
St. George's, Hanover-square	334	0	0
St. Peter's, Cranley gardens	282	0	0
Wimbledon Churches	210	0	0
St. Stephen's, South Dulwich	190	0	0
Holy Trinity, Kensington Gore	176	0	0
St. George's, Bickley, and Widmore Mission	151	0	0
St. Paul's, Avenue-road	148	0	0
St. Paul's, Portman-square	141	0	0
Holy Trinity, Paddington	141	0	0
Holy Trinity, St. Marylebone	138	0	0
St. Stephen's, Gloucester-road	134	0	0
Holy Trinity, Sydenham	118	0	0
St. Peter's, Brockley	118	0	0
All Saints, Margaret-street	112	0	0
St. James's, Paddington	109	0	0
St. John's, Penge	107	0	0
Union Chapel, Islington	107	0	0
Anon.	100	0	0
All Souls', South Hampstead	100	0	0
Spanish and Portuguese Synagogue	99	0	0
St. Matthew's, Bayswater	98	0	0
St. Barnabas, Kensington	96	0	0
Christ Church, Gipsy Hill	92	0	0
St. Leonards and All Saints, Streatham	81	0	0
St. Andrew's, Leytonstone	80	0	0
St. Paul's, Beckenham	74	0	0
Chipping Barnet Parish Church	71	0	0
St. Luke's, West Hampstead	71	0	0
St. Mary's, Stoke Newington	68	0	0
St. Matthew's, Denmark Hill	68	0	0
St. Michael's, Highgate	64	0	0
St. Philip's, Kensington	62	0	0
Blackheath Congregational Church	60	0	0
Ascension, Balham	60	0	0
Christ Church, Highbury	59	0	0
Stamford Hill Congregational Church	59	0	0
St. James's, Muswell Hill	57	0	0
Lewisham Parish Church	54	0	0
Marylebone Presbyterian Church	53	0	0
Miss M. E. Druce	50	0	0
Christ Church, Brondesbury	47	0	0
Hornchurch Churches	47	0	0
St. Saviour's, Ealing	46	0	0
St. Luke's, Battersea	45	0	0
St. Augustine's, Kilburn	45	0	0
Clapham Parish Church	44	0	0
Carmelite Priory, Kensington	42	0	0
St. Stephen's, Westminster	40	0	0
St. Luke's, Westbourne Park	40	0	0
St. Saviour's, Denmark Hill	38	0	0
Winchmore Hill Churches	38	0	0
St. Stephen's, Ealing	36	0	0
Waltham Abbey Parish Church	36	0	0
St. Luke's, Holloway	36	0	0
Christ Church, Forest Hill	35	0	0
Finsbury Park Wesleyan Circuit	35	0	0
St. Mary Magdelene, Wandsworth	35	0	0
Trinity Presbyterian Church, Clapham-road	35	0	0
Christ Church, Finchley, and Mission	35	0	0
St. John's, Potters Bar, with Bentley Heath Chapel	35	0	0
St. Mary Magdelene, Munster-square	34	0	0
St. Andrew's, Stockwell	33	0	0
St. Luke's, Hornsey	33	0	0
St. Barnabas, Pimlico	32	0	0
Epsom Parish Church	31	0	0
Gordon-square Catholic and Apostolic Church	30	0	0
St. Paul's, Deptford	30	0	0
St. Mary Magdalene, Peckham	30	0	0
Charterhouse Chapel	30	0	0
St. Andrew's, Kingswood	28	0	0
Christ Church, Wanstead	28	0	0
Christ Church, Southgate	28	0	0
Finchley Parish Church	27	0	0
All Saints, Clapham Park	26	0	0
Streatham Hill Congregational Church	26	0	0
St. Dunstan's, East Acton	26	0	0
St. Mary, Newington	25	0	0
Christ Church, Ealing	25	0	0
St. Anne's, Bermondsey	25	0	0
Emmanuel, Northwood	24	0	0
Cuddington Parish Church	24	0	0
St. Alban's, Holborn	24	0	0
St. Jude's, Kensal Green	24	0	0
St. Andrew Undershaft	24	0	0
St. Mary, Hendon	24	0	0
St. Barnabas, Clapham	22	0	0
Norden Parish Church	22	0	0
Christ Church, Woburn-square	21	0	0
Magdalene Hospital Chapel	21	0	0
Kentish Town Parish Church	21	0	0
St. Mark's, Notting Hill	21	0	0
St. Stephen's, Bush Hill Park	20	0	0

GERMAN CENTRAL COMMITTEE FOR MEDICAL STUDENTS' TRAVEL.—The Deutsches Zentralkomitee für ärztliche Studienreisen, of Berlin, W., 9. Potsdamerstrasse, 134B, has published a preliminary programme of a travel trip for medical students which begins at Stuttgart on August 31st next, and finishes at Freiburg i.B. on Sept. 18th. From Stuttgart the party proceeds to Friedrichshafen, Ragaz, Via Mala, Davos, Vulpera, St. Moritz, Lugano, Montreux, Leysin, Évian-les-Bains, Interlaken, Bern, and Freiburg i. Baden. The price of the trip, including railway fares, road conveyances, board and lodging, excluding wines and tips, amounts to 385 marks. A deposit of 20 marks must be made, and will be deducted from the price of the trip. The balance is payable by August 1st. Intending members of the party must apply to the general secretary, Dr. A. Oliven, at the above address. The presidents of the committee are Geheimer Ober-Med.-Rat Professor Dr. Dietrich, k.k. Reg.-Rat Professor Dr. Glax, Geheimer Med.-Rat Professor Dr. His, and Geh.-Med.-Rat Professor Dr. von Strümpell.

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The Health of Johannesburg.[1]—A sketch made in 1885 shows the high veld before the discovery of gold mines, when the undulating plains were broken only by occasional farm-houses with a wagon and a few cattle in the neighbourhood of each. The following year certain farms on the Witwatersrand were proclaimed as public goldfields, and the town of Johannesburg rapidly sprang into being. In 1896 there was already a population of 102,714, of whom half were white people, and to-day the population has reached 180,687, of whom rather more than half are whites, some 6000 are Asiatics, and the remainder are coloured South Africans. In some ways the town is an ideal residence for Europeans, for it is unique in possessing gold mines, coalfields, and a climate in which white men can work all the year round, at an elevation of nearly 6000 feet. In order to discover the importation of plague in the pneumonic form, pneumonia was for four years made a notifiable disease, but now it is found cheaper to inquire into each fatal case of the disease occurring among Asiatics, while free examination of the sputum of any suspicious patient is made. The death-rate from pneumonia for the three years brings out very clearly the high mortality which usually occurs in negroes and negroids. The deaths per 1000 among the whites and Asiatics varied from 0·8 to 1·9, being about the same average as in London, but the South African coloured population furnished from 6·6 to 9·6 deaths. An important contribution to the study of pneumonia among natives was made by Dr. G. A. Turner, the medical officer of the Native Labour Association, who found that in 160 necropsies the lungs of 93 contained the ova of schistosomum hæmatobium, though only 69 of the natives had died from pulmonary disease. This is an observation of some importance, because in Egypt it has always been held that the lungs are only rarely the site of the egg of this worm. Though it has been known for nearly half a century that the bilharzia disease exists in South Africa we were hardly prepared for Dr. Turner's figures. As the result of 971 necropsies on natives from all parts of South Africa he found that at least 80 per cent. were infected. Dr. A. W. May, the Government bacteriologist, is reported to have found another rarity, a cyst containing terminal-spined bilharzia eggs in the stomach of an imported Chinaman. The number of cases of enteric fever was during last year the lowest on record, and the cases will probably diminish still further when the municipality has completed the extension of the water-carriage system of sewage disposal, and the universal earth-closet becomes a thing of the past. In two of the small outbreaks of enteric fever the spread of the infection was traced to a carrier, in each case a native employed in a dairy. Both carriers were isolated, and one of them was treated with a vaccine prepared from the organism which was isolated from his urine. Of the natives employed by the municipality who contracted typhoid fever, 71 per cent. belonged to the scavenging service and were employed in handling night soil, &c. Of the deaths from tuberculosis, more than one-third occurred amongst miners employed underground, most of them being machine drillers and suffering from silicosis, while it is stated that many other miners returned to Cornwall to die from phthisis. Clerks and salesmen furnished the next largest number of deaths from tuberculosis, and some of these were ex-miners. A great danger is the steady increase of phthisis among natives, who succumb rapidly, for more than half the 1129 cases registered died in less than six months. Dr. Turner has pointed out that the bilharzia pulmonary lesions probably predispose the natives to tubercle. Cancer was the cause of 48 deaths among the natives, the liver and stomach being most commonly attacked. Syphilis is thought to have been introduced from Kimberley in 1881, and is now widely prevalent amongst the natives of the Transvaal and Bechuanaland. It is believed to be conveyed sometimes by the use of infected knives in the circumcision rite and by the practice in some districts of inoculating the parents with blood when a birth has taken place. White children have been infected through being kissed by syphilitic native nurses, and circulars have been distributed arranging for the free examination of native servants and the free issue of curative medicines by district surgeons. Only three cases of small-pox occurred during the three years, for vaccination of natives is compulsory. Ankylostomiasis is notifiable, but only 15 cases were reported, though the disease is exceedingly prevalent among the natives recruited from the east coast and from the central tropical areas of South Africa. The comparative freedom from ankylostomiasis in miners is probably due to the fact that the Rand mine waters are acid and provide a natural process of disinfection against the larvæ of the worm. 40 lepers, including 3 white women, were notified and were removed to the leper asylum in Pretoria. No case of bubonic plague occurred among men or rats, and 43,098 rats and mice were destroyed with the aid of traps, dogs, and ferrets. There are now 15 registered nursing homes in Johannesburg, all inspected and licensed by the Public Health Department. We cordially congratulate Dr. Porter and his staff upon the excellent work which they are doing, and we hope that the mayor and his municipal colleagues will heed the grave warnings and recommendations of this report.

[1] Report of the Medical Officer of Health on the Public Health and Sanitary Circumstances of Johannesburg during the Triennium, July 1st, 1906, to June 30th, 1909. By C. Porter, M.D., D.P.H., Johannesburg, February, 1910. Pp. 68.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8350 births and 3588 deaths were registered during the week ending July 2nd. The annual rate of mortality in these towns, which had been so low as 11·1 and 11·2 per 1000 in the two preceding weeks, further declined to 11·0 in the week under notice. During the 13 weeks of the past quarter the annual death-rate in these towns averaged only 12·7 per 1000, and was 1·6 below the mean rate in these towns in the four preceding corresponding quarters. In London during the same period the death-rate, calculated on the estimated population, did not exceed 12·2 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 3·7 in East Ham, and 6·3 in Willesden and in Hornsey; the rates in the rest of the 77 towns ranged upwards to 17·1 in Huddersfield, 18·1 in Oldham, 19·2 in Warrington, and 21·3 in Tynemouth. In London the reported death-rate last week was only 10·3 per 1000. The 3588 deaths registered last week in the 77 towns showed a decline of 45 from the number in the previous week, and included 336 which were referred to the principal epidemic diseases, against numbers declining from 425 to 353 in the five preceding weeks; of these 336 deaths, 113 resulted from measles, 110 from whooping-cough, 55 from diarrhœa, 25 diphtheria, 20 from scarlet fever, and 13 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·0 per 1000, against 1·1 in each of the two preceding weeks. No death from any of these epidemic diseases was registered last week in Croydon, East Ham, Walthamstow, Derby, or in 14 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·8 in Grimsby and in Warrington, 2·9 in Oldham, 3·0 in Stockport, and 3·3 in Barrow-in-Furness. The fatal cases of measles in the 77 towns, which had been 149, 106, and 94 in the three preceding weeks, rose again to 113 last week; the highest annual rates from this disease last week were 1·7 in Preston, 1·8 in Oldham, 2·0 in Merthyr Tydfil, and 3·3 in Barrow-in-Furness. The 110 deaths from whooping-cough showed a decline of 24 from the number in the previous week, but caused rates equal to 1·4 in Ipswich, 1·5 in Stockport and in Bootle, and 2·1 in Warrington. The deaths attributed to diarrhœa, which had been 75 and 70 in the two previous weeks, further declined under the influence of lower temperature to 55; the deaths from this cause were proportionately most numerous in Grimsby. The 25 fatal cases of diphtheria showed an increase of 8 upon the low number in the previous week and included 7 in London and its suburban districts, and 2 each in Liverpool and Manchester. The fatal cases of scarlet fever, which had been 22 and 25 in the two preceding weeks, declined to 20 last week, of which 4

occurred in Manchester and Salford, and 2 both in Portsmouth and Liverpool. The 13 deaths referred to enteric fever corresponded with the number in the previous week; they included 2 in London. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily declined during the past six months to 1353 in the previous week, had risen to 1387 at the end of last week; 183 new cases of this disease were admitted to these hospitals during last week, against 166 and 187 in the two preceding weeks. The Metropolitan Asylums hospitals contained only 1 case of small-pox on Saturday last. Of the 964 deaths registered in London during last week 122 were referred to pneumonia and other diseases of the respiratory system, and were 20 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 31, or 0 9 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Leeds, Bristol, West Ham, Nottingham, Leicester, Salford, and in 47 other smaller towns; the 31 uncertified causes of death in the 77 towns last week included 4 in Manchester, and 2 each in Sheffield, Norwich, Warrington, Gateshead, Stoke-on-Trent, and London.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 936 births and 477 deaths were registered during the week ending July 2nd. The annual rate of mortality in these towns, which had declined in the four preceding weeks from 14·3 to 13·3 per 1000, further declined to 13·2 in the week under notice. During the 13 weeks of the past quarter the death-rate in these towns averaged 15·4 per 1000, and exceeded by 2·7 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 10·1 and 11·7 in Aberdeen and Edinburgh, to 14·4 in Leith and 22·1 in Dundee. The 477 deaths from all causes in the eight towns during last week showed a further decline of 7 from the numbers in recent weeks, and included 48 which were referred to the principal epidemic diseases, against 42 and 61 in the two preceding weeks; of these 48 deaths, 17 resulted from diarrhœa, 12 from whooping-cough, 9 from measles, 5 from diphtheria, 4 from scarlet fever, and 1 from "fever," but not one from small pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·3 per 1000, against 1·0 in the 77 English towns; the highest rates from these diseases in the Scotch towns last week were 2·8 in Paisley and 3·4 in Dundee. The 17 deaths attributed to diarrhœa in the eight towns last week corresponded with the number in the previous week, and included 10 in Glasgow, 3 in Edinburgh, and 2 in Paisley. The 12 fatal cases of whooping-cough showed a further slight increase upon recent weekly numbers; 5 occurred in Glasgow and 4 in Dundee. The deaths from measles, which had been 15 and 12 in the two preceding weeks, further declined to 9 last week, including 5 in Dundee and 2 in Paisley. The fatal cases both of scarlet fever and diphtheria showed a decline from the numbers in the previous week; 2 deaths from each disease were returned in Glasgow. The 1 death referred to "fever" in the eight towns occurred in Glasgow, and was certified as cerebro-spinal meningitis. The deaths referred to diseases of the respiratory system in the eight towns, which had been 56 and 61 in the two preceding weeks, declined to 55 in the week under notice, and were 16 below the number in the corresponding week of last year. The causes of 13, or 2 7 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 665 births and 355 deaths were registered during the week ending July 2nd. The mean annual rate of mortality in these towns, which had been equal to 18·9 and 17·9 per 1000 in the two preceding weeks, further declined to 16·1 in the week under notice. During the 13 weeks of the past quarter the annual death-rate in these Irish towns averaged 20·1 per 1000, whereas the mean rate during the same period did not exceed 12·7 in the 77 largest English towns and 15·4 in the eight principal Scotch towns. The annual death-rate during last week was equal to 15·3 in Dublin, 18·3 in Belfast, 17·8 in Cork, 7·2 in Londonderry, 20·5 in Limerick, and 15·6 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 13·9 per 1000. The 355 deaths from all causes in the 22 town districts last week showed a further decline of 41 from the numbers in recent weeks, and included 39 which were referred to the principal epidemic diseases, against 68 and 50 in the two preceding weeks; these 39 deaths in the Irish towns were equal to a mean annual rate of 1·8 per 1000, while in Belfast it was equal to 3·7; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·0, and in the eight Scotch towns it was 1·3. The 39 deaths from these epidemic diseases in the Irish towns last week included 26 from measles, 6 from whooping-cough, 3 from diarrhœa, 2 from diphtheria, and 1 each from scarlet fever and enteric fever, but not one from small-pox. The fatal cases of measles in the 22 towns, which had been 52 and 39 in the two preceding weeks, further declined last week to 26, of which 25 occurred in Belfast. The 6 deaths from whooping-cough included 3 in Dublin. The fatal case of scarlet fever and one of the 2 deaths from diphtheria occurred in Dublin; and the death referred to enteric fever was registered in Belfast. The deaths in the 22 towns referred to pneumonia and to other diseases of the respiratory system, which had been 62 and 72 in the two preceding weeks, declined last week to 43. The causes of 20, or 5·6 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent., and in the eight principal Scotch towns it was equal to 2·7 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointment is notified:—Staff-Surgeon S. Croneen to the *Bulwark*, temporary, for manœuvres.

ROYAL ARMY MEDICAL CORPS.

Colonel M. W. Kerin, C.B., from Lucknow, has joined at Naini Tal. Lieutenant-Colonel H. J. Fletcher has been transferred from Rawalpindi to the Station Hospital at Sialkot. Lieutenant-Colonel F. W. C. Jones, from Tidworth has been selected to take charge of a camp of instruction for Royal Army Medical Corps *personnel* at Salisbury Plain. Lieutenant-Colonel M. O'Halloran, from Brighton, has been posted to Shorncliffe. Lieutenant-Colonel J. H. Daly, from Tipperary, has been appointed to command the Station Hospital at Dalhousie. Lieutenant-Colonel H. Cocks has been posted to Woolwich. Lieutenant-Colonel R. W. Wright has taken over medical charge of troops at Shoeburyness. Major B. Ford has joined at Wynberg. Major J. D Ferguson, D.S O., has been transferred from Aldershot to London. Major John M. Buist has been posted to the Royal Victoria Hospital at Netley Major J. F. M. Kelly has been posted to Potchefstroom Major A. J. Chambers has joined at Pretoria. Major H. W. K. Read has been transferred from Beverley to Pontefract. Major F. J. Wade-Brown has joined at Tipperary. Major C. T. Samman, from Shorncliffe, has been posted to Dinapore. Major G. J. Buchanan has been transferred from Bareilly to Chaubuttia for duty during the summer months. Major E. M. Williams has been posted to Calcutta. Captain H. M. Morton has joined at Potchefstroom. Captain J. Matthews has been posted to Karachi Captain R. L. Argles has been transferred from Ferozopore to Solon. Captain R J. Cahill, in charge of the Brigade Laboratory, Madras, has been appointed a Specialist in the Prevention of Disease to the Madras Brigade.

INDIAN MEDICAL SERVICE.

The King has approved of the retirement of the undermentioned officer: Lieutenant-Colonel Richard James (dated April 29th, 1910).

Lieutenant-Colonel G. J. H. Bell, Superintendent of the Central Jail at Rangoon, has been selected for the appointment of Inspector-General of Prisons, Burma, in place of Lieutenant-Colonel E. P. Frenchman, retired. Lieutenant-Colonel D. P. Spencer has received permission to retire from May 16th on completion of 30 years' service. On return from deputation Lieutenant-Colonel J. Crimmin, V.C., C.I.E., has been appointed Presidency Surgeon, Bombay. Lieutenant-Colonel W. E. Jennings has been appointed Health Officer to the Port of Bombay. The services of Lieutenant-Colonel F. C. Reeves have been replaced at the disposal of His Excellency the Commander-in-Chief. Lieutenant-Colonel J. Chaytor-White, Sanitary Commissioner of the United Provinces, has been granted privilege leave, combined with furlough, out of India, on medical certificate for nine months. Lieutenant-Colonel E. C. Hare, Sanitary Commissioner, Assam, has been granted nine months' extension of his leave from India. Lieutenant-Colonels L. F. Childe and A. Coleman have arrived home from India. Major A. Fenton has been transferred from Mogôk and appointed Civil Surgeon, Mandalay. Major H. Ainsworth has been appointed to officiate as Professor of Surgery at the Medical College, Lahore. Major P. S. C. More has taken over the duties of Civil Surgeon, Attock. Major J. W. F. Rait has been selected to succeed Lieutenant-Colonel D. G. Crawford as Civil Surgeon of Hughli. Captain F. T. Thompson has been appointed to the officiating medical charge of the 33rd Punjabis. The services of Captain W. P. G. Williams have been placed at the disposal of the Government of India for civil employment in the Jail Department of Madras. Captain M. J. Quirke has been posted to the Madras Presidency.

TERRITORIAL FORCE.

Royal Army Medical Corps.

Unattached List.—Norman Cecil Rutherford to be Lieutenant, for service with the Medical Unit of the Royal College of Surgeons (Dublin) Contingent, Senior Division, Officers Training Corps (dated June 6th, 1910).

THE NAVAL MEDICAL CONSULTATIVE BOARD.

Inspector-General Howard Todd of the Royal Naval Hospital, Plymouth, has been appointed a member of the Naval Medical Consultative Board.

DEATHS IN THE SERVICES.

Inspector-General Thomas Bolster, R.N. (retired), at his residence, at Devonport, on June 17th, aged 65 years. He entered the Naval Medical Service in 1867, and became staff-surgeon in 1878, fleet-surgeon in 1887, deputy-inspector-general of hospitals in 1896, and inspector-general in May, 1901. He was well-known in Plymouth, and was in charge of the Royal Naval Hospital in that town from August, 1901, to December, 1903, when he retired. He saw no war service.

BRITISH RED CROSS AND TERRITORIAL NURSING NOTES.

A meeting of the advisory committee which has been recently formed for the purpose of facilitating the working of the scheme for organising voluntary aid was held at the War Office on July 1st. The following members were present: Surgeon-General W. L. Gubbins, Director-General Army Medical Service (chairman), Lieutenant-Colonel F. S. Maude, and Lieutenant-Colonel E. Eckersley, representing the War Office; Sir Richard Temple and Colonel R. B. Colvin, representing the Council of County Territorial Associations; Sir Frederick Treves and Mr. A. A. Bowlby, representing the British Red Cross Society; and Colonel Sir George Beatson, representing the St. Andrew Ambulance Association.

The scheme by which the St. John Ambulance Association will aid the Territorial Forces in time of war will include the formation of two classes of local bodies. The St. John Ambulance Brigade Companies will be formed under Brigade Orders and the St. John Ambulance County Companies will be formed by the Territorial branch of the association. In case of war their services will be offered to the War Office.

At a meeting held at 37, Portland place on June 30th, under the presidency of Lord Aldenham, Mrs. St. Clair Stobart explained the objects of the "Women's Sick and Wounded Convoy Corps." Mrs. Stobart, who is the commandant of the corps, said that it had been organised for the purpose of training women to become efficient members of voluntary aid detachments. A letter from Captain Langford Lloyd, who was unable to be present, stated that detachments trained by the corps would be placed at the disposal of the Red Cross Society for work under the medical department of the army, and that such detachments would be called out for duty whenever the Territorial Army was mobilised for national defence.

The Lady Mayoress, as President of the City of London Branch of the British Red Cross Society, is seeking the assistance of the leading City Guilds in bringing to the notice of employers of labour and the managers of business houses and public institutions the efforts which the branch is making on behalf of the Red Cross Society. It is pointed out that the training involved in the work of the society would make employees not only of use in case of invasion but would enable them to become more useful in their homes and lives generally.

Miss Haldane, addressing the members of the Guild of the Cheltenham Ladies' College at their biennial conference on July 2nd, congratulated the members of the college upon their Red Cross display. The Territorial Nursing Service, she said, was very nearly complete, having 98·5 per cent. of its establishment. The voluntary aid detachments necessary to cope with the work were springing up all over the country. She was glad to see so large a proportion of their college voluntary aid detachment skilled in cooking. The knowledge of nursing and first aid disseminated over the country would be invaluable.

The Countess of March presided at a meeting in support of the British Red Cross Society, which was held at the Corn Exchange, Chichester, on June 30th. Sir Frederick Treves gave an inspiring address, urging the women of the country to take up their share of the work of looking after the sick and wounded who might fall in our own land.

Under the presidency of the Countess Fortescue a meeting was held at Crediton on June 29th for the purposing of forming a branch of the Red Cross Society for that town.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

A long instalment of Lieutenant-Colonel R. J. Simpson's medical history of the South African war, dealing with continued fevers and bowel complaints, appears in the July issue of this journal, and Captain L. W. Harrison concludes his article on the Serum Diagnosis of Syphilis. Among other articles of interest may be mentioned that on Mediterranean Fever in Gibraltar in 1909, by Major C. E. P. Fowler, and Some Hints on Staff Tours, by Major W. T. Mould. The improvisation of means for carrying the injured is always an attractive subject. Especially is this so at the present moment when so much is being done to interest the country in national defence, and an article on the Adaptation of a Motor Omnibus and Scotch Hay-cart for the Carriage of Wounded Men, by Lieutenant-Colonel H. E. R. James, will be found to be a practical contribution to the subject. The unadapted motor omnibus is not convenient for carrying more than one patient with any degree of comfort, but with slight alterations and the addition of wooden bars and stretchers the vehicle becomes on good roads an excellent ambulance carriage. Similarly the Scotch hay-cart can be converted into a very useful ambulance wagon. Among the clinical notes is an analysis of 500 cases of syphilis by Captain A. D. Jameson, the author's conclusions being that treatment by intramuscular injections of metallic mercury is distinctly satisfactory.

ANTI-TUBERCULOSIS CAMPAIGN AT BATTERSEA.—A public meeting, at which the Mayor of Battersea will preside, is to be held in the Town Hall, Battersea, on Wednesday, July 13th, at 8 30 P.M., to discuss a proposal to establish a dispensary for the treatment and prevention of consumption. Speeches will be made by Dr. J. J. Perkins, honorary secretary, National Association for the Prevention of Consumption; Dr. D. J. Williamson, medical officer of the Paddington Dispensary for Prevention of Consumption; and Miss McGaw, honorary secretary to the same. The proposal for a dispensary originates from the Battersea Voluntary Health Society, an organisation which has as its objects the reduction of infantile mortality and the prevention of the spread of tuberculosis. We refer our readers who are particularly interested in this branch of medical and social organisation to the account of the work of the Paddington Dispensary published in THE LANCET of March 26th, 1910 (p. 876) and to our leading article on the subject in the same issue.

Correspondence.

"Audi alteram partem."

A STEAMER WITH SPECIAL MOSQUITO SCREENS.

To the Editor of THE LANCET.

SIR,—A short account of an inspection of a steamer which has been especially screened against mosquitoes may prove of interest to those of your readers whose work lies in the tropics. Sailing up the Amazon when the ship hugs the banks to avoid the current, mosquitoes will often fly abroad in swarms and cause much discomfort to those on the boat. In malarious regions infected anophelines will come from the shore and an outbreak of malaria may occur. Many of the steamers on the Rio Madeiro have had nearly the whole crew laid up with fever. The Booth Steamship Company has just despatched a small freight boat on her maiden trip to that river which has been specially designed to meet this evil. It was suggested to the company that the members of the Medical Advisory Board of the African Committee of the Colonial Office would like to make an inspection of this new experiment. Accordingly, Sir Rubert Boyce, Professor W. J. Simpson, Dr. J. K. Fowler, and Dr. W. T. Prout, as representing the Advisory Board, and Professor R. Ross, Mr. R. Newstead, Dr. D. Thomson, and the writer, from the Liverpool School of Tropical Medicine, were invited to pay a visit to the s.s. *Vincent* on May 6th last.

The steamer is designed purely for cargo, which she carries direct from Liverpool to Porto Velho, a small place some 600 miles up the Rio Madeiro, a tributary of the Amazon. The screening was carried out from plans by Dr. Melville Davidson, the medical superintendent of the company. The screening of the ship is so arranged that the living quarters of the crew and officers are protected from mosquitoes. Each port-hole is provided with a moveable screened frame which is so adapted that the port-hole can be closed and screwed down without withdrawing the screen. The entrances to the main deck are protected by wire gauze spring doors, and at each side of the ash-shoot, which is of necessity open to the ingress of mosquitoes, extra sets of screened doors are placed. The doors and port-holes of the outside bridge deck cabins are also screened; the doctor's quarters and the hospital are situated further aft and are thoroughly screened.

The interior arrangements permit of no old-fashioned water reservoir over the wash-basin in the cabins, and running water is supplied everywhere. The slops from the basins run into pipes emptying directly over the side. This arrangement very satisfactorily deprives the stegomyia larvæ of breeding places in the cabins. The ventilator pipes in the cabins and along the alleyways are each protected by a wire gauze screened frame, which slips into a grooved moulding fixed round the shaft, and is kept in place by three small buttons. The screening is composed of 18 mesh phosphor-bronze wire, a material which is more suitable for a moist humid climate than brass or copper. Some idea of the completeness of the screening can be gathered from the fact that 18 doors and 49 port-holes require to be screened.

Nearly two hours was spent in examining the vessel, and it was considered by all that this was a distinct advance in the construction of ships plying in tropical waters. Only those of us who have had opportunities for observing the accommodation provided for the crew on an ordinary steamer despatched to the tropics can realise the importance of these new improvements. The protection afforded against mosquitoes and insects of every kind, the removal of the necessity to use a mosquito-net in a stuffy cabin, and the security afforded to the non-immunes who serve on board these vessels amply justify the additional expenditure that the comprehensive system of screening has entailed.

I am, Sir, yours faithfully,

H. WOLFERSTAN THOMAS.

THE TREATMENT OF RINGWORM.

To the Editor of THE LANCET.

SIR,—From time to time in your pages the treatment of ringworm is discussed. The action of radium emanations, various forms of electrical energy, &c., have been recommended.

For many years it is my custom to treat ringworm in a method I have not seen mentioned. It consists of painting with a soft camel-hair brush the area of skin affected with the ordinary 40 per cent. solution of formalin, meanwhile keeping the patch of skin in such a position that the solution will not run off it.

If the skin is greasy it should be washed with spirit and allowed to dry before applying the formalin. As a rule one painting is sufficient to effect a cure, but if one is in doubt the painting can be repeated in about five days. Young patients sometimes complain of the smarting, and the skin scales from the irritating action of the drug. Notwithstanding these drawbacks, the drug is rapid, clean, and effective in its action in this disease.

I am, Sir, yours faithfully,

J. MACKINNON, M.B. Edin.

Somerset East, Cape Colony, May 22nd, 1910.

A PRELIMINARY NOTE ON THE TREATMENT OF RODENT ULCER BY SOLID CARBON DIOXIDE.

To the Editor of THE LANCET.

SIR,—In a previous paper[1] I stated that I thought solid CO_2 should give good results in the treatment of rodent ulcer, but that I would prefer to begin on a simple uncomplicated case and not too near the eye, nose, or mouth. Since that time I have had opportunity to try the method in three such cases, and in all of them the result has been entirely satisfactory up to the time of writing. Two of them were situated just above the zygomatic arch, and the third one on the cheek just over the malar bone. They were all chosen from their being simple but typical ulcers of their kind and about which there could be no doubt as to their nature.

The procedure was in all cases the same. I first scraped away all the granulation tissue until a firm but raw surface was left. I then trimmed a carbon dioxide crayon to the shape of the ulcer but a little larger in size, as I considered it advisable to include a small amount of the healthy margin in the reaction. The crayon was now applied with firm pressure for 40 seconds. A very lively reaction followed with exudation. This was dressed with boric acid ointment, and when seen a week later the appearances were those of an ordinary healthy healing sore, which skinned over rapidly without any unusual features. The first one treated has now been well for just over three months. The scar is soft and elastic, almost the same colour as the surrounding skin, and so slightly depressed as to be unnoticeable except to the practised eye.

I, of course, do not pretend for a moment that I have discovered the ideal treatment for this disease. The facts serve to corroborate my theory that the reaction following the application of solid carbon dioxide should be sufficient to cause the immediate disappearance of a simple uncomplicated case of rodent ulcer. The subsequent healing process was at least as rapid as that following the application of zinc ions, and I firmly believe that the effect will be found to be more far-reaching and complete, as well as less likely to be followed by recurrence. This latter is one of the objections to the ionic method, and is no doubt due to the fact that the ions can penetrate such a very short distance into the tissues. In due time we shall know how permanent a cure by this method will be. Personally, I have little doubt as to the result, and that it will be found as reliable as any other method at our disposal. The advantages are very great and obvious: in simple cases, at least, a very short and nearly painless application, a brief and almost painless reaction, and the place healed up in from ten days to a fortnight. I feel confident that this is a disease where we shall be able to dispense with that very expensive and slow acting substance, radium; this is very important, as not everybody can afford the time and the money to indulge in this, the greatest luxury of modern medicine.

I am continuing my investigations in this direction and applying it to the less simple cases. The results will be reported in due course.

I am, Sir, yours faithfully,

REGINALD MORTON.

Upper Wimpole-street, W., July 5th, 1910.

[1] THE LANCET, Dec. 4th, 1909.

THE MEDICAL LIBRARY ASSOCIATION.

To the Editor of THE LANCET.

SIR,—By the kind permission of the British Medical Association, the second annual meeting of the Medical Library Association, under the presidency of Professor W. Osler, will be held at London University during the last week in July. Two short sessions will be held on the mornings of July 27th and 28th, at which papers will be read dealing with matters likely to be of practical interest and assistance to medical librarians, members of library committees, and readers.

It is also intended to hold a bibliographical exhibition in connexion with the meeting, as this proved such a successful feature of the meeting held in Belfast last year, and we shall be glad to receive offers of loans to illustrate the following sections of the exhibition.

1. Incunabula.
2. Books by London medical men up to 1600.
3. Photographs of, and papers relating to, medical libraries.
4. Special collections, &c.

We are, Sir, yours faithfully,

I. WALKER HALL, M.D. Vict., Pathological Department, University of Bristol;
CUTHBERT E. A. CLAYTON, Medical Library, University of Manchester.
} Joint Hon. Secretaries.

CORK QUEEN'S COLLEGE AND THE NATIONAL UNIVERSITY OF IRELAND.

To the Editor of THE LANCET.

SIR,—Many old students of the Cork Queen's College will, I am sure, be anxious to know how their *alma mater* is affected by recent university legislation, and with your permission I propose giving them a few particulars.

The Irish Universities Act (1908) has produced many changes in the constitution of the Cork Queen's College. With its name altered to University College it has become one of the three constituent colleges of the National University, and is to a great extent autonomous. The number of professors and lecturers have been considerably increased, especially at the arts side. The courses of study for the medical faculty have been considerably altered. The more important alterations will be best understood by a comparison with the late Royal University. At the Royal the medical undergraduate was obliged to pass the first arts examination. This is not required by the National University, the idea being that the matriculation examination should be sufficiently stiff to ensure that the medical student's general education has been such as would enable him to pursue his medical studies with advantage. At the Royal there were three examinations. At the National there are four. Under the new system the student gets done with such subjects as chemistry and anatomy by the end of his second year. At the end of his fourth year he is examined in pathology, public health, therapeutics, &c., and at the final examination he concentrates all his energies on medicine, midwifery, and surgery, including ophthalmic surgery. This seems a distinct improvement, as at the Royal final the student had to deal not alone with these three subjects, but also with a number of others less important.

The methods of holding the examinations are also a distinct advantage to Cork students who are now examined locally and not put to the expense, as formerly, of being obliged to proceed to Dublin. At the Royal examinations they were generally confronted by strange examiners about whose "idiosyncrasies" they knew nothing, whilst Dublin students with whom they had to compete were not similarly handicapped. Now they are examined by their own professors and lecturers, with whom are associated extern examiners. As the same pertains in the three colleges it is a case of a fair field where the best men will be the first to pass the winning post. At the M.B. examination recently held in Cork six out of nine candidates were successful, and of the latter one was awarded first honours and two secured second honours. There was only one candidate, Dr. J. J. Kearney, for the M.D. degree. He holds a dispensary appointment in a country district remote from centres of education. He had been a distinguished student of the Cork College. Not only has he succeeded in obtaining his M.D. degree with first-class honours, but on the strong recommendation of the Board of Examiners he has been awarded a gold medal by the University for his meritorious answering.

The President, Dr. B. C. A. Windle, acting as Pro-Vice-Chancellor of the University, alluding to the successes of the Cork College at the latest conferring of degrees,[1] strongly urged that Cork should have a university of its own, and said that the fact of the Cork College being anchored to the National University resulted in some very tangible disadvantages. For instance, during the session all the professors and lecturers are obliged to proceed to Dublin to attend the annual meeting of Faculties, and those of them who are members of the Board of Studies may have to make sundry journeyings of the kind. That must mean for some members of the collegiate medical staff considerable interference with their private practice, and it is said hotel and travelling expenses which are borne by the National University will amount to £500 a year, a goodly sum which could be saved and devoted to more useful purposes if a Cork University were established.

I am, Sir, yours faithfully,

Cork, July 1st, 1910. M.D.

Looking Back.

FROM

THE LANCET, *SATURDAY*, July 7th, 1832.

DISCOVERY OF

AIR IN THE HEART,

AFTER VENOUS INJECTION.

To the Editor of THE LANCET.

SIR,—The interest excited by the experiments performed in London, of the introduction of saline substances in the fluid state into the blood of patients labouring under cholera, has not been lessened by the result of the trials recently made by Dr. Venables, and other practitioners, without success. The post-mortem appearances in two individuals treated in this manner under the superintendence of Dr. Venables, have been fully detailed in the last number of THE LANCET. In both, *air* was found in some quantity in the cavities of the heart. This circumstance has been supposed by many to account in a satisfactory manner for the patient's death, but I have been assured by Dr. Venables, (and I can place full reliance on his capacity for conducting the operation, and the veracity of his report,) that every care was taken to exclude the access of atmospheric air, not a particle of which was introduced in the course of the operation. That, however, air may be generated spontaneously in the heart, was proved to me yesterday while examining the body of a cholera patient. Mrs. R., the wife of a man in poor circumstances, died of this disease on Sunday last, July 1st, after twelve hours illness. On the following Wednesday, at noon, I assisted my friend, Dr. Hingeston, of the South London Infirmary, in inspecting the body. The general anatomical appearances were those which I have invariably found, but the contents of the stomach and intestines were acid (the woman had been strongly purged). The heart was soft and distended, and when a puncture was made into it, a good deal of air escaped, followed by fluid blood mixed with bubbles of air. The treatment consisted in the exhibition of calomel, Cayenne pepper, and other stimulants in a fluid form. I do not remember to have seen so great a quantity of air in the heart so soon after death in any other instance. I submit the question whether the peculiar condition of the blood could have influenced this early separation of gas in the case of this woman.

I am, Sir,

Your obedient servant,

P. H. GREEN.

July 4th, 1832.

[1] THE LANCET, June 4th, 1910, p. 1578.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

King George V. and the University of Bristol.

THE youngest of English Universities, the University of Bristol, was honoured by inclusion in the group of eight whose addresses were received by the King recently. Of the deputation that waited on His Majesty, three were presented to him: two Pro-Chancellors, the Right Hon. Henry Hobhouse and the Right Hon. Lewis Fry, and the Vice-Chancellor, Sir Isambard Owen.

City Scholarships for the University of Bristol.

A report drawn up by a joint committee of the University Council and the Bristol Education Committee was laid before the latter body at a recent meeting. It recommends the formation of a standing committee composed of representatives of the Education Committee and of the University Council, the Vice-Chancellor to be chairman and convener with a casting vote, to meet in the University, the registrar of the University acting as secretary. They shall administer the funds placed at their disposal by the city council (about £3000 per annum) to provide university education for Bristolians who would otherwise be deprived of its benefits, subject to certain conditions. The money may be spent in grants for wholly or partially free education in the University, in grants for the maintenance of students, for the purchase of books, &c.; it shall be spent for women as well as for men, for graduates as well as for undergraduates, and preference is to be given to persons who have been pupils of a public elementary school for not less than three years. These disbursements are to be subjected annually to examination by the Education Committee, and grants may be discontinued if the recipient's conduct or progress be deemed unsatisfactory.

Winsley Sanatorium.

At a recent meeting of the board of management, Dr. R. Shingleton Smith, who was in the chair, said that the mortgage debt had been reduced to £8550. A bequest of £500 from the late Mr. Alfred Shipley is to be devoted to its further reduction. The question of the medical officer's quarters came under discussion in connexion with certain donations offered for the specific purpose of building a house for the medical officer away from the general building; but the board decided that all further developments ought to be postponed till the existing debt was wiped out.

The Death Certificates of Parish Patients.

The St. Thomas's (Exeter) board of guardians recently supported a resolution suggesting that the description "pauper" should be removed from the death certificates of cases dying when under the Poor-law. At its meeting held on July 1st it was reported that four local Members of Parliament who had been approached upon the subject were all in favour of the suggestion.

The Proposed New Sanitary Area for Devonshire.

The Local Government Board has been recently making inquiries in connexion with the proposed new sanitary area for East Devon. The districts involved are the borough of Honiton, the urban districts of Ottery St. Mary, Seaton, and Sidmouth, and the rural districts of Honiton and Axminster. It is proposed to have a whole-time medical officer of health with a salary of £600 per annum, and to erect an isolation hospital for 35 beds. The cost of the building would be about £13,000. The majority of the councils seem to favour the scheme, although, unfortunately, some only wish for a portion. For example, the Axminster rural district council at its last meeting decided to inform the Local Government Board that it was in favour of a whole-time medical officer of health, but, owing to the small amount of infectious diseases, it objected to the proposed isolation hospital. The Axminster rural district council should remember that perhaps in the future it may have some epidemic when it may require isolation accommodation.

Sanitation in Cornwall.

At a recent meeting of the Liskeard district council the medical officer of health (Mr. W. Nettle) reported two cases of scarlet fever occurring in a house at Polperro. Ten people lived in the house, six sleeping in one room and four in another. Mr. Nettle stated that this case showed the need of an isolation hospital. The medical officer of health reported the result of a house-to-house visitation he had made on the Lansallos side of Polperro. He stated that he had only had two cases of enteric fever in Polperro during his term of office, and added that nine-tenths of the houses did not appear to have an inch of ground to spare. Mr. Nettle also reported on the insanitary condition of several houses at St. Ive Cross, which in their present state were unfit for human habitation, water streaming into the bedrooms through defective roofs and ceilings. The inspector stated that the well at St. Ive Cross was almost a receptacle for sewage.

July 5th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Hospital for Sick Children.

THE fund being raised by the *Birmingham Daily Mail* for a memorial to His late Majesty King Edward VII. has already met with considerable success. It is definitely decided to erect a statue of the late King and as a further memorial to raise a fund in aid of the rebuilding of the Children's Hospital. It is estimated that a statue would cost about £1500, and for the hospital a sum of £50,000 is required. An organised canvass of the city and suburbs has been arranged, and collections are being made among manufacturers, tradesmen, and workpeople. So far more than £12,000 have been received.

Special Schools and After-care.

The report of the special schools subcommittee presented to the Birmingham education committee by Mrs. Pinsent on June 24th contains an interesting annual report of the special schools after-care subcommittee. Through the kindness of the committee of the Blind Institution an account of the after-care of blind children was obtained. A large number are employed in the workshops of the Blind Institution after they have completed their training. This institution has recognised that defectives however well trained could never compete in the open market with normal persons, and their pioneer work in supporting their own workshops has met with great success. The report strongly suggests that organised workshops where defective children could continue work after they had left school would be of real use. Of children who had been in cripple schools it was found that only 30 per cent. were earning wages at all, and the very small wages earned suggested that something should be done towards improving the conditions under which they worked. Deafness seemed to be the least incapacitating defect, for it was found that 61 per cent. were earning wages, 31 per cent. were earning over 10*s.* a week, and in one case the wages were 32*s.* 6*d.* But there were a certain number who found it difficult to get employment, and for these an organised workshop would be useful. The problem of the mentally defective was much more serious. The number being trained this year reached 900, while the number of deaf children was 80, of cripples 220, and of the blind 40. Out of 316 feeble-minded persons who have left school and whose whereabouts are known, only 36·0 per cent. are earning wages at all, only 6·6 per cent. are earning as much as 10*s.* per week, and less than 1 per cent. are earning 15*s.* per week. There is proof that those lost sight of belong to a class who rarely become wage-earners. The after-care subcommittee, therefore, after nine years' experience with defectives, again repeats its conviction that for a large number of the feeble-minded permanent care and control are necessary for the following reasons: (1) To enable them to contribute towards their own support; (2) to save them from harsh treatment at home and in the streets; (3) to prevent them becoming drunkards, criminals, and prostitutes; and (4) to prevent their giving birth to children who must almost certainly grow up to be a burden to the community. The following resolution was passed by the education committee on the adoption of the report:—

That a copy of the report be forwarded to the Prime Minister with the following memorandum—namely: The education committee of the city of Birmingham, having had experience of the working of special schools for mentally defective children, and being convinced

that such persons cannot be withdrawn from public control at the age of 16 years without grave danger and injury to the national welfare, earnestly hope His Majesty's Government will at the earliest possible time introduce legislation in accordance with the recommendations of the Royal Commission on the Care and Control of the Feeble-minded.

Open-air School.

At the same meeting of the education committee a letter was read from Mr. and Mrs. Barrow Cadbury generously offering the free use of a field of five acres near King's Heath for use as an open-air school. The field is 500 feet above sea level and has an open view and good trees for shade. It is near a tram route and easily accessible. Mr. and Mrs. Cadbury also offered to contribute £400 to cover the cost of equipment, and will place at the disposal of the committee a large airy room at Uffculme during the winter months and also the use of the grounds of Uffculme during the summer when not required for parties. The beautiful house and grounds of Uffculme, formerly the residence of the late Richard Cadbury, are now used by the Adult School Union as a hostel and for meetings. The scheme owes its initiation to lectures recently given by Dr. G. A. Auden, who has closely studied the work of open-air schools in Germany and in this country.

The Health of Handsworth.

The annual report of Dr. W. Sisam, medical officer of health, states that the most noteworthy statistical features are the fall in the birth-rate, the satisfactory general death-rate, which exceeds by a small fraction the lowest recorded in the district, and the equally satisfactory infantile mortality figure. The zymotic death-rate, although somewhat higher than that of last year, is well below the average of the preceding ten years, in spite of a severe epidemic of measles and unusual prevalence of scarlet fever and diphtheria. The population at the middle of last year was 71,935, giving a density of 19·61 per acre. The number of births was 1446, equal to a rate of 20·1 per 1000, compared with 22·2 last year. The deaths numbered 737, giving a rate of 10·2, compared with 10·8 last year. 121 deaths of infants under one year occurred, giving an infantile mortality rate of 83, compared with 90 in 1908. Dealing at some length with the milk-supply, Dr. Sisam points out that between 500 and 600 gallons of milk per day are brought to railway stations from the country. An extraordinary lack of care is found. The churns are left on platforms without being locked or securely fastened in any way. There are thus many possibilities of pollution. The milk churns appear to be sent back without being washed. A very large quantity of milk is brought in by local purveyors. Their churns are frequently left at street corners and other places, and here, again, the lids are not securely fastened.

Sweating in Bakeries.

The Birmingham Trades Council has just issued in pamphlet form a report of its inquiry into the conditions of labour in local bakehouses. The evidence obtained proves beyond question that a serious state of affairs exists. The committee of inquiry was much impressed by the marks of exhaustion and ill-health which distinguished many of the witnesses. There can be no doubt that bread is produced in places and surroundings quite unsuitable for such a purpose, the sanitary arrangements of many bakeries leaving much to be desired. This is especially the case in small old-fashioned bakehouses. There is a consensus of opinion that "draw-plate ovens" are physically injurious to the operatives, the heat arising from them affecting the eyes of men working over them. The large number of small bakers forms the chief obstacle to any voluntary general agreement as to hours, wages, and conditions of labour. The committee was forced to the conclusion that only by scheduling the industry under the Wages Board Act, 1909, can any permanent improvement be effected. The secretary of the Operative Bakers' Union stated that 80 per cent. of the men work from 70 to 84 hours per week. Another 10 per cent. work even more—approaching 100 hours per week. The pace at which the work must be done has increased enormously since the introduction of machinery. There seem to be no fixed meal times; in many cases the men eat their food as they work, even on Saturdays, when from 16 to 22 hours is the usual day's work.

July 5th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The University of Liverpool: New Professor of Inorganic Chemistry.

THE Council of the University has recently appointed Mr. E. C. C. Baly, F.R.S., to the Grant chair of Inorganic Chemistry, rendered vacant through the death of Professor J. Campbell Brown. Mr. Baly was educated at University College, London, and is a Fellow of the Institute of Chemistry. In 1889 he was appointed assistant professor at University College under Sir William Ramsay, and received his Fellowship of the Royal Society in 1909. In 1903 Mr. Baly was appointed lecturer in spectroscopy at University College, a post he has held ever since. He has had a wide teaching experience, and has carried out much valuable research work. He has published many scientific papers, and has a great reputation as an investigator.

The Mary Kingsley Medal.

Mr. W. H. Lever, the chairman of the School of Tropical Medicine, entertained on June 25th at the Adelphi Hotel, Liverpool, some of the recipients of the Mary Kingsley Medal and the Society of Tropical Medicine and Hygiene. It will be within the recollection of all those interested in the study of tropical medicine that the Mary Kingsley Medal for Tropical Medicine was instituted in connexion with the great work that intrepid explorer accomplished in the tropics, especially in West Africa, before her untimely death and burial at sea off South Africa. The medal, which is of bronze, is a very handsome work of art, and consists of an artistic portrait of Miss Kingsley; on the reverse side is an allegorical tropical picture with the motto "Devotion to Science." The recipients of the medal are divided into two classes, those called "honorary recipients" and "recipients." Surgeon-General Sir Alfred Keogh, who was present as one of the guests, said his special mission was to endeavour to bring into the councils of the War Office a realisation of the fact that medicine was an applied science, and that it was not concerned merely with the treatment of disease, but its prevention. Sir David Bruce, Professor Ronald Ross, and Dr. F. M. Sandwith also addressed the assembly. By a rule of the school, those directly connected with the school are not eligible for presentation of the medal.

The Liverpool Tuberculosis Exhibition.

The Tuberculosis Exhibition held in St. Martin's Hall was brought to a close on June 25th, the final lecture being delivered by Dr. E. W. Hope, the medical officer of health. Alderman Menlove, the chairman of the health committee of the city council, presided, and there was a crowded attendance. Dr. Hope's lecture was illustrated by limelight views. He emphasised the importance of ventilation and change of air in rooms. In referring to the decline of the death-rate from tuberculosis he pointed out that females had mostly benefited in Liverpool. The female rate of mortality from that disease had declined very much faster than the male. The women had benefited from the improvement in the dwellings. The results of the fight against tuberculosis were encouraging, and he hoped that they would all continue to persevere in their efforts. The chairman, who cordially thanked Dr. Hope for his lecture, said he was greatly interested in the fact that such large numbers of people had attended the exhibition and lectures. Good work had been done. He wanted to do the best he could for the British working men, because they were the backbone of their country. Dr. Hope's heart and soul were in his work. The number of people attending the lectures had been over 12,000. This showed that they had been a success, and he hoped all had gained some information as to the means of promoting health and happiness amongst themselves. 36,000 people had visited the exhibition. He proposed a hearty vote of thanks to Dr. Hope for his interesting and instructive lecture. The motion was seconded by Mr. Anthony Shelmerdine and enthusiastically carried. The ladies, gentlemen, nurses, and others who had assisted in promoting the success of the exhibition were also thanked for their services.

July 5th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Insanitary Houses in Glasgow.

THE chief sanitary inspector of Glasgow, in a statement dealing with insanitary houses in the city, holds the opinion that the general standard of house cleanliness is higher than it was some years ago. Some parts of the city are worse than others in this respect, but an example which the sanitary inspector gives makes one realise the necessity of a regular and systematic house-to-house inspection even in these days of more advanced hygienic ideals. In this case the complaint of a neighbour drew the inspector's attention to a single apartment on the top floor of a three-storey tenement. It was occupied by a single woman, and contained 1330 cubic feet. She worked as a fringer in a fringe- and tassel-maker's warehouse, and over and above her weekly wage her employer permitted her to clean the warehouse and take away any pieces of useless fringing or cotton waste lying on the floors. As a result, it had been for years her custom every night to take a parcel of this waste material to her room and store it there as a standby against the time when she could work no more. By waiting one night until her return from work the inspector was able to obtain a look at the apartment and was astounded to find that it could not be entered except by climbing over a mountain of cotton waste, which filled the whole room from the window to the door, up to within 3 feet of the ceiling. No part of the floor was to be seen. Steps were immediately taken to have the refuse cleared away. The window had to be taken out and the waste thrown out on to the court below. The total weight of the material was 2 tons 15 cwts., and the woman realised £7 7*s.* 9*d.* for the lot. She admitted that she crept over the heap every night and slept in a corner near the window. Buried beneath the heap were found two chairs which constituted the only furniture in the room, and two dead cats, which somehow had found entrance to this strange domicile to die. Apart from any question of sanitation, it is obvious that the whole area was in constant jeopardy from fire. In fact, it is marvellous how it escaped, as here and there, through the heap of combustible refuse, were found loose matches which had not been lighted.

Death of Dr. William Macintosh Gilmour.

The death occurred recently of Dr. William Macintosh Gilmour, one of the best-known medical practitioners in Govan. Born in Glasgow 68 years ago, Dr. Gilmour graduated at Glasgow University, obtaining his degree of M.D. when 23 years of age. A few years later he was appointed Government certifying surgeon for the districts of Govan and Whiteinch, a position which he held for 40 years. Only a few days ago Dr. Gilmour applied for, and obtained, leave of absence for two months, this being the first application he had made during the long period he held his appointment. As a practitioner he was well known and highly esteemed in Glasgow and neighbourhood.

Dundee School Board Medical Officer.

The Dundee school board has appointed Mr. Alexander Edward Kidd, M.B., C.M. Edin., D P.H., chief medical officer, at a salary of £400 per annum. At present he is medical officer of health of Monifieth and clinical assistant in the Eye Institution, Dundee.

Death of Dr. Blackhall, late of Crimond.

The death took place on June 30th at West Didsbury, Manchester, of Dr. Adam Blackhall, late of Crimond. Dr. Blackhall, who was a native of Fraserburgh, studied at the University of Aberdeen, and graduated M.B., C.M., and later M.D., of that University. For nearly 30 years he practised at Crimond. Seven years ago he retired and went to the south of England for the benefit of his health. A few months ago he underwent a rather serious surgical operation and never completely recovered. The deceased gentleman, who was unmarried, was very well known in Fraserburgh and district, and was a justice of the peace for Aberdeenshire. On leaving Crimond he was presented by his patients and friends with an illuminated address and a silver salver in recognition of the respect and esteem in which he was held in the community

Appointment for a Shetland Medical Man.

Dr. John K. Jamieson of Sandness, Shetland, has been appointed professor of anatomy in the University of Leeds. Dr. Jamieson is a graduate of the University of Edinburgh and has for some years been chief demonstrator of anatomy in the University of Leeds.

July 4th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Compulsory Irish.

THE decision of the Senate of the National University of Ireland that Irish shall be a compulsory subject at matriculation examinations in and after 1913 has raised a storm of protest in many educational quarters. A recommendation in favour of this action was presented to the Chancellor and Senate by a deputation from the General Council of the County Councils, which offered special scholarships should this recommendation be adopted. The movement for the revival of Irish as a spoken tongue has gained in power during the last few years, but it is felt that the educational value of the language is not sufficient to justify its study being made compulsory for professional students. The decision is one highly unfavourable to the advancement of the study of medicine at the National University of Ireland. The medical curriculum is already a very full one, and this addition of an extra subject which has no practical utility will undoubtedly prevent many intending medical students from entering the University.

Libel Action against a Hospital Committee.

On June 23rd the Lord Chief Baron delivered judgment in favour of the Incorporated Dental Hospital of Dublin in an action brought against it for libel by Mr. Keogh. The plaintiff who, although not a qualified dentist, had practised for some years at dentistry work, applied for admission to the Dental Hospital. His application was refused in the following resolution:—

Resolved, that Mr. Keogh cannot be accepted as a student at this hospital, the committee having the right by their bye-laws to refuse any student without assigning cause.

This resolution contained the alleged libel, and the opening of the letter in which it was sent constituted "publication." The motion was dismissed with costs as groundless.

Dublin Death-rate.

At the last meeting of the public health committee of the Dublin corporation a report was read on the death-rate during the fortnight ended June 25th last. The rate from all causes in the city area was in the ratio of 18·0 per 1000 persons living, as against a mean rate in the corresponding period in the previous ten years of 20·3. In the preceding fortnight the very low rate of 16·3 was recorded, which was 5·2 below the mean rate. During the first half of the current year and the latter part of last year the death-rate had shown a steady decrease as compared with the corresponding period in the previous ten years. The zymotic death-rate had also shown a decided fall. Thi decrease, which showed itself in the latter part of the previous year, has continued up to the present. The committee considered this decrease in the death-rate very satisfactory and an indication of steady progress in the sanitary improvement of the city. The death-rate in Dublin is still, however, very high, as a rule the highest in the kingdom, and among the four or five highest in Europe. The public health department is insufficiently manned, and the city does not possess a whole-time medical officer of health.

Dread of Tuberculosis.

The education of the public concerning the infectivity of tuberculosis has seemingly its bad side in that in some cases an unreasonable fear of the disease is roused. An instance of this has occurred in relation to the Royal Hospital for Incurables, Dublin. This institution, which stands in large private grounds in the suburbs, has for over a hundred years given a refuge to incurable cases of tuberculosis. At present some 39 beds are set apart for such cases. Considering the pressure of candidates for admission to the hospital the governors have decided to increase their accommodation by building a pavilion to contain 100 beds for patients suffering from tuberculosis. To this extension an unreasoning opposition has sprung up among some of

the residents in the neighbourhood. Various misleading rumours as to the intentions of the governors got afloat. The lack of any rational ground of fear was exposed by the President of the Royal College of Surgeons at the annual meeting of the hospital last week, when he assured his hearers that they ran more risk of contracting tuberculosis in any of the streets of Dublin than in the wards of the hospital, much less in its grounds. In the experience of the hospital no evidence could be found of infection spreading from tuberculous patients to other patients or to nurses.

Two Resignations.

Dr. J. M. Finny, who has been King's professor of the practice of medicine in the School of Physics, Trinity College, since 1882, has this week retired from office. The appointment is made for terms of seven years, and on this occasion Dr. Finny declined to permit his name to go forward for re-election. His retirement from the chair of Medicine does not mean that he is withdrawing from active work. This week was announced the retirement of Sir Thornley Stoker from the active staff of the Richmond Hospital, of which, since the death of Sir William Thomson last year, he has been senior surgeon. For some weeks past his health has not been satisfactory, and he has felt it necessary to relieve himself of active work. It is hoped that rest may restore to him a considerable degree of health.

Serious Epidemic of Measles in Belfast.

A serious and widespread epidemic of measles has been, and is still, prevailing in Belfast with an abnormally high mortality. During the eight weeks ending June 25th, between 260 and 270 deaths have occurred, and during the week ending June 25th, as reported in the local press and taken from the weekly return of the Registrar-General, 36 deaths occurred in Belfast, while in the whole of the rest of the urban and rural districts of Ireland there were only 3 deaths from this disease, these occurring in Londonderry. The statistics of previous years, as pointed out in an article in the *Belfast Northern Whig* of July 1st, preclude the idea that the present is an exceptional epidemic, for in 1908 there were 186 deaths from measles in the city; in 1907, 201; and in the years from 1901 to 1908 inclusive, 1553 deaths occurred in Belfast from measles. If we take an ordinary estimate that for every death 10 have been ill, it shows the enormous magnitude of the epidemic, and who can estimate the complications or the sequelæ that have occurred? At the meeting of the city council held on July 1st the medical officer of health reported that during the past five weeks the death-rate from zymotic disease reached in Belfast the truly terrible figures of 6·5, while in Dublin it was only 0·7, in Cork 0·3, and in Londonderry 0·9. This deplorable death-rate is due to the fact that the mortality from measles has actually reached 5·3, or, in other words, nearly 1 in 4 of all the deaths in the city. The total death-rate of the city of Belfast is now 22·6 per 1000. In the same period of last year it was only 17·6, but it is now much higher than in any other city or town in Ireland.

The Treatment of Consumptives.

The town council of Lurgan, on the suggestion of its progressive officer of health, Dr. Samuel Agnew, has decided to arrange for sending patients suffering from consumption to some suitable sanatorium at the public expense, £25 to be the maximum amount spent annually.

The Belfast Coroner.

Dr. James Graham, coroner for the city of Belfast, was on July 4th, at the City Hall, Belfast, presented by his patients with a magnificent motor-car—a Daimler with a limousine body. Interesting speeches were delivered on the occasion, indicating what a strong hold Dr. Graham has on the regard of his numerous friends.

July 4th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Tumours Produced by Surgical Dressings.

M. Paul Reynier is of opinion that certain kinds of dressings applied to wounds may lead to the formation of inflammatory deposits simulating tumours, and at a meeting of the Academy of Medicine, held on June 21st, he gave clinical details of two cases which supported this view. He said that such mishaps were more common than was generally supposed, evidence to this effect being readily obtainable by those who took the trouble to look for it. As the gauze which was supplied to hospital wards sometimes had a fleecy surface and was overheated in sterilising, when compresses made of it were used for absorbing the fluids present in wounds it was very difficult to prevent them from leaving fragments of vegetable fibre in the tissues. It would be desirable to have all these compresses hemmed. The larger sizes of these fibres remained on the surface of the wound and were harmless, but the very small ones might be taken up by the capillary lymphatics and carried along until they were stopped by an abrupt bend, where they gave rise to defensive processes of phagocytosis and sclerosis, which might be mistaken for a relapse or a metastasis. The diagnosis of this condition was particularly difficult, but could be made when there was a very short interval (less than 20 days) between the operation and the pseudo-relapse, and especially when the size of the growth was out of proportion to its duration. It ought to be remarked that in the cases described by M. Reynier the presumed embolism of fibres from the dressings occurred in patients already suffering from tumours, and that the condition of the tissues in which the pseudo-relapses made their appearance might be of importance. This, however, was a hypothesis which would have to be tested by the subsequent course of events.

The Société de Médecine of Paris.

At a meeting of the Société de Médecine held on June 25th M. P. Ménière showed an apparatus with which definite doses of mercury could be administered to syphilitic patients by inhalation of mercurialised air. This apparatus has been in use for the last three months in the wards of M. Queyrat at the Hôpital Ricord and the results obtained have been very encouraging. M. Ménière said that although this method might not be therapeutically more efficacious than other modes of treatment it was at least free from all their inconveniences.—M. de Keating-Hart, discussing the treatment of cancer by fulguration and by electro-coagulation respectively, said that electro-coagulation was a kind of blindfold surgery, which might even produce ill-effects by stimulating the germs in the deeper tissues. Fulguration had a salutary effect on the local trophic processes in consequence of a remote action of the electric spark on the spinal cord.—M. André Lombard in the course of remarks on the treatment of hæmophilia, albuminuria, and glycosuria, said that these three conditions sometimes had an origin in common—namely, an alteration in the plasticity of the blood. It was therefore probable that gelatin given by the mouth might be beneficial in such cases and in his hands this method of treatment seemed to have a beneficial effect.

July 5th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Asiatic Cholera in Berlin.

ON June 23rd the daily newspapers of this city announced that a Russian emigrant on his way to America had shown symptoms of cholera. He died after an illness of only 30 hours' duration, and the bacteriological examination made in the Institution for Infectious Disease proved that the case was really one of Asiatic cholera. The news has up to the present time caused scarcely any alarm. Berlin is traversed by the railway connecting Russia with Hamburg and Bremen, the seaports from which the majority of emigrants depart for America. Owing to the notorious negligence of the Russian officials reliable information as to the existence of epidemics in Russia is difficult to obtain, and is given as a rule only when the epidemic has become rather widely spread. To avoid infectious diseases being imported very strict measures are therefore taken by the German Government with regard to Russian emigrants. Not only have they to undergo a careful medical inspection at the frontier, where every emigrant suspected to be ill is refused entrance, but they are also conveyed by special trains to Berlin, where a special station has been provided for them outside the city at some distance from other dwellings. Here they are once more medically inspected and are not allowed to continue their journey until they have been found healthy. In the present instance the man's appearance attracted the

attention of the inspecting medical officer, and when questioned he admitted that he suffered from diarrhœa. He was at once isolated at a special pavilion existing for such purposes near the above-mentioned station, his family and the persons who had travelled in the same carriage with him being isolated in another pavilion. Both the railway carriage and the luggage and clothes of the isolated persons were disinfected. The other travellers by the emigrants' train were allowed to proceed to Hamburg, where the Russian emigrants are dealt with in a similar way and are as much as possible kept apart from the general population until they are brought on board ship. Harsh as these measures may appear, they are absolutely necessary on account of the immense number of Russian emigrants who pass through Germany, coming partly from localities where infectious diseases exist.

Treatment of Syphilis by a New Arsenical Compound.

At the last meeting of the Berlin Medical Society the new antisyphilitic remedy discovered by Professor Ehrlich of Frankfort was the only subject of discussion. This substance, which was mentioned in THE LANCET of June 18th, p. 1719, in the account of the German Congress of Internal Medicine, recently held in Wiesbaden, has in accordance with its chemical composition received the name of dichlorhydrat-dioxy-diamido-arsenobenzol. At the Congress Professor Ehrlich stated that Professor Iversen of St. Petersburg had found that in relapsing fever an intramuscular or intravenous injection of it completely destroyed the spirilla, and Dr. Schreiber of Magdeburg mentioned that it possessed remarkable antisyphilitic properties. Dr. Wechselmann, the chief physician to the syphilitic department of the Virchow Hospital in Berlin, was the first who had an opportunity of using it on a large scale in the treatment of syphilis, and the results reported by him at the meeting of the Berlin Medical Society were so astonishing that the audience became quite enthusiastic. Dr. Wechselmann said that he had administered it to 90 syphilitic patients in early and also in advanced stages of the disease, and when using a solution of 0·4 per cent. strength he had found that after a single injection the severest symptoms disappeared in a few days. In some cases of tertiary ulceration of the palate and nose, apparently hopeless cases which had not been benefited by treatment with mercury and iodine, an injection of the new remedy was followed by rapid cicatrisation. Among the cases of recent syphilis there were some patients who also suffered from well-marked anæmia, emaciation, and cardiac debility; great caution had to be observed in giving them mercury, but the new arsenical compound agreed with them very well, and after taking it the alarming symptoms disappeared. Dr. Wechselmann showed a series of patients to whom the newly discovered drug had been administered, and for purposes of comparison he also showed models in wax representing the characteristic lesions as they appeared before the treatment. Dr. Schreiber (Magdeburg), who had come to Berlin for the purpose of attending the meeting, confirmed the statements already made by him at the Wiesbaden Congress. Dr. Alt, chief medical officer to the provincial lunatic asylum at Uchtspringe, reported the results of the treatment in cases of general paralysis of the insane, a condition which was now frequently regarded as a late sequel of syphilis. He had observed some remarkable instances of improvement, and even in one case recovery to such an extent that the patient was able to resume his occupation. Further experience will be required before a definite opinion can be pronounced on the merits of the new discovery. Several trustworthy observers, however, agreed that a single injection made the gravest symptoms disappear within a few days, whereas the use of mercury or iodine required a considerable time to produce the same effect and was liable to be attended with toxic symptoms, to which the new compound did not give rise. The opinion was expressed that if the good effects of the new drug were permanent it would revolutionise not only the treatment of syphilis but also various hygienic measures, including the regulation of prostitution. Syphilis would then be a less formidable disease, just as small-pox had lost most of its terrors since Edward Jenner's introduction of vaccination. The meeting was deeply impressed by the evident importance of Professor Ehrlich's discovery, and the welcome which he received was of the most animated description.

June 28th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Psychology in Sculpture.

ANOTHER stage in the development, intellectual and moral, of that rather inscrutable personality, the Emperor Augustus, is now in evidence for the student, thanks to Rome's latest addition to her treasure trove. This is a statue of the

"tutela praesens
Italiae dominaeque Romae,"

exhumed on the 3rd inst. 20 feet below the Via Labicana where it crosses the Via Mecenate. Covered with the soil in which it had lain for a millennium it was found to be of special interest, and was accordingly claimed as State property to be exhibited *pro bono publico* in the Museo Nazionale Romano. It measures over 6 feet and represents Augustus as sacrificing, with toga drawn over his head. The attitude is not dissimilar to that of the Emperor in the Vatican Museum, unearthed 67 years ago in the Villa of Livia on the Flaminian Way; but the expression is that of an older man, the features worn, not to say wasted, marked with lines of care. The figure is somewhat flat and the toga in which it is draped falls in many folds. Inferior, perhaps, to that in the Vatican, it has an interest of its own, telling of years of strenuous work, of anxious thought, and of the end of all things in the near future. There is a pathos in the expression akin to that which saddens us in the bust of Marcus Aurelius, whence the good Emperor looks out wistfully and hopelessly on Rome's inevitable decline and fall. Augustus may now in statuary be studied in his boyhood, his prime, and his later years—the first stage represented in the bust found in 1805 by Consul Fagan, in which he figures as a thoughtful youth, with infinite capacities in statecraft; the second in the imperial pose of the triumphant Emperor, wielding the world's destinies; the third in the pathetic guise of the hierophant, head of a cult in which he did not believe, and all too prescient of the empire's fate in other and less competent hands. The illness, moreover, of which the physician Antonius Musa cured him by the cold water treatment seems to have returned, the facial lines indicating the dyscrasia of the circulatory system associated with the rheumatoid cachexia. The three sculptured presentations, indeed, have been signalised by a distinguished art critic as affording material for an interesting historical study, in which the findings of a Mommsen or a Ferrero may be illustrated or checked by the artist working in Pentelic and Parian marble.

The Senator Schiaparelli.

All Italy, and indeed the scientific world in general, anxiously awaited the medical bulletins last week announcing the stages in the illness of the illustrious astronomer, who, as Director of the Milanese Observatory, held in his special *métier* a position not inferior to that of his lately deceased compatriot in chemistry, the Senator Cannizaro. Aged 75 years, Schiaparelli had been betraying symptoms of arterio-sclerosis, culminating in a cerebral thrombosis which had impaired the centre of articulate speech. While unable to express himself in words, he had full command of his faculties and maintained serenity until the end yesterday. Some ten years ago he had a seizure premonitory of the affection from which he died, associated, moreover, with "disturbi viscerali" (intestinal disorders). His well-known reluctance to spare himself in the duties of his post counted for something in the sad issue of his illness, exceptionally exacting as these duties had been these many months past, during which he had been employed, in coöperation with brother astronomers in Germany, on what his medical advisers refer to as "un lavoro ponderoso."

July 5th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Inadequacy of the Mussulman Hospitals.

THE Mussulman hospitals of Constantinople treat unusually large numbers of patients, and it has been found that the medical and administrative staffs of these charitable institutions are wholly inadequate to meet, in a satisfactory manner, the present-day needs of the city. The authorities have therefore decided to send some of the patients to the Greek and Armenian hospitals. The Armenian Patriarch, however,

who has been advised of this decision, protests against it. He states that during the former absolutistic *régime* the Armenian hospital used to receive from the Ottoman Government considerable quantities of meat and bread, but for the sake of economy these allowances were withdrawn soon after the establishment of the Liberal Government. The Armenian hospital has sufficient work to do without taking in additional patients from the Mussulman hospitals, receiving, as it does, from 800 to 1000 patients per month. The Patriarch concludes his protest by stating that if the former allowances are continued he will favourably consider the reception of patients from the Mussulman hospitals.

A Hospital at Mush.

The Armenians of the Caucasus, Russia, have subscribed 150,000 francs for the erection of a hospital at Mush. A medical man, a graduate of a Russian University, who is to be the chief of this hospital, has arrived at Constantinople for the purpose of obtaining a permit to practise medicine in Turkey. The hospital will receive Moslem as well as Kurd patients.

A Wise Hygienic Measure.

It has been found that a number of the Constantinople police are suffering from venereal and syphilitic diseases. The medical authorities have therefore decided to submit all policemen to a thorough physical examination and to dismiss from the service those who are found to be suffering from any infectious disease.

A Medical Congress at Sofia.

A congress of medical men of the Slav countries will be held next month at Sofia. I understand that King Ferdinand of Bulgaria takes a vivid interest in this congress and will give it his support. Dr. Béron, the President of the Bulgarian Medical Association, has left for Prague in order to prepare the programme of the congress in concert with the central committee of the Slavic General Medical Federation.

A Strange Measure.

There are a number of medical men in the municipal service of Constantinople and the provinces who have studied abroad and who have only diplomas of foreign universities. The Ottoman Government has now decided that for the future all the municipal medical men will be chosen only from among the graduates of the Imperial Medical Faculty of Constantinople. This boycott will certainly not prove to be of benefit to the country.

Great Disasters in the Provinces.

Grave news of disaster come from several villages where the hail-storms and inundations have been severe. Especially sad is the following telegram received from Erzerum: "To-day 65 dead bodies have been discovered in the rising waters. It is believed that the number of deaths exceeds a hundred. 300 animals have perished. 121 houses, including two theological seminaries and the mosque of Kassim Pasha, the greatest in the whole of the Ottoman Empire, are completely destroyed. 35 other houses are in danger of tumbling down and 140 buildings are very badly damaged. Most of the bakers' shops are destroyed, and there is great want of bread." Terrible inundations are reported also from Adrianople. The train communication with Western Europe has been interrupted.

June 18th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

Medical Education in the United States.

THE subject of medical education in the United States occupies considerable attention. For years a strenuous effort has been made to raise the average standard by elevating or suppressing a large number of chartered proprietary medical schools which continue to grind out yearly a considerable number of insufficiently educated physicians. At the meeting of the National Confederation of State Examining Boards a very severely critical report on the educational facilities of many of these schools was issued by the president of the Carnegie Foundation, Dr. H. S Pritchett, and Mr. Abraham Flexner (a brother of Dr. Simon Flexner), also of the Carnegie Foundation. This report condemned in unsparing terms many of these commercial medical schools, and in the State of Missouri mentioned only three—the St. Louis University, Washington University, and the State University—as being up to the standard (during 1909 St. Louis University had the lowest percentage of failures at the different State licensing boards of any medical school in the entire country). This report roused a great deal of bitter comment on the part of those connected with schools condemned, which was not lessened by the report of the Council on Medical Education of the American Medical Association, which, in an independent investigation, had arrived at practically the same conclusions. For the improvement of educational conditions the Council recommends the following requirements as the "American standard": a four years' high school education; a year or two in the university laboratories of chemistry, physics, and biology; four years in a medical school, and a clinical year as an interne in a hospital. The report states that about two-thirds of those schools in the country which deserve recognition have either already put into force the requirement of college physics, chemistry, and biology, or will put this requirement into force this fall. Sixteen schools are now requiring, and ten more will require from the coming school year on, two or more years of work in a college of liberal arts in addition to the four years' high school education, while 21 schools either require now, or have announced that they will require, one year of college work in addition to the four years' high school education. The College of Physicians and Surgeons of St. Louis, which is one of those schools assailed in the report of the Carnegie Foundation, has brought an action for $100,000 damages for defamation against Dr. Pritchett, Mr. Flexner, and Dr. Simmons, the secretary of the American Medical Association.

Number of Physicians in the United States.

It may be of interest to British medical men to report the condition in each State, as determined by the Council of the American Medical Association, in regard to the number of practising physicians: Alabama has 1 physician to every 924 people; Arizona, 1 to 626; Arkansas, 1 to 583; California, 1 to 401; Colorado, 1 to 386; Connecticut, 1 to 740; Delaware, 1 to 900; District of Columbia, 1 to 262; Florida, 1 to 865; Georgia. 1 to 886; Idaho, 1 to 664; Illinois, 1 to 587; Indiana, 1 to 557; Iowa, 1 to 605; Kansas, 1 to 642; Kentucky, 1 to 649; Louisiana, 1 to 900; Maine, 1 to 605; Maryland, 1 to 655; Massachusetts, 1 to 567; Michigan, 1 to 649; Minnesota, 1 to 981; Mississippi, 1 to 870; Missouri, 1 to 552; Montana, 1 to 800; Nebraska, 1 to 602; Nevada, 1 to 239; New Hampshire, 1 to 652; New Jersey, 1 to 925; New Mexico, 1 to 626; New York, 1 to 617; North Carolina, 1 to 1216; North Dakota, 1 to 971; Ohio, 1 to 585; Oklahoma, 1 to 581; Oregon, 1 to 646; Pennsylvania, 1 to 655; Rhode Island, 1 to 724; South Carolina, 1 to 1324; South Dakota, 1 to 820; Tennessee, 1 to 681; Texas, 1 to 653; Utah, 1 to 908; Vermont, 1 to 533; Virginia, 1 to 917; Washington, 1 to 616; West Virginia, 1 to 706; Wisconsin, 1 to 930; and Wyoming, 1 to 541. From these figures it will be seen that everywhere, except in the two Carolinas, the competition is much keener than is allowed by the ordinary British estimate of 1 to 1000 as a minimum.

The American Federation of Sex Hygiene.

This new association was founded during the meeting of the American Medical Association, with a view to educating the public in sexual physiology and hygiene, and combating the spread of venereal diseases by every method, educational, sanitary, moral, and legislative. Among the officers are: Honorary President, Dr. Charles W. Eliot, professor emeritus and former president of Harvard University; President, Dr. Prince A. Morrow of New York. Every State and local organisation in the United States dealing with the sociological aspects of sex problems is eligible for membership.

Women's Medical College of Pennsylvania.

The sixty-first annual report of this College, which is situated at Philadelphia, has just been issued, and will be pleasant reading to those specially interested in the advancement of women and in the organisation on practical lines of women's work. Medical women attending this College must be of good moral character, of which they must present a certificate signed by two reputable citizens, preferably physicians, and they must possess a Bachelor's degree from an approved college or university, and a diploma from an accredited high school, normal school, or academy, or pass a special examination. Every candidate for the degree of

Doctor of Medicine must attend four full courses of instruction in four separate years.

The Rôle of the Pharmacist.

The address of the chairman of the Section on Scientific Papers at the recent annual meeting of the American Pharmaceutical Association was noteworthy from the fact that it dealt with the failure of pharmacists as a body to do their part in the development of the science of medicine. He gave it as his opinion that pharmacists as a class have done little more in this direction than occasionally endeavour to utilise the results of other workers in the exploitation of proprietary medicines of questionable value. Pharmacists, he thought, have been particularly backward in recognising the limitations of medicines and the possible harm that may result from their abuse. While it is true that the art of synthesis may have added valuable substances to our store of remedial agents, it is a grave question whether the results so far achieved are not to be deplored rather than lauded, whether the lives unduly shortened do not actually outnumber the lives that have been prolonged by the all too liberal use of the products of the tar barrel. While the extent of the responsibility of the pharmacists for this state of things cannot be precisely determined, he thougbt it certain that their indifference to ultimate results was responsible for many of the abuses in connexion with so-called synthetic remedies. As a class pharmacists have become so indifferent to the use of drugs that they do not always fully appreciate the possibility that even the continued use of saline cathartics, or of the widely advertised purgative mineral waters, may do harm directly by developing a tendency to spastic constipation, and indirectly by masking for a time symptoms that may prove to be the early indications of a serious disorder. Apart from physicians in active practice, no class of men can exert a more beneficent influence in safeguarding the abuse of drugs than the pharmacists who supply them to the community. The true vocation of the pharmacist is to develop our knowledge of drugs and the best methods of presenting them to the patient. It should be his province to apply the results of scientific research, to aid in replacing crude drugs by definite principles, and to urge the abandonment of unscientific and inert products. These observations, though made to an American audience, serve to show that the pharmacist, wherever he may ply his art, serves bis day and generation best when he recognises the possibilities of doing useful work that are daily presented to him in safeguarding the health of the public and in doing his part in the investigation of those drugs which he knows are unsatisfactory and capable of being improved.

June 28th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

The National Medical College of India.

THE prospectus has been issued of an institution calling itself "The National Medical College of India." This "College" is located at Calcutta and has been incorporated under Act XXI. of 1860, promulgated by H.E. the Viceroy of India and Governor-General in Council. It has as its objects the provision of medical instruction to native students who cannot afford what is termed the heavy fees of the recognised colleges which are State-aided by the Government of India. The prospectus sets forth a list of examiners for 1910–11, but the subjects which they are appointed to examine in are not stated. This list contains the following names:—

External examiners.—His Highness the Maharaja Bahadur Gondal, M.D., F.R.C.P. Edin.; Sir Bhal Chandra Krishna, L.M.K.T.; Lieutenant-Colonel R. L. Dutt, M.D., I.M.S. (retired); Lieutenant-Colonel U. N. Mukerjee, M.D., I.M.S. (retired); Lieutenant-Colonel D. D. Basu, M.D., I.M.S. (retired); Major B. D. Basu, M.D., I.M.S. (retired); Dr. R. Rao, M.D. Lond., D.Sc. Lond.; Dr. M. Sreenevasa Rao, M.D., D.Sc., F.R.C.S. Edin.; Dr. M. Bhajekar, M.D., F.R.C.S.

Internal examiners.—Professors: S. K. Mullick, M.D., M.S. Edin. (diseases of chest and clinical medicine); B. K. Chatterjee, D.P.H. Cantab., L.R.C.S., L.R.C.P. Edin. (sanitation); A. Roy, L.M.S. (surgery); B. C. Ghose, M.A., M.B., C.M. Cantab. (medicine); D. R. Dass, L.R.C.P., L.R.C.S. Edin., L.M. Rotunda, &c. (midwifery and gynæcology); A. K. Mukerjee, L.M.S.; S. B. Mittra, L.M.S.; Jitindra Nath Sen, M.A. (Hon.); A. Niyogi, L.M.S. (superintendent); K. C. Dutt, L.M.S.; S. Sanyal, L.M.S., B.Sc.; N. N. Chuckerbutty, L.M.S.; Kaviraj Ganendra Nath Sen Kaviratna; and Kaviraj Jatindro Nath Sen Kaviranjan.

The period of study required to complete the course is laid down at five years. The following diplomas are awarded: 1. The F.C.P.S (Fellow of the National College of Physicians and Surgeons). The diploma will be conferred by ballot and is apparently to be limited as an honorary distinction to be conferred on scientists of distinction who have enriched some branch of science by original research. 2. The M.C.P.S. (Member of the National College of Physicians and Surgeons). 3. The L.M.S. (Natl.) (Licentiate in Medicine and Surgery of the National Medical College of India). The last two diplomas are to be conferred by examination. 4. The D.P.H. To meet the demand for sanitary officers it has been decided to train qualified scholars for proficiency in public health.

The most remarkable feature about this college appears to be its financial status. We are informed in the prospectus that "we train our boys under the best masters, with European and local qualifications, who labour for the college at a great sacrifice, *the welfare of the scholars being their only reward*" (the italics are mine). The fees to be paid by the students taking out classes are as follows:—Admission fee Rs. 3 (4*s.*); fee for the M.C.P.S. class, Rs. 4 (5*s.* 4*d.*); and for the L.M.S., Rs. 3 (4*s.* 0*d.*) per month; for practical classes and dissections the fee is Rs. 5 (6*s.* 8*d.*) for the session. The prospects of students passing out of the College are set forth as follows: "Students passing from this College can enter to the medical department of railways, steamer services, district boards, municipalities, tea estates, collieries, private charitable dispensaries, special segregation camps, family physicians to zemindars, feudatory states, and the rise of the national spirit makes them doubly welcome as private practitioners."

Medical News.

UNIVERSITY OF LONDON.—At examinations held recently the following candidates were successful:—

M.B., B.S. EXAMINATION.

Honours.—*Joseph Dudley Benjafield, University College Hospital *†‡ Eric Gerald Gauntlett (University medal), King's College Hospital; *Thomas Duncan Macgregor Stout, Guy's Hospital; and ‡Francis Martin Rouse Walshe, University College Hospital.

* Distinguished in Medicine. † Distinguished in Forensic Medicine. ‡ Distinguished in Surgery.

Pass.—William Reginald Ward Asplen, Westminster Hospital; Cyril Banks, University of Sheffield; Henry Lewis Barker, St. Mary's Hospital; John Nathaniel Beadles, Westminster Hospital; Leonard Christopher Blackstone, University College Hospital; Edward Spencer Calthrop and Angel Camacho, Charing Cross Hospital; Bernard Arthur Cheadle, St. Thomas's Hospital; George Henry Chisnall, London Hospital; Ethel Mary Connan, London (Royal Free Hospital) School of Medicine for Women; Ardeshir Koyaji Contractor, University College Hospital; Emily Susan Cooke and Nina Gertrude Cotton, London (Royal Free Hospital) School of Medicine for Women; Goronwy Meredith Davies, St. Thomas's Hospital; Donald Frederick Dobson, University of Leeds; James Philip Elias, Victoria University of Manchester; Edgar Lionel Elliott, Guy's Hospital; Sidney Frank Fouracre, Charing Cross Hospital; Harold Gardiner, Guy's Hospital; Douglas Green, University of Sheffield and University College Hospital; Henry Hingston, Westminster Hospital; Edward Leslie Horsburgh, Victoria University of Manchester; Stanley Hoyte, Westminster Hospital; Arthur Ernest Iles, University of Bristol; Anne Louise Jane Kann, London (Royal Free Hospital) School of Medicine for Women; David Kennedy, University College Hospital; Norman Claudius Lake, B.Sc., Charing Cross Hospital; Theodore Stewart Lukis, St. Bartholomew's Hospital; George Maxted, Guy's Hospital; Marjorie Eva Middleton and Ethel Mary Morgan, London (Royal Free Hospital) School of Medicine for Women; Hubert O'Meara, University College Hospital; Dossibai Rustomji C. Patell, London (Royal Free Hospital) School of Medicine for Women; William Norman Pickles, University of Leeds; Wilfrid Langrish Pink, St. Thomas's Hospital; Arthur Borland Porteous, St. Mary's Hospital; Simon Isaac Rabbinowitz, London Hospital; Norbert Leo Maxwell Reader, Guy's Hospital; Ernest Edward Andrew T. Rigg, University College Hospital; Mary Cowper Scott, London (Royal Free Hospital) School of Medicine for Women; Ernest Gerald Stanley, St. Bartholomew's Hospital; Tom Stansfield, Guy's Hospital; Harold Herbert Tanner, St. Mary's Hospital; Harold Lindley Tasker, University College Hospital; Norman Tattersall, Victoria University of Manchester; Cecil Carrington Tudge, Guy's Hospital; William Reginald Margetts Turtle, London Hospital; Robert William Walker Vaughan, University College Hospital; Philip John Veale, University of Bristol; Arthur Leonard Weakley, St. Bartholomew's Hospital; Walter Weir, St. Thomas's Hospital; Robert Heywood Wilshaw, Victoria University of Manchester; and Robert Noël Woodsend, University College Hospital.

The following candidates have passed in one of the two groups of subjects:—

Group I.—Kathleen Baylis, London (Royal Free Hospital) School of Medicine for Women; Frederick Leslie Brewer, University College Hospital; Hugh Arrowsmith Grierson, University of Liverpool; Walter Shirley Kidd, Guy's Hospital; Mark Alleyne Nicholson, London Hospital; John Valentine Rees, London Hospital and University College, Cardiff; and Charles Witts, Guy's Hospital.

Group II.—Thomas Knowles Boney, St. Bartholomew's Hospital; Edward George Huxley Cowen, Charing Cross Hospital; Arthur Neville Cox, Guy's Hospital; Roger Bellis Edwards, University of Liverpool; Thomas Charles Cann Evans, St. Mary's Hospital; Thomas Woodcock George, London Hospital; Katherine Anne Gill, London (Royal Free Hospital) School of Medicine for Women; Evan Hugh Jones, St. Thomas's Hospital; Evan Rhys Jones, St. Bartholomew's Hospital; Alfred Everard Lees, Guy's Hospital; Kenneth Dalrymple Marriner, St. Thomas's Hospital; Raymond Montgomery, Guy's Hospital; Arnold Rensbaw, Victoria University of Manchester; Arthur Leyland Robinson, University College Hospital; Henry Gordon Smith, St. Bartholomew's Hospital; Harold Thwaite, University of Birmingham; Stanley van Someren Boyd, London Hospital; and Elsie Warren, London (Royal Free Hospital) School of Medicine for Women.

B.S. EXAMINATION (*for Students who Graduated in Medicine in or before May, 1904*).

Harold Hartley, M.D., Victoria University of Manchester; and Olive McDougall, M.D., London (Royal Free Hospital) School of Medicine for Women and Victoria University of Manchester.

COUNTY OF DURHAM SOCIETY FOR THE PREVENTION AND CURE OF CONSUMPTION.—The eleventh annual meeting of this society was held on June 25th in the Sanatorium for Men at Stanhope, Mr. J. A. Hyldyard presiding, in the absence of the President, Lord Barnard. After the reading of the various reports the chairman of the committee, Dr. W. Robinson of Sunderland, moved their adoption. He briefly referred to the death of the late King Edward and then alluded to the late Professor Koch, whose work had placed the crusade against consumption on a scientific basis. He stated with pleasure that the death-rate from tuberculosis in the county had fallen from 2·13 in 1897 to 1·7 in 1908, and said that this was due in the main to improvement in general sanitation, and to the disease being arrested in many cases by modern rational treatment in sanatoriums and elsewhere; in spite of this, the toll of lives from the disease was still enormous and its cost to the country (England and Wales) was not less than £7,000,000 a year. Now that the bulk of the scientific work necessary to eradicate the disease was accomplished, he urged that the time had come for statesmen and local authorities to put in force those special preventive measures which would eliminate this greatest cause of death from amongst them in a generation. He invited the friendly societies to send their cases of consumption early so as to prevent the depletion of their funds, as they could do by giving a subscription of 1*s.* a year per man, as did so many thousand men in various works and yards in the county. 298 patients had applied for admission during the year and 225 were admitted. Of these, local authorities had sent 101 and paid £1407, and subscribing workmen had sent 71 patients and paid £1068. The ordinary subscriptions were only £200. He regretted that only one-fourth of the cases admitted were in an early and curable stage in spite of the most careful selection. In the Stanhope Sanatorium for Men the average daily number of patients was 42·4, the cost of each patient per week was 19*s.* 10½*d.*, and the average stay in the sanatorium was 15·4 weeks. The total cost of stimulants was £1 0*s.* 6*d.* 75 per cent. of the men in an early stage of the disease had been apparently cured. The new diet, which had been adopted a year ago and which was such that working people could also obtain it at home, had resulted in an increased gain of 3 pounds per week over that of last year on an average in early cases. At the Wolsingham Sanatorium for Women and Children the average daily number of patients was 18·6, the weekly cost of each patient was £1 1*s.* 3*d.*, and the average stay was 16·4 weeks. The total cost of stimulants was £1 1*s.* Exercise and graduated work had been more systematised at both places during the year. The ordinary income of the society for the year had been £3877, and the ordinary expenditure £3339. He regretted that their appeal against the income tax authorities had been unsuccessful. He concluded by praising the paid staff. The motion was seconded by Mr. C. E. Thompson and supported by the Bishop of Richmond, who emphasised the successful work accomplished by the sanatoriums, the need for cases to be sent in in an earlier stage by medical men and others owing to the depressing effect of the admission of hopeless cases, and the great value of the regulated work which was carried on by the patients. Councillor Elliott of Gateshead said that the local authorities generally were doing a great deal of work in the improvement of sanitation, and were only held back from doing more by the outcry of the ratepayer against higher rates; he praised the work of the sanatoriums and said that every patient who left became a missionary in the cause of good food and the open window. Votes of thanks terminated the proceedings.

THE SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH: THE WHIPPLE MEMORIAL.—Nearly £250 have been received towards the proposed operating theatre, which is to be erected at the South Devon and East Cornwall Hospital as a memorial to the late Mr. Connell Whipple, who was for so many years on the honorary staff. It is hoped that about £700 will be raised, and subscriptions may be sent to Mr. Hawker, Beaconville, Ivybridge, Devon.

DIET REFORM ON THE CONTINENT.—A correspondent writes: "The outstanding features of the International Vegetarian Congress, held under the patronage of the Belgian Government, which has recently concluded its sittings at Brussels, were the number of foreign medical men attending it or sending contributions, the scientific character of the papers and much of the discussion, and the large membership amounting to 460. As one of the handful of English people present, it occurs to me that a brief account of the proceedings may be of interest to your readers. The Congress, which was organised by the Société Végétarienne de Belgique, met in the Exhibition Buildings in rooms set apart by the Government, which likewise presented official programmes to the delegates and free passes to the exhibition, and was conducted on the lines of a similar official congress held at Paris during the exhibition of 1900. It was preceded by a reception at the Maison des Médecins, one of the famous guild houses in the Grand Place. The delegates were welcomed by Dr. Ernest Nyssens of Brussels, chairman of the executive committee of the Congress and editor of *La Réforme Alimentaire* which, by its scientific methods, has done much to win consideration, alike in France and Belgium, for the subjects dealt with in its pages. The Congress was opened by its honorary president, Professor Huchard of Paris, member of the French Academy of Medicine. Brief speeches followed from the representatives of the various countries. The work of the Congress was divided into four sections, each with its own president. The first section (President: M. Lefèvre, Professor of Biology at Havre) dealt with vegetarianism and hygiene, and was presided over, in M. Lefèvre's absence, by M. Roux, Leader of the Bar at Amiens. The second section (President: Dr. Pascault of Cannes, known for his writings on arthritis) considered the vegetarian system from a therapeutic point of view. The third section (President: Dr. Danjou of Nice) concerned itself with the social and economic aspect. The fourth section (presided over by Mlle. le Docteur Ioteyko, head of the Brussels University Laboratory and editor of *La Revue Psychologique*) considered the moral aspect. Among medical men who contributed papers to the Congress, or took part in the discussions, were Dr. Victor Pauchet, Amiens ('The Vegetarian Régime before and after Surgical Operations'); Dr. Fernand de Grandmaison de Bruno, Paris ('The Vegetarian Régime in Gout'); Dr. Jules Labouré, Amiens ('Education in Breathing for Sufferers from Adenoids'); Dr. A. Haig, London ('Diet as a Factor in the Higher Evolution of Man'); Dr. Pascault, Cannes ('The Physiological Synthesis of a Vegetarian Régime'); Dr. George Petit, General Secretary of the League Against Tuberculosis ('A Vegetarian Régime for Tuberculosis' and 'Sobriety in Diet'); Mme. le Docteur Sosnowska, Paris ('Diet, Air, and Exercise'); Dr. Guelpa, Paris ('Auto-Intoxication'); Dr. Michaelsson, Copenhagen; Dr. Knauf, Lake of Constance ('Diet Reform in Children's Homes'), Dr. Sels, Baden Baden; Dr. Ley, Brussels ('The Organisation of Inebriate Homes'); and Dr. Falp y Plana, Barcelona. In connexion with the Congress three lectures were also delivered to audiences varying from 300 to 600. Professor Huchard spoke on 'The Diet Factor in Mineral-water Cures'; Dr. Marcel Labbé (Professor of Physiology in the Paris University), on 'The Results of Recent Studies in Nutrition'; and Mlle. le Docteur Ioteyko, on 'Vegetarian Diet for Children,' this last being a preliminary study based on the replies to a series of questions propounded by her,

and illustrated by photographs of children, several of whom were on the platform. The lectures and papers are to be published in volume form, while single articles will also appear in *La Reforme Alimentaire* and *La Hygie*. In view of the foregoing," our correspondent adds, "the claim made by M. Roux at a banquet with which the Congress concluded, that 'on peut disputer notre propagande, mais on ne peut plus l'ignorer,' seems not unwarranted."

HER Majesty the Queen has been graciously pleased to become patron of the Invalid Children's Aid Association (London) Incorporated. Her Majesty has long been interested in this association and gave her patronage as Princess of Wales.

THE second annual meeting of the National Food Reform Association will be held at Caxton Hall, Westminster, on Wednesday next, July 13th, at 4.30 P.M. Cards of admission may be obtained from the Secretary, 178, St. Stephen's House, Westminster.

THE annual meeting of the Children's Country Holidays Fund will be held at the Whitehall Rooms, Hotel Metropole (entrance in Whitehall-place), on Tuesday next, July 12th, at 4.30. Lord Brassey will preside, and the speakers will include the Earl of Arran, Mr. C. F. G. Masterman, M.P., Mrs. Barnett, and Miss Violet Markham.

HOSPITAL SATURDAY AT ILFRACOMBE.—At the annual meeting of the committee of the Ilfracombe Hospital Saturday Fund, held on July 2nd, it was reported that as the result of the collections in 1909 the sum of £215 was raised for the local hospital. This amount is exclusive of £33 collected by the local steamboats.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Henry G. Piffard, formerly professor of dermatology in the University and Bellevue Hospital Medical College, New York. Dr. S. S. Zayaïtski, *privat-docent* of gynæcology in the University of Moscow.

ROYAL INSTITUTION.—A general monthly meeting of the members of the Royal Institution was held on July 4th, Sir James Crichton-Browne, treasurer and vice-president, being in the chair, when it was announced that His Majesty the King had graciously consented to become Patron of the Royal Institution.

LITERARY INTELLIGENCE.—Messrs. Kegan Paul, Trench, Trubner, and Co., Limited, will publish shortly a work entitled "Medicine and the Church," being a series of studies on the relationship between the practice of medicine and the Church's ministry to the sick. Among the contributors are Sir Clifford Allbutt, Dr. Charles Buttar, Mr. Stephen Paget, the Bishop of Bloemfontein, Hon. Sydney Holland, Prebendary Fausset, Dr. Jane Walker, Dr. T. Hyslop, Mr. Ellis Roberts, and Dr. H. G. Mackenzie. The work is edited by Mr. Geoffrey Rhodes and contains a foreword by the Bishop of Winchester.

INTERNATIONAL CONGRESS OF OBSTETRICS AND GYNÆCOLOGY. — The Fifth International Congress of Obstetrics and Gynæcology will be held at St. Petersburg from Sept. 22nd to 28th next, under the presidency of Professor Dmitri de Ott. The secretary-general is Professor de Sadovsky. Notices of several important reports and communications have already been sent in. The principal questions set down for discussion are: Cæsarean Section; the Comparative Value of Different Operative Procedures in the Treatment of Displacements and Deviations of the Uterus; the Vaginal Route in Accouchement and Gynæcology; and the Influence of the Nervous System on the Control of Uterine Hæmorrhages. Great Britain is represented by Dr. H. Macnaughton-Jones, as honorary president; Dr. Amand Routh (who is one of the reporters on Cæsarean section), as delegate for the Royal College of Physicians, London, and the Royal Society of Medicine; Dr. E Malins, Dr. J. B. Hellier, and Mr. E. Tenison Collins, delegates respectively for the Universities of Birmingham, Leeds, and Wales. Dr. T. Wilson of Birmingham and Dr. S. Jervois Aarons of London are also delegated by the Royal Society of Medicine. The secretaries for Great Britain are Dr. W. J. Gow (27, Weymouth-street, London, W.) and Dr. G. F. Blacker (45, Wimpole-street, London, W.), who will be happy to afford any information with regard to the Congress to anyone who proposes to attend it.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Parliamentary Session.

PARLIAMENT will adjourn in the last week of July or the first week of August and will re-assemble in November to complete the work of the session. Apart from the political considerations involved in the arrangement, Members are glad at the prospect of being relieved from attendance at Westminster during August, which is often one of the most trying months for the discharge of Parliamentary duties.

The Budget.

The Budget, which the CHANCELLOR OF THE EXCHEQUER presented on Thursday, June 30th, continues the financial arrangements of the recently passed Finance Act. One of the most notable passages in Mr. LLOYD GEORGE's statement concerned the social results of the increased taxation of spirits. Comparing 1908-09 with this year, the right honourable gentleman said that there would be a drop of 10,000,000 gallons in the consumption of spirits.

Education (Physical Training) Bill.

Viscount HILL has introduced in the House of Lords a Bill to provide for physical training in elementary, secondary, and continuation schools.

Visit of American Surgeons.

The American surgeons who are now in this country visited the House of Commons on Tuesday, July 5th. They were received by Sir WILLIAM COLLINS and several medical men who have seats in the House, and were entertained to tea on the terrace.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 29TH.

Vaccination in Prussia.

Mr. BLACK asked the President of the Local Government Board, with reference to the report on the preparation and storage of glycerinated calf lymph in Berlin and other places abroad, contained in the supplement to the twenty-sixth annual report of his department, presented to Parliament in 1897, whether in the three years 1906-07-08 there had been in England, with a great decrease in vaccination, 43 deaths from small-pox, while in Prussia, with approximately the same population, there had been 134 deaths from that disease in the same period; and whether there was any reason to suppose that the rigorous enforcement of compulsory vaccination had been at all relaxed in Prussia in the three years referred to.—Mr. BURNS answered: During the three years 1906-07-08 there were 107 deaths from small-pox in Prussia according to the official reports of the Imperial German Central Health Department, and not 134, as stated in the question. On the information before me, I have no reason to believe that any relaxation in the enforcement of vaccination has taken place in Prussia. I may add that the 107 deaths from small-pox were derived from 690 notified cases, and that of this number 219, or nearly one-third, were foreigners, chiefly from Russia, where there is no compulsory vaccination, and where during the period in question small-pox has been widely epidemic.

The Medical Inspection of School Children.

Mr. RAMSAY MACDONALD asked the President of the Board of Education why the Board was not putting into operation that part of Circular 576 which provided that children attending school should be medically examined when they had reached the age of seven, and which was to come into effect in 1909; how far the statement in Circular 576, that the efficiency of the medical inspection of schools should be one of the grounds upon which grants were to be given in future, had been carried into effect; whether in consequence of medical inspection education authorities were complaining that children were being kept away from school, with the result that grants were diminishing rather than increasing; and whether this aspect of the case had been considered by the Board of Education, and how it proposed to meet it.—Mr. RUNCIMAN replied: With regard to the first part of the question, the Board decided to postpone the operation of this requirement in order to enable the local education authorities to perfect their organisation and to systematise the work they are at present doing. The Board found, moreover, that a number of authorities were undertaking, or proposed to undertake, the medical inspection of children of all ages suffering from particular ailments, and the Board was unwilling to interrupt this work, which it hoped would be attended with fruitful results. With regard to the second part of the question, the Board had not in any respect departed from the position taken up in the circular, but I am happy to say that it has not been necessary, up to the present, to withhold grants on account of inefficient medical inspection. With regard to the third and fourth parts of the question, the Board has received complaints from some local education authorities, and it is giving careful consideration to the representations made to it, but I am not yet prepared to make any announcement on the subject.

Mr. RAMSAY MACDONALD: Am I to understand in respect of the first part of the question that the Board of Education has departed from the conditions laid down in Circular 576 requiring the special inspection of school children at the age of seven?—Mr. RUNCIMAN: No. I would not put it in that definite form. We are in many cases accepting the arrangements which have been made by the educational authorities for dealing with the problem in rather a different way, and in many cases, I think, a better way.

Tropical Diseases.

Speaking on the Colonial Office vote,

Colonel SEELY (Under Secretary of State for the Colonies) said: I will not pass from the question of the Crown colonies without making a short reference to the work of the different Schools of Tropical Medicine. I have said that we can develop part of our territories in the tropics. I have told the House a little of what we are doing. But

after all our only justification in all these countries is that we are doing good to the natives who were there before us. Whether as a consequence of the coming of the white man or not, but certainly coincident with it, there has been a spread of various diseases of an extraordinary and fatal character. The spread of sleeping sickness alone has been one of the most remarkable and one of the most disastrous events in the history of Africa. How many thousands have died from it we do not know. Tremendous efforts are being made by many countries—and I think we may claim especially this country—to combat this great scourge. Sir David Bruce and his wife went into the very heart of the district and spent many months investigating this great scourge, sleeping sickness. Almost everyone in the place where they lived was suffering in some degree from sleeping sickness. When I tell the House that out of hundreds of thousands of cases we do not know for certain of one single case where the man has recovered, I think honourable Members will realise to a much greater extent than ever before that those who are trying to combat tropical diseases take their lives in their hands when they go out to work in this great cause. Many have worked in it. Some have already died in it, and their names are, alas, already forgotten. However, this I will say, that when the history of brave deeds comes to be written, the brave deeds that these workers are doing in the heart of Africa to combat these insidious and most fatal diseases will not be forgotten, and will, perhaps, be considered as being a more striking proof of the ability of men to overcome natural fear than almost any other in the annals of mankind. From what we know now these diseases, or at any rate the bulk of them, are caused by different kinds of flies. It is probable that others will also be found to be caused by flies. It was thought that removing the natives from the fly-infected area would completely safeguard them. Sleeping sickness, for instance, is transmitted by the tsetse fly known by the name of glossina palpalis, and it was thought that if the population could be removed from the shore of the lakes where the tsetse fly lives they would escape infection. Unfortunately, this has not proved to be entirely the case. Still, we do know a great deal more than we did about the origin and the cause of sleeping-sickness. We have checked the mortality to a most remarkable degree.

The Medical Department of the Navy.

Lord CHARLES BERESFORD asked the First Lord of the Admiralty when the report upon the Medical Department of the Navy would be presented to the House.—Mr. MCKENNA, in a written reply, answered: There are financial considerations involved which the Admiralty cannot settle without further authority. When this has been obtained it is hoped at no distant date that the preparation of a Blue-book containing such portions of the report as can properly be published will be proceeded with.

THURSDAY, JUNE 30TH.

The Fees of Vaccination Officers.

Mr. STAVELEY-HILL asked the President of the Local Government Board whether he was aware that boards of guardians had not accepted his advice to grant gratuities to vaccination officers to make up for the loss of income caused by the increased number of exemption certificates granted and to increase the fees where the deficiency was likely to be permanent; and whether he proposed to take any further action with the object of bringing the matter to a satisfactory settlement.—Mr. BURNS replied: The statement in the first part of the question is hardly correct. In many cases boards of guardians have, with the sanction of the Local Government Board, compensated the vaccination officer for loss of income by granting gratuities and by raising the fees. If any cases of hardship arise and they are brought to my notice by the vaccination officer I shall be prepared to consider them and to take such action as may be practicable.

The Medical Profession and the Petrol Tax.

Mr. COURTHOPE asked the Chancellor of the Exchequer whether members of the medical profession who desired to claim the rebate of 1½*d.* per gallon upon the petrol used by them in their practice were required to attend at the office of an officer of Customs and Excise in order to sign the requisite declaration and produce the proofs necessary to satisfy the officer; and whether he would consider the possibility of allowing the rebate to be claimed in a less inconvenient manner.—Mr. HOBHOUSE (replying on behalf of Mr. LLOYD GEORGE) said: As a general rule it is thought desirable that applications for rebate of motor spirit duty should be signed in the presence of an official of the Customs and Excise Department, but officers are instructed not to insist upon this requirement in any case in which it would entail inconvenience to a claimant and where there is no doubt as to the correctness of the claim.

Mr. COURTHOPE: Has notice been given of this?—Mr. HOBHOUSE: Not yet. My attention has been called to it only by the honourable gentleman's question. I will undertake that it shall be circulated at a very early date.

The Examination of the Officers' Training Corps (Medical).

Dr. ADDISON asked the Secretary of State for War whether he could state why Whit-Monday was fixed as a day for the written examination for certificate A of the Officers' Training Corps (Medical), and whether, in view of the fact that many candidates were prevented attending because of the day fixed, he could see his way to appoint another day, so that candidates might have an opportunity of taking Certificate A in time to enter for the examination for Certificate B in November.—Mr. HALDANE replied: Examinations for Certificates A and B of the Officers' Training Corps are held simultaneously in all contingents upon dates which are arranged after consultation with the University and public school authorities to suit the convenience of the greatest number. It is understood that the last examination held on Whit-Monday interfered but little with the ordinary work of the universities. The proposal to hold an extra examination in medical subjects would involve a similar concession as regards all the other subjects, and in view of the extra labour and expense involved is not regarded as practicable.

Forthill Burying Ground.

Mr. CHARLES CRAIG asked the Chief Secretary to the Lord Lieutenant of Ireland whether the attention of the Local Government Board had been called to the overcrowded and insanitary condition of Forthill burying ground, Galway; in whom was the control of the burying ground vested; and whether he would call for a report from the medical officer of health as to the condition of the graveyard.—Mr. BIRRELL wrote in reply: In accordance with the undertaking given in my reply to a question on the same subject asked by the honourable Member on July 24th, 1907, the Local Government Board communicated with the Galway urban district council, in whom the control of the burial ground is vested. The medical officer of health did not consider that sufficient space existed for the opening of new graves, and the council informed the Board that no new graves had been opened for some years past, and that only those whose grave spaces or vaults had been reserved could claim a right to interment in the cemetery. No complaint has been received since 1907.

MONDAY, JULY 4TH.

The Notification of Pulmonary Phthisis in Scotland.

Mr. WILLIAM YOUNGER asked the Lord Advocate whether, in view of the small proportion of local authorities which had applied to have pulmonary phthisis included in the list of notifiable diseases, and of the fact that the circular of the Local Government Board of March 10th, 1906, pointed out that a system of notification was essential for the effective application of the Public Health Act to pulmonary phthisis, he would consider the advisability of making the notification of this disease compulsory throughout the country.—Mr. URE replied: Up to the present 74 local authorities, representing almost 50 per cent. of the total population of Scotland, have extended the provisions of the Infectious Diseases (Notification) Act, 1889, to pulmonary phthisis. The Local Government Board regards the progress made in this direction as very satisfactory. It will continue to urge on local authorities the advisability of extending the Notification Act to phthisis, but it does not think that such a measure as is indicated in the last part of the question is necessary or advisable meantime.

Mr. WILLIAM YOUNGER also asked the right honourable gentleman whether, in view of the fact that many local authorities had not yet taken any steps to carry out the recommendations of the Local Government Board, as suggested in the circulars of March 10th, 1906, and July 15th, 1908, in the latter of which it was stated that the obligation resting on local authorities to deal with pulmonary phthisis had become more imperative, he would take steps to compel such local authorities to fulfil their obligations towards sufferers from phthisis within their districts.—Mr. URE answered: I am informed that the Local Government Board continues to press on local authorities the necessity for action in dealing with this question and to warn them of their responsibilities in the matter; that in most districts preventive measures of some kind are in operation; and that the Board proposes shortly to issue a further circular on the subject.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANDERTON, W. B., M.B.Lond., has been reappointed Pathological Registrar to the Royal Infirmary, Manchester.

BARTON, A. B., M.B., B.Ch. Edin., has been appointed Assistant House Physician at the Bristol General Hospital.

BUCK, HOWARD, M.B., Ch.B. Vict., has been reappointed Surgical Registrar to the Royal Infirmary, Manchester.

DOUGLAS, W. R., M.B., Ch.B. Vict., has been appointed Assistant Surgical Officer to the Royal Infirmary, Manchester.

GILROY, E. W., M.D. Durh., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Hemel Hempstead District of the county of Hertford.

GREATOREX, R. W., M.B., Ch.B. Edin., has been appointed Casualty Officer to the Bristol Royal Infirmary.

HARLAND, G. B., M.B., B.S. Lond., has been appointed House Physician at the Bristol Royal Infirmary.

HELE, THOMAS SHIRLEY, M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at the Bristol Royal Infirmary.

JONES, J. A., L.S.A., has been appointed House Physician to the Royal Infirmary, Manchester.

JORDAN, ANSON ROBERTSON, M.B., B.C. Cantab., has been appointed House Physician at the Bristol Royal Infirmary.

KENNEDY, R. FOSTER, M.B., B.Ch. R.U.I., has been appointed Assistant Physician to the Neurological Institute of New York, U.S.A.

KINGSTON, S. H., L.R.C.P. Lond., M.R.C.S., has been appointed Resident Officer to the Ear, Nose, and Throat Department at the Bristol Royal Infirmary.

LAVERTY, T., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Rathfriland District of the county of Down.

LYALL, C. H. GIBSON, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Senior Assistant Medical Officer at the Leicester Borough Asylum.

MACALPINE, J. B., M.B., Ch.B. Vict., has been appointed Medical Officer at the Central Branch of the Royal Infirmary, Manchester.

MALHERBE, S. E., M.B., B.Ch. Edin., has been appointed Casualty House Surgeon at the Bristol General Hospital.

MOISER, L. H., M.B. Lond., has been appointed Medical Officer of Health for the Crediton (Devon) Rural District.

NICHOLS, F. C., L.R.C.P. Lond., M.R.C.S., L.D.S. Eng., has been appointed Honorary Dental Surgeon to the Bristol Royal Infirmary.

OSMOND, CHARLES HOLDWAY, L.F.P.S. Glasg., L.S.A. Lond., has been appointed Honorary Dental Anæsthetist to the Bristol Royal Infirmary.

PARKER, W. P. H., L.R.C.P. & S. Irel., has been appointed Assistant Medical Officer to the Barnes Convalescent Home, Cheadle.

PETERS, BENJAMIN ALFRED, M.B., B.C., D.P.H. Cantab., has been appointed Resident Medical Officer at the Ham Green City Hospital, Bristol.

PILLIET, MARY AMELIA, M.B., Ch.B., has been appointed a Woman Inspector by the London County Council under the Midwives Act.

QUINLAN, W. T., L.R.C.P. Lond., M.R.C.S., has been appointed House Physician at the Bristol General Hospital.

ROBERTSON, D., M.B., B.Ch. Edin., has been appointed House Surgeon at the Bristol General Hospital.

SALISBURY, H. K., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Clifton (Bristol) Dispensary.

SPARK, PERCY CHARLES, M.R.C.S., L.R.C.P. Lond., has been appointed Medical Superintendent at Banstead Asylum.

THOMAS, ROBERT EVANS, M.B., B.S. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Resident Obstetric Officer at the Bristol Royal Infirmary.

THOMPSON, ALEXANDER DEY, M.B., Ch.B. Glasg., has been appointed Medical Superintendent of the County Asylum, Cambridge.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ARLESEY, NEAR HITCHIN, THREE COUNTIES ASYLUM.—Medical Superintendent. Salary £800 per annum, with residence, &c.

BEDFORD COUNTY HOSPITAL.—House Physician. Salary £60 per annum, with apartments, board, and washing.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Physician; also House Surgeon. Salary at rate of £50 per annum, with board, lodging, and washing.

BIRMINGHAM, YARDLEY-ROAD SANATORIUM FOR CONSUMPTIVES.—Resident Medical Officer. Salary £150 per annum, with board and residence.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum.

BRADFORD ROYAL INFIRMARY.—Two House Surgeons, unmarried. Salary £100 per annum, with board, residence, and washing.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar.

BROOKWOOD ASYLUM, Knaphill, near Woking, Surrey.—Medical Superintendent. Salary £800 per annum, with house, rates and taxes, &c.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CAMBRIDGE, CAMBRIDGESHIRE LUNATIC ASYLUM, Fulbourn.—Senior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and washing.

CANCER HOSPITAL, Fulham-road, London, S.W.—Surgeon.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon for Ophthalmic and Ear and Throat Departments for six months. Salary £30, with board, residence, and laundry.

CARDIFF, UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE.—Lecturer in Histology and Embryology. Salary £200 per annum.

CENTRAL FOUNDATION SCHOOLS OF LONDON, Boys' School, Cowper-street, City-road, E.C.—Medical Officer. Salary £50 per annum.

CHESTER COUNTY ASYLUM.—First Assistant Medical Officer. Salary £250 per annum, with board, lodging, and washing.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with board, apartments, and laundry.

CROYDON GENERAL HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with board, laundry, and residence.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—Assistant House Surgeon for six months. Salary £30, with board, residence, and washing.

GLASGOW SCHOOL BOARD.—Assistant Medical Officer (female). Salary £250 per annum.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HIGHBURY HILL HIGH SCHOOL FOR GIRLS.—Female Practitioner. Salary £50 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Dental Surgeon. Salary 50 guineas per annum. Also House Physician for six months. Salary 30 guineas.

HOSPITAL FOR WOMEN, Soho-square, W.—Resident Medical Officer for six months. Salary £60 per annum. Also Pathologist and Registrar. Salary £100 per annum.

HULL ROYAL INFIRMARY.—Two Casualty House Surgeons. Salary £80 per annum, with board and lodging.

ISLINGTON, PARISH OF ST. MARY.—District Medical Officer for Nos. 5 and 8 Relief Districts. Salary £85 per annum.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary at rate of £75 per annum, with board, residence, and washing.

LONDON HOSPITAL, Whitechapel, E.—Assistant Surgeon.

LONDON SKIN HOSPITAL, 40, Fitzroy-square.—Honorary Assistant Physician.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Resident Medical Officer. Salary £120 per annum, with board, residence, and washing. Also Assistant House Surgeon for six months. Salary at rate of 100 guineas per annum.

MANCHESTER CHILDREN'S HOSPITAL, Gartside-street, Manchester.—Assistant Medical Officer for six months. Salary £100 per annum.

MANCHESTER ROYAL INFIRMARY.—House Surgeon for six months. Salary £100 per annum, with board and residence.

METROPOLITAN ASYLUMS BOARD, London.—Assistant Bacteriologist. Salary £300 per annum.

METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL, Grafton-street, Tottenham Court-road, W.—Surgeon.

NEWCASTLE, Co. WICKLOW, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION FOR IRELAND.—Senior Resident Medical Officer. Salary £300 per annum, with house accommodation.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Also Assistant House Physician. Salary in each case £100 per annum, with board, lodging, and washiug.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—Honorary Dental Surgeon.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Pathologist. Salary £20 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.

SALISBURY, FISHERTON HOUSE ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with board, residence, and laundry.

SHEFFIELD EDUCATION COMMITTEE.—Assistant Medical Officer. Salary £250 per annum.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodgiug, and washing. Also Casualty Officer. Salary £60 per annum.

SHEFFIELD ROYAL INFIRMARY.—Seventh Resident Medical Officer. Salary £60 per annum, with board and residence.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STAMFORD, RUTLAND, AND GENERAL INFIRMARY AND FEVER HOSPITAL.—House Surgeon, unmarried. Salary £130 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

SURREY COUNTY COUNCIL.—Assistant Medical Officer. Salary £250 per annum.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £100 per aunum, with board, lodging, &c.

WAKEFIELD, WEST RIDING ASYLUM.—Assistant Medical Officer. Salary £140 per annum, with apartments, board, washing, &c.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House Surgeon. Salary £120 per annum, with apartments, board, and laundry.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL—House Physician.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Drogheda, in the county of Louth; and at Ross, in the county of Hereford.

Births, Marriages, and Deaths.

BIRTHS.

GRIFFITHS.—On July 4th, at St. Peter's-terrace, Cambridge, the wife of Dr. Joseph Griffiths, of a son.

WHITE.—On June 29th, at West Knoll, Bournemouth, the wife of Edward How White, M.B., of a daughter.

MARRIAGES.

LEDWARD—GIBB.—On June 28th, at St. Jude's, Tilstone Fearnall, Hugh Davenport Ledward, M.B., to Lilian Grace, youngest daughter of Walter Gibb, of Hilbre, Tarporley.

MCLEAN—BYRNE.—On Wednesday, July 6th, at All Saints, Fulham, by the Rev. W. C. Muriel, Vicar, William W. L. McLean, M.R.C.S., L.R.C.P. Lond., D.P.H., to Margaret, younger daughter of the late John Byrne, of King's County, and of Mrs. Byrne, 18, Landridge-road, Fulham Park-gardens, S.W.

SCOTT—PHILLIPS.—On June 30th, at Trinity Church, Hampstead, William Lochhead Scott, M.D., B.S., M.R.C.S., L.R.C.P., to Gwendolen Maud Lucy, daughter of the late Edward Nunes Phillips.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE CONDITION OF PALESTINE.

Mr. H. E. Satow, British Consul at Jerusalem, in his report for the year 1909, just issued from the Foreign Office, states that the population of that city is now about 80,000, of which number some 50,000 are Jews, mostly of the poorer class. There are 370 British subjects, of whom only about 140 are English-speaking. The epidemic of cerebro-spinal meningitis, which commenced in 1908, continued throughout 1909, but with decreased vigour. Towards the end of the year it had practically disappeared. The state of public health is, considering the squalid and filthy surroundings and habits of a considerable portion of the population, surprisingly good, although malaria and other diseases are always present. Schemes for the improvement of the water-supply have been mooted, but have as yet failed of realisation. Great importance is attached to the finding of some source of revenue which would suffice to provide the necessary guarantee for the cost of the works. It was hoped that this could be done by authorising the municipality to take the skins and offal of all animals slaughtered in the city, and an Imperial irade in that sense was issued, but it now appears doubtful whether the levying of such a tax in kind is practicable, and up to the present nothing has been done in that direction.—Mr. Vice-Consul Falanga reports that at Jaffa there has been a slight increase of population, quoted last year as 50,000 inhabitants for Jaffa and neighbouring German and Jewish colonies. The increase is due to the fact that the immigration of Jews from Russia, and to some extent from South Africa and Australia, continues. Were it not for the influx of foreigners the population would show a yearly decrease, as is the case with the surrounding villages inhabited only by natives. The causes are the neglect and carelessness of the parents in bringing up their children, which are left entirely to nature and consequently suffer from the effects of the climate. The sanitary condition of the town is completely neglected, with the result that there were many cases of malarial fever last autumn, affecting perhaps 50 per cent. of the inhabitants, who are also liable to other epidemic diseases.—The report of Mr. Knesevich, the British Agent at Gaza, is equally unsatisfactory. The population, he remarks, is approximately 70,000, including the inhabitants of the 60 surrounding villages. The sanitary state of the town is neglected; the streets are dirty, and nothing is done by the municipality towards the observation of cleanliness. The general health of the district during 1909 was much the same as in other years, with the exception of a severe epidemic of dengue fever, and the increase of the number of cases of malaria which generally occur every autumn. Small-pox visited Gaza in December. The most common diseases are those of the eye, malaria with its sequelæ, and the specific infectious diseases. Dysentery is also prevalent. The climate of Gaza is good and healthy, but the lack of all knowledge of hygiene on the part of the local government and of the people causes diseases to abound.

THE CENSUS AND CONSUMPTION.

To the Editor of THE LANCET.

SIR,—May I suggest, as the religious column in the enumeration papers at the next census is not to have a place, that one should be allotted to finding out the houses in which cases of consumption have occurred during the last few years. Then a great source of the spread of the complaint might be averted by disinfection of those houses; information being given to the medical officer of each district he might easily at least have a great many attended to. The present arrangement of the Poor-law medical officer giving notice of pauper patients does a very small amount of benefit, for during a period of 50 years I found that phthisis was much more prevalent in the classes above the agricultural labourer, such as small tradesmen and farmers. Indeed, I could trace in my small experience three houses infected from one of the latter class. Until houses are almost universally disinfected I fear individual treatment will be a long time in showing any great benefit to the people generally. As under the Census Act all information therein contained is strictly confidential I cannot see any objection in asking for the above information. I would suggest that a footnote be added to the column, "Asked for your own protection," or something of the kind. Might not this be considered in Committee?—I am, Sir, yours faithfully,

July 4th, 1910. A LATE REGISTRAR OF BIRTHS AND DEATHS.

MEMORIALS TO KING EDWARD VII.

THE opinion that the most suitable national memorial to the late King should take the form of a hospital is becoming widespread. Several local councils have decided to erect hospitals or sanatoriums in their districts. At a recent meeting of the Shropshire County Association the President announced that King George had consented to the erection of a Shropshire Consumption Sanatorium in memory of the late King. A first list of donations towards Birmingham's memorial to King Edward has been announced. The memorial is to consist of a statue and a new children's hospital. A sum of £1000 is given by Mr. W. Waters Butler, Mr. H. A. Butler, and Miss Nellie Butler to endow a bed in the children's hospital to the memory of their late father. A similar amount is contributed by Mr. George Cadbury and £1221 by Messrs. Mitchell and Butler. Mrs. E. A. Avins, Miss E. A. P. Avins, and Mr. J. A. Kenrick have given £500 each. At Ipswich a largely attended public meeting carried heartily a resolution declaring a sanatorium for consumption to be a fitting memorial to the late King. The resolution was proposed by Alderman W. F. Paul, who stated his generous intention of adding 50 per cent. to all money collected for the sanatorium up to the sum of £10,000. A resolution requesting the mayor, Mr. A. Gibb, to invite subscriptions was not only carried but supported by promises of £2500.

CLEAN BREAD.

THE clean handling of bread is attracting the columns of the lay press. We observe that our contemporary, the *Evening News*, devoted much attention last week to the subject, quoting letters from medical men and writing a leading article on the subject. We have many times called attention to the clean handling of bread in our columns, and we agree that bread should be treated with as much respect as is milk nowadays, and until this is done we can only say in the words of the prophet Ezekiel, "Son of man, eat thy bread with quaking, and drink thy water with trembling and with carefulness."

WANTED, A STANDARD FOR TEA.

To the Editor of THE LANCET.

SIR,—Why is tea not standardised? We all know, approximately, the composition of milk, or bread, or eggs, or ipecacuanha, or whisky, but of "the infusion of this fascinating plant," as Dr. Johnson would say, we may have a cloud of theories, but we only know that it contains theine, tannin, some essential oil, and other noteless ingredients. What one wants to know is, how much theine is present? Is it 1 per cent. or less, is it 2 or 3 per cent. or more? I do not seek for accuracy, but when a physician prescribes or forbids the administration of an important alkaloid like caffeine or theine he ought, I submit, to have some notion of the quantity in question—at least, within 200 or 300 per cent. Of course, I may be told that the chemical constituents of tea form no reliable index to its value, that the tea-tester alone is the judge of quality. I demur against this view, *De gustibus non disputandum sit.* The tea-taster may be the best judge of what suits the public palate, but to the physician the value of tea or coffee must be directly as their caffeine content, and inversely perhaps as to the tannin present.

I am not prepared to argue that the physiological effect of a couple of grains of caffeine in a cup of hot water must be quite the same as that of a cup of tea, yet I do believe that, other things being equal, the value of different samples of tea depends on the proportion of theine rather than anything else; hence we might be furnished with some information as to the proportion of the alkaloid available in each sample.

I am, Sir, yours faithfully,

Dublin, June 24th, 1910. J. C. MCWALTER, D.P.H., M.D. Brux.

THE SUPPLY OF RADIUM.

MANY newspapers recently drew attention to the difficulty of obtaining an adequate supply of radium for research purposes as a preface to a flamboyant statement that "the world's entire supply of radium has been secured for Great Britain," the said supply being derived from uranium deposits discovered in the district of Guarda, Portugal, the various pitchblende mines in Bohemia and other countries being left entirely out of consideration. A paragraph stating that owing to this discovery Great Britain will now have preferential facilities in the treatment of cancer has brought us a good deal of correspondence, but we have no information to give on the matter. It does not seem to follow that because uranium is discovered by an Englishman the supply belongs to this country.

THE DEAF-MUTES OF RUSSIA.

A WRITER in the *Novoe Vremya*, in describing a ball at the Imperial Deaf and Dumb School, after referring to the manner in which the inmates danced to the rhythm of the music communicated through the floor, says that there are over 200,000 deaf-mutes in Russia. There are only four educational establishments for these unfortunates: one in the Vladimir Monastery, Moscow, another in Warsaw, and a new one, a private establishment, in Alexandroff (Ekaterinoslav government).

It is now 30 years, says the writer, since verbal teaching was substituted for signs, but these have now been entirely abandoned in Russia. German specialists say that deaf-mutes prefer mimicry; since under the coarse *régime* of the German educational system the unsuccessful are beaten, therefore the pupils prefer the simpler method as it means fewer cuffs. But, continues the writer, whilst the German deaf-mute children are weak and depressed, Russian mutes are strong and full of vigour. There is an immense difference between the sign and word systems. There are only 600 signs, so that the scope for mental development is very limited. The present master

of the Imperial Deaf and Dumb School, Mr. Enko, is to be credited with the latest development in the method of teaching deaf-mutes. He has discovered a way of teaching them to read of, and apprehend, things they are not acquainted with. Pupil and guide compose elementary books with very simple tales which the other pupils are able to read and understand. In the senior classes they are reading the newspapers and literature of a higher order. Mr. Enko is arranging for the education of isolated deaf-mutes in the country. Special allowances will be made to teachers who undertake such work at so much per pupil. These teachers will have themselves to go through a course of special training for a few months in St. Petersburg.

WORKMEN'S COMPENSATION ACT: THE LOCUM TENENS QUESTION.

Dr. Stanley Yeoman asks if 10*s.* is the usual insurance premium under the Workmen's Compensation Act to be paid in the case of a locum-tenent. He considers that, if it is, the locum-tenent must be very well insured, considering the short time he is at each place; and he would like to know what other medical men are doing in the matter. 10*s.* is the premium charged by the Medical Insurance Committee, 429, Strand, W.C., through the Guardian Assurance Company, but this 10*s.* covers any number of medical assistants and locum-tenents in the course of 12 months, up to a total of £100 paid in salaries.

A CONVALESCENT HOSPITAL'S JUBILEE.

ERECTED in 1860, the Seaside Convalescent Hospital at Seaford, in Sussex, was the first institution of the kind to be opened. Since that time there have been many kindred institutions erected here and there, all of which make their demands upon the charitably disposed. The claims of some of the older institutions are inclined to be forgotten with new ones springing up so rapidly, and every opportunity has to be taken to keep them in the public eye, as it were. The Seaford institution is one of these, but the celebration of the jubilee on June 18th was taken advantage of by the committee to draw attention to the need of further interest and increased support. The institution can claim a remarkable record. No fewer than 31,000 patients have been received during the 50 years and during the whole of this period there have only been 12 deaths. This is a tribute indeed, not only to the suitability of Seaford for such an institution but also to the medical and nursing staffs. The jubilee was celebrated by a receptiou held by Viscountess Gage, who presented the present patients with a photograph of the hospital as a souvenir of the occasion. A jubilee fund has been opened with the hope of raising the necessary money so that there may be no curtailment of the work of the institution.

COMMUNICATIONS not noticed in our present issue will receive attention our next.

A DIARY OF CONGRESSES.

CONGRESSES are now getting so numerous that we have thought that a diary like the one printed below might be of service to our readers. With that idea we shall repeat it occasionally, with any necessary additions or subtractions. The following Congresses, Conferences, and Exhibitions are announced for 1910:—

July 11th-14th (London).—Parents' National Educational Union.
,, 18th-23rd (Birkenhead).—Royal Institute of Public Health.
,, 26th-29th (London).—British Medical Association.
,, 26th-29th (Cambridge).—Pharmaceutical Congress.
August 1st-7th (Brussels and Liège).—Congress of French-speaking Psychiatrists and Neurologists.
,, 2nd-7th (Paris).—Third International Cougress on School Hygieue.
,, 4th-10th (Brussels).—International Congress of Legal Medicine.
,, 21st-26th (Brussels).—International Home Education Congress.
,, 31st (Sheffield).—British Association for the Advancemeut of Science.
Sept. 10th-14th (Brussels).—Second Intcruational Congress on Occupational Diseases.
,, 13th-15th (Brussels).—International Congress on Radiology and Electricity.
,, 22nd-27th (Toulouse).—Sixth French Congress of Gynæcology, Obstetrics, and Pædiatrics.
,, 22nd-28th (St. Petersburg).—Fifth International Congress of Obstetrics and Gynæcology.
,, 27th-30th (Vienna).—Eighth International Physiological Congress.
Oct. 1st-5th (Paris).—Second International Conference for the Study of Cancer.
,, 3rd-7th (London).—Sixth London Medical Exhibition.
,, 3rd-7th (Berlin).—International Congress on the Care of the Insane.
,, 4th-8th (Brussels).—Second International Congress of Alimentary Hygiene.
,, 13th-15th (Paris).—Eleventh French Congress of Medicine.
,, 16th-22nd (Barcelona).—First International Spanish Congress of Tuberculosis.

In 1911:—
May-October (Dresden).—International Hygiene Exhibition.
August or September (Berlin).—Third International Laryngo-Rhinological Congress.
September (Brussels).—Exhibition of Fractures.
October (Cologne).—International Congress of Criminal Anthropology.

In 1912:—
September (Washington, D.C.).—Fifteenth International Cougress of Hygiene and Demography.

In 1913 the only fixture so far is in London, where the Seventeenth International Congress of Medicine will take place.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22 Chenies-street, W.C.
MONDAY.—4 P.M., Dr. J. M. H. MacLeod: Clinique (Skin). 5.15 P.M. Lecture:—Dr. E. Wynter: The Local Application of Salicylates.
TUESDAY.—4 P.M., Dr. N. Pitt: Clinique (Medical). 5.15 P.M. Lecture:—Mr. E. M. Corner: Appendicitis in Children.
WEDNESDAY.—4 P.M., Mr. M. White: Clinique (Surgical) 5.15 P.M., Lecture:—Mr. C. A. R. Nitch: Modern Methods o Diagnosis in the Surgery of the Urinary Organs.
THURSDAY.—4 P.M., Dr. G. Stewart: Clinique (Medical). 5.15 P.M. Lecture—Dr. W. Carr: The Diagnosis and Prognosis of Acute Pneumonia.
FRIDAY.—4 P.M., Dr. G. Thompson: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith road, W.
MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration o Cases in Wards. 12 noon, Pathological Demonstration:—Dr Berustein. 2 P.M., Medical and Surgical Clinics. X Rays Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M. Lecture:—Mr. Baldwin: Practical Surgery (Lecture VI.).
TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations 11.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medica and Surgical Clinics. X Rays. Operations. Dr. Davis: Disease of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Pardoe: Difficult Micturition and Retention of Urine.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M. Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M. Medical and Surgical Clinics. X Rays. Operations. Mr. B Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Practica Medicine (Lecture V.).
THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Dunn: Ocular Pain, its Variety and Treatment.
FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medica Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. E. Smith: Clinical (Lecture II.).
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr Davis: Operations of the Throat, Nose, and Ear. Mr. B Harman: Diseases of the Eye. 2 P.M., Medical and Surgica Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince o Wales's General Hospital, Tottenham, N.
MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howel Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).
TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld) 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks) 3 P.M., X Rays (Dr. A. H. Pirie).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgica (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.
MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

MONDAY.—5.15 P.M., Dr. A. Voelcker: Diseases of the Chest in Children, illustrated by cases, specimens, skiagrams, and drawings. (Lecture I.). (Post-graduate Course.)

TUESDAY.—5 P.M., Mr. H. G. T. Fairbank: Deformities, illustrated by cases, specimens, skiagrams, and sketches. (Lecture I.). (Post-graduate Course)

WEDNESDAY.—5.15 P.M., Dr. A. Voelcker: Diseases of the Chest in Children, illustrated by cases, specimens, skiagrams, and drawings. (Lecture II.). (Post-Graduate Course.)

THURSDAY.—4 P.M., Lecture:—Mr. Fairbank Lymphatic Glandular Enlargements.—5 P.M., Mr. H. G. T. Fairbank: Deformitics, illustrated by cases, specimens, skiagrams, and sketches. (Lecture II.). (Post-graduate Course).

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Dr. A. Wylie: Larynx.

FRIDAY.—3.45 P.M., Lecture:—Dr. Atkinson: Nose.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (13th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (14th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (16th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 6th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 30	29·52	W.	0·07	113	65	52	53	57	Cloudy
July 1	29·70	W.	0·20	119	64	53	54	57	Cloudy
,, 2	29·62	W.	0·19	110	65	53	54	58	Raining
,, 3	29·65	W.	0·24	125	61	51	52	56	Cloudy
,, 4	29·97	N.W.	0·31	119	67	51	53	57	Cloudy
,, 5	30·07	N.W.	...	111	67	53	55	60	Cloudy
,, 6	29·64	N.W.	0·57	119	62	53	59	61	Cloudy

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Some explanation ought, therefore, to be forthcoming of so large a proportion of cases in which, on careful inquiry, no obvious heredity is obtainable. The existence of epilepsy in some of these cases may be to some extent explained by the presence of a diathesis, infective disorder or intoxication, in one or other parent at the period of conception. It is not unlikely also that the presence of some symptom, classified under the general term of "nervousness," may be of great importance in the genesis of epilepsy. Inquiries ought to be made into the question of parental neurasthenia, hysteria, migraine, or periodic headache, psychasthenia, obsessions, tics, chorea, and in particular those epileptoid symptoms which will be referred to in the account of the borderline of epilepsy. These are symptoms which do not, as a rule, strike the patient or his friends as of any importance in the causation of fits, nor does the physician usually direct his attention towards them.

A further explanation of some of these cases is to be found in the presence of small foci of encephalitis or of thrombosis occurring in infancy or early childhood. In many of these cases resolution has so largely taken place that the only permanent defect is some impairment in the finer movements of one or other hand. Defects of this character should always be looked for in those cases in which no clear predisposition is ascertained, or where the absence of well-marked "stigmata" suggests that a hereditary influence is not obtrusive.

My earlier figures, taken from 676 cases of epilepsy, reveal the fact that the most common predisposing cause of epilepsy is ancestral epilepsy. In a further series of 214 cases, in which parental alcoholism as a predisposing influence was especially enquired into, the same conclusions were arrived at—viz., that ancestral alcoholism was a relatively minor factor compared with ancestral epilepsy in the causation of the disease.

	First Series of 676 Cases of Epilepsy.		*Second Series.*	
No heredity known ...	330 or 49·0 per cent.	.....	106 or 49·5 per cent.	
Epilepsy	252 ,, 37·2	,, ...	81 ,, 37·8	,,
Insanity	37 ,, 5·4	,, ...	7 ,, 3·2	,,
Alcoholism	21 ,, 3·1	,, ...	15 ,, 7	,,
Other disorders	36 ,, 5·3	,, ...	5 ,, 2·3	,,
Totals ...	676 ,, 100	,, ...	214 ,, 99·8	,,

STIGMATA OF DEGENERATION.

Evidence of a family neuropathic tendency may be found in what are known as "stigmata" of degeneration. In epilepsy, as in the other degenerative neuroses, stigmata of degeneration are present, and have received considerable attention. In addition to the cranial asymmetry which Lasègue[3] considered to be constant in true epilepsy, Féré[4] has called attention to the frequency of cranio-facial asymmetry amongst epileptics.

Among other features of a degenerative character, the configuration of the hard palate deserves special attention. This has been the subject of much investigation and discussion, and its study and relation to the several degenerative neuroses is associated with the names, more especially in this country, of Langdon-Down and Clouston.[5] Deformities of the ears—and abnormal setting of the teeth—have been regarded as important structural stigmata of degeneration.

In addition to the above-mentioned stigmata, Féré has also drawn attention to and described various asymmetries of the thorax and pelvis, unequal length and size of the limbs, and syndactylism, found in epileptics. In whatever form they are found, it has to be borne in mind that stigmata of degeneration are deviations from the normal and occur in those who are subjects of a hereditary degenerative predisposition.

Of the two quinquennial periods in which the onset of epilepsy is more common, that from birth to 5 years of age is the most fruitful in stigmata. It is during this period that the growth and development of the brain are most active, and it is during this period, as Clouston has shown, that other degenerative neuroses and psychoses develop, such as stammering, backwardness in walking and talking, delayed dentition, and some forms of idiocy and imbecility.

Amongst epileptics, in whom the disease commences about the time of puberty, a considerable number present no obvious structural stigmata, even when parental epilepsy was given as the probable cause of the disease. The most common stigma observed in epileptics is a deficiency in the physical development. Many epileptics are, on the other hand, physically well formed.

The general conclusions which may be made from a study of the stigmata of degeneration in epilepsy are:—1. That the absence of a family neuropathic history is of little account in face of well-marked structural signs of degeneration. 2. That the early epilepsies, or those commencing under five years of age, show not only the most marked mental defects, but also are the most prone to stigmata. 3. That stigmata are most common in that type of epilepsy, known as the combined seizure type, which is the most intractable and most dementing form of epilepsy. 4. That stigmata are common in those cases of the confirmed disease which go on to marked dementia. Degenerative stigmata in epilepsy are, therefore, factors of great importance. The future course of the malady may be gauged, to some extent, by their study.

AGE OF ONSET.

The age at which epilepsy arises is an important factor in the study of the predisposing causes. Although there is no age-period which may be regarded as entirely exempt, there are certain age-periods during which the onset of epilepsy is more common.

The first epoch is from birth to 5 or 6 years, or that period coresponding to infancy and early childhood. About 25 per cent. of all cases commence during this epoch. These cases are usually associated with marked mental deficiency or backwardness. Many of them are based upon organic lesions of the brain. The second epoch is from 10 to 22 or 23 years of age, or that period corresponding to puberty and early adolescence. No less than 54 per cent. of all cases commence during this epoch. It is *par excellence* the age of onset of genuine epilepsy. The mean age of maximum onset is 14 years, but the onset of the disease in young women is later by about two years than in the male sex. The third epoch embraces the remainder of life. There is a rapidly lessening tendency towards the onset of genuine epilepsy from the age of 30 onwards. Most of the epilepsies occurring in this epoch are founded upon organic lesions, arterio-sclerosis, or intoxications (alcohol, lead, &c.).

From these facts it is obvious that genuine or idiopathic epilepsy is a disease of youth, coming on at a time when the development and growth of the central nervous system and the maturation of the organs of reproduction are taking place. It is during this period that causes, insignificant or insufficient in stable nervous systems, may light up the tendency to convulsion or epilepsy, in those hereditarily prone towards it.

THE EXCITING CAUSES OF EPILEPSY.

The predisposing cause of epilepsy is in the majority of cases an inherited neuropathic disposition. Epilepsy may arise independently of any exciting or determining cause, being a spontaneous development attributable to the normal processes of brain growth and sexual maturation in predisposed persons. In a number of cases, however, some exciting influence is at work in the production of the first epileptic seizure. It is a cardinal principle that the cause of epilepsy is that circumstance to which the first fit is apparently due. The instability of the brain once induced becomes a characteristic feature, so that further attacks recur quite independently of the original or any other obvious exciting cause.

The relation of epileptic fits to menstruation is well established. In most cases the seizures occur immediately before or shortly after the period; and in chronic cases the monthly period is characterised by an increase in their frequency.

The normal process of child-bearing has also some influence in the causation of epilepsy. Pregnancy may be the exciting cause of the disease in some cases, and may induce a relapse of the seizures in some instances in which a cure has apparently been established or in which a long remission has occurred. On the other hand, pregnancy has been known to produce a temporary arrest or amelioration of fits; and there are well-authenticated cases in which a permanent arrest has been brought about in this way. Accouchement and the puerperium have also an important bearing upon epileptic fits. Cases are occasionally observed in which the disease originated at this time in the form of a puerperal eclampsia and persisted for many years as confirmed epilepsy.

[3] Lasègue, quoted by Féré, op. cit.
[4] Féré: Les Epilepsies et les Epileptiques, Paris, 1890.
[5] Clouston: The Neuroses of Development, Edinburgh, 1891.

Féré stated that some types of puerperal eclampsia are the onset of epilepsy in an acute form in predisposed persons.

Sleep is another physiological condition eminently favourable to the onset of epileptic fits. In many cases fits only occur during sleep, so that a clinical type has been recognised as nocturnal epilepsy. Pick has called attention to the frequency of fits during the hours of deepest sleep—viz., during the first hour or two after falling off to sleep, and again before waking. My own observations show that the greatest number of fits occur during the hour or two after falling off to sleep, a period which probably coincides with the greatest degree of cerebral anæmia.

A second and smaller group of epilepsies is found in which a definite extraneous cause acts as the excitant of the first fit, and, as such, of the disease. These causes may be: 1. Psychical influences, such as emotional excitement, fear, shock, anxiety, grief, or over-work. 2. Infective diseases, the most frequent being scarlet fever, but measles, pertussis, influenza, and diphtheria have also been observed. 3. Reflex causes play an important part as excitants of epilepsy, more especially in children and young adults predisposed by heredity to nervous instability. Attention is especially called to the necessity of a careful examination of the nose (for adenoids, polypi, or foreign bodies), of the eyes (for errors of refraction), of the ears (for chronic otorrhœa), of the teeth, the genital organs, the stomach, and of the intestines (for the presence of worms).

THE IMMEDIATE CAUSES OF EPILEPTIC SEIZURES.

From time to time it has been observed that the onset of an epileptic fit is accompanied by a temporary cessation of the heart's action and the pulse beat. This transient stoppage is attributed to cardiac inhibition; the loss of consciousness and the fit to the resulting sudden cerebral anæmia. Dr. A. E. Russell[6] has collected a quantity of evidence in favour of this theory. He does not, however, contend that complete cardiac arrest occurs in every epileptic convulsion, for the pulse may persist throughout a fit, although, in his opinion, an extreme feebleness, short of absolute cessation, might be sufficient to initiate a fit.

It is well known that convulsions may be due to the sudden cutting off, or to the prolonged deprivation of, the cerebral blood supply. The convulsions of Stokes-Adams disease, the Kausmaul-Tenner fits provoked by ligature of the internal carotid arteries, and the spasms consequent upon electrical stimulation of the peripheral end of the cut vagus nerve are all due to this cause. Russell contends that the fundamental factor underlying the epileptic fit is cerebral anæmia, probably associated with vaso-constriction of the cerebral blood-vessels. The evidence in favour of cerebral anæmia being the cause of convulsions is quite clear, but as yet there is no direct demonstration of either vaso-constriction or cerebral anæmia being the exciting cause of the recurring seizures of epilepsy.

Paralysis of the vaso-constrictor nerves, rendered permanent by removal of the superior cervical ganglion, has not led to that favourable outcome which was expected of it, when introduced as a means of treating epilepsy on the theory that the fits were due to cerebral anæmia from vaso-constriction.

Whether the primary excitant of the epileptic attack be a spontaneous "discharge" of nervous energy or cerebral anæmia, induced by vaso-constriction and cardiac inhibition, the fit would seem to originate in some portion of the cerebral cortex. I accept the old view of Hughlings Jackson that epilepsy is a disorder of the highest level, and the observations of many subsequent workers, anatomical, experimental, and clinical, have placed the highest level in the frontal lobe between the intermediate precentral and prefrontal zones. Campbell[7] has shown that in association with each recognised cortical centre there exists a corresponding higher or psychical centre. The nature of the aura determines the portion of the cerebral cortex in which the fit starts. Warnings of special sense are either crude sensations or sensations of a more elaborate and psychical character. The latter are especially characteristic of idiopathic epilepsy. It is, therefore, conceivable that the "discharge" commences either in the lower or higher portions of a special sense region, according to the nature of the warning sensation.

A noteworthy point is the constancy of the warning in particular cases. As Herpin pointed out, the warning sensations, however diversified they may be, are always, or nearly always, similar in the same subject. There are a few exceptions. During the course of the disease the aura of the major seizure may disappear, but the minor attacks retain the characters of the original warning. In the case of the large number of epileptics in whom no warning of the seizure is present, but in whom the fit is ushered in by a sudden and profound loss of consciousness, the discharge conceivably originates in the frontal area. Here the onset of the fit is essentially psychical. The patient is dazed, or stuporous, or drops down suddenly. In many of these cases transient conjugate deviation of the eyes occurs, or a cry is uttered. Whether in any particular case the morbid condition which gives rise to the "explosion" is inherent in a cortical centre, common to the whole cerebral cortex, or is attributable to a vaso-motor instability in blood condition, are points which still remain a mystery.

It may be asked, What is the cause of the enormous variability in the frequency of epileptic seizures, a frequency which varies from two or three fits in a year to several score in 24 hours? Is the same cause at work in both these types of the disease? In whatever part of the cerebral cortex the discharge arises, it rapidly spreads so as to involve both sides of the brain, although one side is usually more affected than the other. Hence it comes about that the examination of the reflex, motor and sensory systems after a major epileptic fit reveals evidence of temporary paralysis and of alterations in the reflexes indicative of a transient disturbance of the pyramidal system. The knee-jerks are at first abolished and then exaggerated, the abdominal reflexes are lost, and the plantars show a temporary extensor response. These symptoms vary in accordance with the character of the seizure. They are not present after minor attacks; they may be observed on one side only in cases where the convulsions have been preponderatingly unilateral. They are most obvious and persist longest after serial outbursts or the status epilepticus.

Temporary impairment of motor power (exhaustion paralysis) is observed on one or both sides, but more especially on the side which has shown the greater convulsion. Diminution or loss of cutaneous sensibility may also be found after a fit. It is most marked in the limbs which show the greater motor weakness. Amblyopia, deafness, and impairment of smell and taste may also be of temporary occurrence.

TOXÆMIC EPILEPSY.

It has for a long time been contended that an excitant of epileptic seizures might be found in toxic or autotoxic causes arising in connexion with the body metabolism or gastro-intestinal disorders. The discrepancies, however, in the results of observations by different workers upon urinary and blood toxicity in epilepsy have not afforded satisfactory evidence upon which to found such a theory. It is now generally accepted that the altered condition of the urine and blood, which has been found in association with epileptic attacks by many observers, is the temporary effect and not the cause of the seizures. Those cases which show the most pronounced reactions in blood and urine have been instances of serial epilepsy, the status epilepticus, and fits accompanied by acute mental symptoms—types of the disease in which, from the general constitutional disturbances, there is more reason to suspect an infective or toxic causation.

Binswanger[8] has called attention to a small group of epilepsies which may have a toxæmic basis. This group is characterised by: (*a*) well-marked premonitory signs, of which the most common are of a psychical type—irritability, fitfulness, quarrelsomeness, lethargy, somnolence, and delusions; (*b*) fits of frequent occurrence developing either into serial epilepsy or the status epilepticus, accompanied by constitutional disturbances, such as furring of the tongue, constipation, acceleration of the pulse, and elevation of temperature; and (*c*) more or less prolonged intervals free from attacks between the seizures.

Reference only is made to the observations of Voison and Peron,[9] who found a hypotoxic condition of the urine before and a hypertoxic condition after the fits; to those of Haig,[10] who laid stress upon the relation of epileptic fits to the normal

[6] A. E. Russell: THE LANCET, vol. i., 1909, pp. 963, 1031, 1093.
[7] A. W. Campbell: Studies in Localisation, Cambridge, 1905.
[8] Binswanger: Die Epilepsie, Wien, 1899.
[9] Voison and Peron: Archives de Neurologie, vol. xxiv., p. 178.
[10] Haig: Uric Acid, 1892, p. 21.

diurnal variations in the excretion of uric acid; and to those of Krainsky,[11] who attributed the convulsions of epilepsy to the formation of carbamic acid, one of the derivatives of urea. Details of the investigations of these observers have been given in my monograph on epilepsy. The presence of cholin in the blood and cerebro-spinal fluid of epileptics was originally described by Donath.[12] This substance, which was found by Mott and Halliburton[13] in the cerebro-spinal fluid in organic nervous disease, was attributed by them to disintegration of the myeline sheaths of the nerve fibres.

It has been shown experimentally (Dide, Donath) that moderate doses of cholin injected into the circulation do not produce convulsions, but that in large doses both convulsions and paralysis may result. Buzzard and Allen[14] showed that the large doses of cholin necessary to produce convulsions in animals were much in excess of what could be produced under ordinary conditions in man. In a recent paper Donath[15] records the results of his experiments into the convulsion-producing properties of the substances found in the blood and urine of epileptics. He showed that when injected into guinea-pigs and dogs, uric acid, neutral urate of sodium, carbonate of ammonium, kreatin, and lactic acid were entirely innocuous. The only convulsion-producing substances were ammonia and the organic ammonium bases—trimethylamin, cholin, kreatinin, and guanidin; the last body is not found in human urine, but is one of the uric-acid products.

A generally recognised feature of infection is increased coagulability of the blood. Dr. John Turner[16] has shown (*a*) that the average rate of coagulation is quicker in severe cases of epilepsy; (*b*) that the rate is quickened during the period that the patient is having fits (serial epilepsy); (*c*) that there is a further quickening of the coagulation rate up to 24 hours before a seizure; and (*d*) that from 24 to 48 hours after a fit there is a rebound and retardation in the rate of blood coagulation. Intravascular clotting occurs clinically in cases of infection, most probably as a result of the liberation of nucleo-proteid. Dr. John Turner[17] has suggested that just before an attack the leucocytes and blood-plates shed their nucleo-proteid. In consequence a hyaline material is thrown into the smaller arterioles and capillaries, obstructing the free course of the circulation. These appearances are most conspicuous in the brains of persons dying in status epilepticus, as well as in general paralytics in whom epileptiform attacks have occurred. It is, therefore, not improbable that some types of epileptic convulsions, notably serial epilepsy and the status epilepticus, may be associated with nucleo-proteid thrombosis arising from toxæmic influences within the body.

LECTURE II.

Delivered on March 2nd.

THE BORDERLINE OF EPILEPSY.

GENTLEMEN,—In any discussion of the phenomena on the borderline of epilepsy brief consideration should in the first place be given to hysterical seizures and their differentiation from epileptic attacks.

I. EPILEPSY AND HYSTERIA.

Both epilepsy and hysteria are diseases founded upon hereditary degenerative endowment. Both disorders have a common clinical symptom—viz., the periodic occurrence of paroxysmal attacks, characterised by an alteration of consciousness.

This is hardly the place to enter into an analytical consideration of these two great psycho-neuroses apart from their paroxysmal phenomena. In the preceding lecture the outstanding symptoms of epilepsy were given. It was also shown that although in recent and slight cases it may remain throughout a so-called "functional" disease, in the severe and confirmed cases with mental impairment the symptoms became grafted upon an organic alteration of the cortical tissue. Epilepsy, therefore, is a dementing disorder.

Hysteria, on the other hand, remains throughout a purely functional, mainly psychical, disease. According to Janet,[18] its fundamental characteristic is a dissociation or severance of some mental processes from the main personal consciousness. It has no pathological anatomy and no tendency towards dementia. The most recent observations tend to show that there is no such generally recognised condition as "hystero-epilepsy" in the usually accepted sense. Interparoxysmal hysterical symptoms may be added to genuine epilepsy, and *vice versâ*.

Bratz and Falkenberg[19] found that all their cases were either hysteria or epilepsy or a combination of the two diseases. Major hysterical attacks are, as a rule, fairly distinct in character from major epileptic seizures. But the minor attacks of both disorders are sometimes not easy to differentiate. If an attack is being described by an untrained onlooker it may be a difficult matter for a physician to decide whether the paroxysms are those of epilepsy or hysteria, as the duration of the minor seizures in both diseases is almost the same, and they may both occur in series. Moreover, the perversion or dissociation of consciousness in the hysterical attack may readily be mistaken for the abolition or impairment of consciousness which is the characteristic feature of the epileptic seizure.

On the other hand, if the attack should be observed by the physician there is, as a rule, less difficulty. The rolling or squinting movements of the eyeballs, and the oscillations of the head in the hysterical attack, are quite distinct from the tonic conjugate deviation of the head and eyes in the epileptic; the tonic spasm of the limbs inducing flexion of the arms and extension of the legs in the latter are in contrast to the tonic spasm mainly of the muscles of the neck and back in the former; the steady development and eventual yielding of the clonic spasms in epilepsy stand out in striking contrast to the vibratory tremors of the hysterical attack; and the sudden relaxation of the spasm and the almost instantaneous return to consciousness in the hysterical seizure is a feature of noteworthy importance.

The hysterical seizure differs essentially from the epileptic in three additional features:—1. The hysterical seizure does not terminate in psychical disturbance, confusion, or automatism. Hysterical patients come out of their attacks suddenly and often express a feeling of relief after the attack is over. 2. As pointed out by Janet, there is a possibility of awakening the phenomena of the hysterical seizure by hypnotism. Epileptics are not at all hypnotisable, and in consequence it is not possible to produce in them a real somnambulistic state with consecutive amnesia. 3. Should it be possible to examine the reflexes of the patient recovering from a seizure certain changes will be found in most cases of major epilepsy. The most important transient changes indicating disturbance of the pyramidal system are alteration of the plantar reflex from the normal flexor to the abnormal extensor response, abolition or impairment of the abdominal reflexes, and exaggeration of the knee-jerks.

II. EPILEPTOID PHENOMENA.

There is no doubt that many people are prone to attacks which cannot be classified either under hysteria or epilepsy. The attacks are in the main purely subjective, but in some cases objective phenomena, chiefly of a circulatory and vasomotor character, may be observed. Owing to the absence of any systematic classification there has been a tendency to group the symptoms under different headings, each author devising his own terminology for the sake of convenience or according to his conception of the malady.

Oppenheim was the first to describe under the term "psychasthenic attacks" certain periodic seizures, mainly because they occurred in persons subject to common psychasthenic symptoms, such as fears, dreads, apprehensions, obsessions, and tics. The leading features of these attacks were: (*a*) That they did not occur during childhood; (*b*) that there was a special cause for the attacks; (*c*) that they were of infrequent occurrence; (*d*) that they were characterised by prolonged unconsciousness without convulsion and only slight twitching of a few muscles; and (*e*) that there was an absence of mental changes. These attacks would seem to be extremely rare, and in my opinion difficult to differentiate from epilepsy.

Janet[20] has described under the term "psycholepsy"

[11] Krainsky: Mémoires Couronnés, 1901, p. 15.
[12] Donath: Deutsche Zeitschrift für Nervenheilkunde, Band 27, Part 1.
[13] Mott and Halliburton: Brit. Med. Jour., 1904, vol. ii., p. 1557.
[14] Buzzard and Allen: Review of Neurology, vol. iii., p. 453.
[15] Donath: Deutsche Zeitschrift für Nervenheilkunde, 1907, p. 232.
[16] John Turner: Journal of Mental Science, October, 1908.
[17] John Turner: Brit. Med. Jour., 1906, p. 496.
[18] Janet: Major Symptoms of Hysteria, New York, 1907.
[19] Bratz and Falkenberg: Archiv für Psychiatrie, 1903, p. 328.
[20] P. Janet: Les Obsessions et la Psychasthenie, Paris, vol. i.

conditions characterised by an alteration of consciousness, which favours the development of a "dreamy state" in which a feeling of unreality or of non-existence is the outstanding symptom. Sir William Gowers[21] has described seizures whose symptoms were referred chiefly to the distribution of the pneumogastric nerve. To these he has given the term vagal or vaso-vagal attacks. Finally Dana[22] has designated under the term "para-epilepsy" seizures of a psychical, vertiginous, or vaso-motor type, occurring in neurotic or psychasthenic individuals, more especially about adolescence. As these seizures, according to this observer, resemble "aura fits" or abortive epileptic attacks, he has classed them in a group of para-epileptic phenomena.

It is therefore clear that observers now recognise a type of periodic seizure, which is neither hysterical nor epileptic, occurring in persons of a neurasthenic or psychasthenic temperament. Attacks of a not dissimilar kind, however, may be observed in subjects of genuine epilepsy, and there are other attacks in which the diagnosis from hysteria is most difficult and uncertain.

The term "epileptoid" is suggested as one which seems to include all the symptoms of a paroxysmal and recurring character which lie upon the border-line of epilepsy. It would seem possible from our present knowledge to subdivide these symptoms into two groups: (*a*) Attacks having features of a vaso-motor character—vaso-epileptoid; and (*b*) attacks having symptoms of a psychical character—psycho-epileptoid.

1. Vaso-epileptoid Attacks.

These seizures are characterised by throbbings, thumpings, and beatings of the heart, flushings of the face, and a fulness of the head, dizziness, and, frequently, sensations of a paræsthetic character in the extremities. They may be of daily occurrence, and last from a few minutes to several hours. They occur in persons of a nervous temperament. Dana notes that there is usually an associated element of thyroidism. In one case of my own there was a decided tendency towards dermographism.

Gowers also described seizures characterised by definitely vaso-motor symptoms, such as coldness of the limbs, pallor of the face, shivering almost amounting to rigor, tingling and numbness of the extremities, and sometimes a slight tetanoid spasm. A fuller development of the seizures, bringing them into a relationship more akin to epilepsy, is well illustrated by the vaso-vagal attacks described by Sir William Gowers.

The symptoms of the vagal attack, as given by Gowers, are: (1) Sensations referred to the stomach, heart, and respiratory systems; (2) the ascent of the sensation from the stomach to the chest, throat, and head; (3) it is accompanied by a feeling of respiratory distress and cardiac oppression, fear, and a sense of impending death; (4) there is no true loss of consciousness, but the mental operations are slow, and sometimes characterised by a feeling of unreality; (5) the attack ends with a great acceleration of the heart's action; and (6) the whole attack lasts for about 15 or 20 minutes.

2. Psycho-epileptoid Attacks.

These are seizures in which the outstanding features are of a psychical character, usually a sense of apprehension, dread, or fear. They are commonly associated with sensations of nervousness, numbness, coldness, nausea, cephalic sensations, and are frequently accompanied by sensations of a vague, indescribable character. Sometimes the feeling of fear is intense, and may be replaced by a sense of impending death. In the true attacks of this kind consciousness is never abolished, but the mental state may assume a dreamy attitude, with a feeling of unreality. The attacks occur in persons who present other features of a psychasthenic character, such as dreads, fears, and apprehensions. There is usually also a well-marked neuropathic heredity. Although in many cases the attacks are of the kind just described, there are other cases in which these attacks merge into epileptic seizures.

The attacks described here as "psychical" are clearly closely related to those of a more purely vaso-motor type, the vaso-vagal attacks of Gowers being seemingly the connecting link between the two types of seizure, as well as between them and attacks of an epileptic nature.

One of the commonest forms of warning in epileptic seizures is the epigastric sensation, consisting of a subjective sensation referred to the stomach or upper abdominal area. These sensations may or may not be associated with gastric disturbances, such as flatulence or any abnormal condition of the stomach contents. In the majority there are no signs of local gastric disorder. Closely allied to the epigastric sensation is the cardiac warning, which consists mainly of palpitation of the heart, and sometimes of pain, and is generally accompanied by a sensation of suffocation, strangulation, or oppression, sometimes with a sensation of impending death. So closely does the condition resemble angina pectoris that a variety of minor epileptic attacks has been designated "epileptic pseudo-angina."

A notable accompaniment of the epigastric warning and its allied sensation of cardiac oppression is sensation of intense fear or apprehension, and sometimes a desire to be alone. In addition to the sense of fear, a peculiar "dreamy state" has been described, in which consciousness is lost or perverted (Hughlings Jackson). Whatever may be the explanation, it would appear to be a well-recognised fact that a definite relation exists between epigastric sensations and a sensation of fear and apprehension, but this association is not confined to epileptic attacks. It is also present in other conditions. In many states of fear or alarm a vague sensation is referred to the abdomen. Persons who suffer from melancholia constantly refer to the feeling of weight, or oppression, in the region of the stomach, and many individuals, obsessed by some fear or panic, refer to a vague and indefinite sensation in the stomach as the source of their discomfort.

The application of the principles which have been already laid down, when considering the march of an epileptic attack, shows that minor epileptic seizures may occur, characterised by an epigastric or cardiac sensation, accompanied by a sensation of fear, or of oppression, or even of impending death, in which consciousness may be retained, or, at the most, merely blurred or perverted.

The attacks already described as "psychical seizures" have many of the qualities of epileptic auras and abortive epileptic fits; hence the term "para-epilepsy" which Dana has applied to them.

The close relation between epilepsy and the vaso-vagal attacks has also been emphasised by Sir William Gowers, who regards them as a long drawn out or extended epileptic seizure. Dr. A. E. Russell[23] explains them on the theory that a sudden depression of the normal vaso-motor tone occurs in the splanchnic area, which leads to an accumulation of blood in that locality. If only momentary in duration, the sensation of a sudden sinking in the pit of the stomach is felt; if of longer duration this is succeeded by a faint. If severe, the vascular depression has reached a point incompatible with consciousness. The position of these seizures amongst periodic phenomena, therefore, depends upon the view which is taken of the nature of epileptic attacks. Russell regards the whole series from simple syncopal attacks or faints up to epilepsy as primarily of vaso-motor origin. He favours the doctrine that such symptoms are signs of a "vaso-motor" ataxia, a condition in which the vascular mechanism is unable to adjust itself to strain. Whether this is the true explanation of a remarkable series of phenomena is a point upon which it is difficult to offer an opinion. The theory just expressed certainly brings a train of not dissimilar periodic seizures into line. Epilepsy, however, seems to me to be primarily so much a cerebral or psychical disorder that I hesitate to classify it along with faints and syncope as a disease of the vaso-motor mechanism.

Many of the features of the borderline conditions just described are not psychical, but seem to be the consequences of functional disturbance of the lower centres in the medulla oblongata. I would also emphasise the fact, already referred to in the first lecture, that the convulsive element is only one feature of epilepsy. True epilepsy is always accompanied by some psychical alteration apart from symptoms of a psychasthenic kind; I am not aware that the epileptoid conditions just described ever present any tendency to mental impairment or dementia.

III. Sleep Phenomena.

The physiological condition underlying sleep is especially favourable for the development of epileptic attacks. It was shown in the first lecture that the few hours after falling off to sleep are the hours most favourable for the occurrence of

[21] Sir William Gowers: The Borderland of Epilepsy, London, 1907.
[22] Dana: Epilepsy and Epileptics, United States of America, 1906, p. 90.
[23] A. E. Russell: THE LANCET, vol. i., 1909, pp. 963, 1031, 1093.

epileptic fits. In consequence of this there is in many cases of epilepsy a striking regularity in the periodicity of the attacks, a fit occurring at or about the same hour on each occasion. This period of deepest sleep is also a favourable time for certain sleep symptoms which appear to be upon the borderline of epilepsy—namely, night terrors in the adult.

Night terrors are common in neurotic children, but their significance is merely that of an unstable nervous system. Their occurrence in adults, or their continuance from childhood into adult life, is of greater significance, and may raise the question of their epileptic character in some cases. They usually reveal themselves in the utterance of loud, piercing screams, sometimes a single scream, at other times more frequently repeated. Their chief characteristic is that having occurred at some time during the first few hours after falling off to sleep they do not occur again during the same night. They have been known to recur every night for many months in succession; on the other hand, they may recur only at long intervals. In most cases the sufferer is entirely unaware of their occurrence, except in those cases in which sleep-walking also occurs, where the patient awakes and finds that something unusual has taken place. I have known cases in which the attack has been associated with a dream, but these are more likely to be cases of epilepsy. Sleep-talking and sleep-walking either replace or may be associated with nocturnal screaming.

Adult patients subject to these and similar sleep symptoms sometimes present the stigmata, both structural and psychical, which are characteristic of epilepsy. In all there is a well-marked neuropathic heredity. It is well known, however, that attacks in which a patient may wake suddenly from sleep in a state of nervous fear, apprehension, or panic, are of temporary occurrence and indicate a state of nervous stress or strain, induced by overwork or anxiety, and not infrequently excited by some gastric or intestinal disorder. I wish, however, to point out that sleep symptoms are found from time to time in persons of highly nervous temperament which should be regarded as symptoms of importance and probably classed as phenomena upon the borderline of epilepsy.

The Croonian Lectures

ON

THE BEHAVIOUR OF THE LEUCOCYTES IN INFECTION AND IMMUNITY.

Delivered before the Royal College of Physicians of London on June 14th, 16th, 21st, and 23rd, 1910,

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LECTURE IV.[1]

Delivered on June 23rd.

MR. PRESIDENT AND GENTLEMEN,—The importance of the polynuclear leucocytes in the defence of the body against bacterial invasion has been dwelt on in my previous lectures from more than one point of view. It follows naturally that the mother tissue from which these cells are derived must play no small part in defence, at least when such defence has to be prolonged. This has long been recognised; it has been said that "leucocytosis is a function of the bone marrow," and Ehrlich has aptly termed this tissue a "defensive organ."

THE BONE MARROW IN IMMUNITY.

A distinction must, of course, be drawn between the "red marrow" and the "yellow" or "fatty" marrow which fills the shafts of most long bones. The cavities of the bones are larger than is necessary to lodge the amount of true marrow tissue which suffices for the needs of the healthy body; the extra space is utilised for fat storage. But stained sections of fatty marrow from a long bone show something which is not seen in ordinary adipose tissue elsewhere; here and there on careful search are to be found tiny foci, it may be single cells only, of true marrow tissue with its characteristically granulated cells. When need arises these cells can undergo rapid increase, and the fat can readily be absorbed to make room for them; the yellow marrow is easily converted into red.

The marrow is the mother tissue of red cells as well as of white. Of the leucocytes, it furnishes the granulated oxyphil, basophil, and neutrophil cells, and it further contains islands of lymphatic tissue which may share in the general lymphoid hyperplasia of lymphatic leukæmia. The marrow may therefore undergo a transformation in several different directions in accordance with the special needs of the body at the moment. If the urgent call is for more red corpuscles there is seen an "erythroblastic" reaction in which the predominant marrow cell is the erythroblast; if the call is for leucocytes there is a "leucoblastic" reaction, which is commonly a neutrophil leucoblastic reaction because the need for an increase in the polynuclear leucocytes is a much more common thing than the need for eosinophils, basophils, or lymphocytes. It is a good general rule that the changes which have been seen in the blood during life are found reflected in the marrow after death.

Inasmuch as the polynuclear neutrophil leucocyte is the only marrow cell which we know to be actively concerned in defence against bacteria, I propose here to consider only the neutrophil (or amphophil) leucoblastic change in the marrow. It has been studied by several observers. Amongst the earliest experimental work is that of Roger and Josué, published in 1896 and 1899; they examined the marrow in the rabbit after subcutaneous inoculation with staphylococci. Already in two days they found evidence of cellular proliferation in the bone marrow, and in 5 days this was marked and was found to consist in a leucoblastic reaction involving chiefly the amphophil myelocytes. This was confirmed by Muir in 1901, who clearly recognised the relation between the leucoblastic changes in the marrow and the persistent circulatory leucocytosis. Muir later extended his observations to the marrow in human infections (1902); he found changes, similar to those experimentally produced in the rabbit, in pneumonia, empyema, and other suppurative conditions. The changes involve not only a hyperplasia of the cells bearing neutrophil granulations throughout the red marrow generally, but also an extension of the red at the expense of the yellow fatty marrow.

My own observations on the bone marrow of the rabbit in staphylococcal infections are in complete accord with those of Roger and Josué and of Muir. I have employed the intravenous route of infection and I have already stated that when death occurs rapidly, in 40 hours or less, from acute septicæmia I find no leucoblastic reaction in the marrow, but rather a depletion of this tissue in respect of its neutrophil cells. These are the cases which show a circulatory leucopenia as the end approaches. But in every case in which life has been prolonged for four days or more I have found a neutrophil leucoblastic reaction in the marrow; these are the cases which show during life a persistent, if variable, polynuclear leucocytosis, and after death local foci of tissue infection. I have further found that the longer the animal survives the more pronounced is the neutrophil transformation of the marrow.

The subjoined diagram shows the actual figures obtained from neutrophil marrow counts in a series of eight normal rabbits dying after intravenous inoculation with staphylococcus aureus (seven cases), and streptococcus pyogenes (one case). It is seen that in the three animals dying early (40 hours or less) the figures are low; in those surviving for four days or more the figures are high and become progressively higher till, in the animal living eight days, the neutrophil cells per cubic millimetre of fresh marrow reach the very large number of 596,000. It is thus clear that in presence of an active pyogenic infection the response of the bone marrow is prompt and energetic; the neutrophil cells are trebled or quadrupled in number in the course of a week or so. This is in perfect harmony with the known facts in man: Muir's observations on the marrow in pneumonia and empyema indicate an equally prompt and energetic reaction.

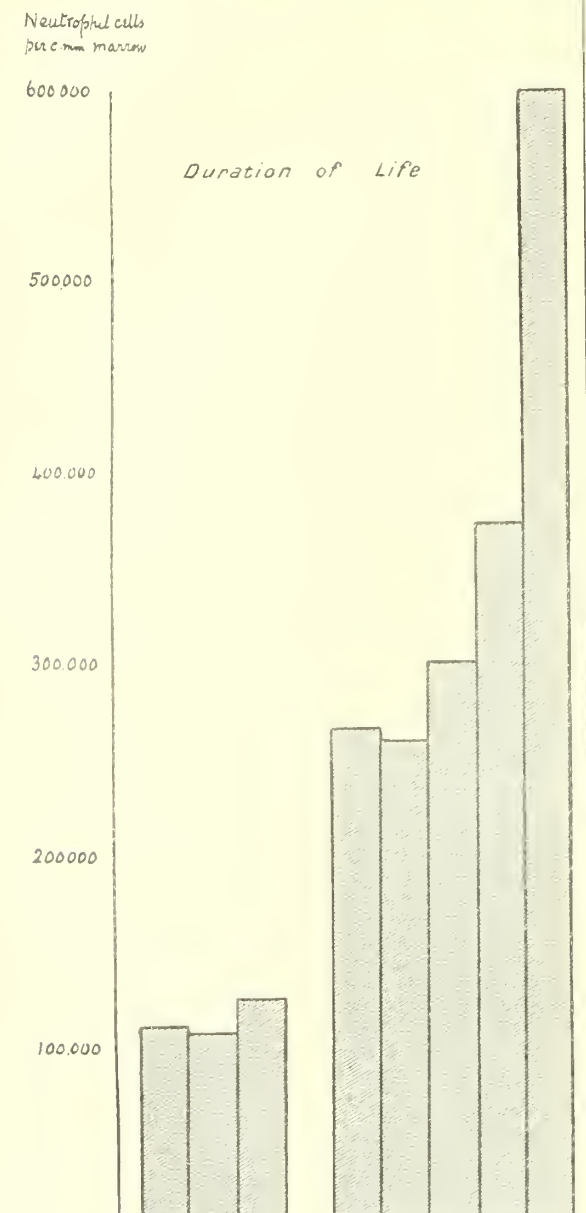
SIGNIFICANCE OF LEUCOBLASTIC REACTION.

From these facts we are entitled to draw two conclusions. I have said that rabbits showing a marked leucoblastic reaction in the marrow exhibit during life a persistent and

[1] Lectures I., II., and III. were published in THE LANCET of June 25th (p. 1737), July 2nd (p. 8), and July 9th (p. 83), 1910.

usually high leucocytosis up to death; in this they contrast strongly with the more rapidly fatal cases. It would seem that the "plant" for the production of polynuclear leucocytes present in normal marrow, though it may suffice for a high transitory leucocytosis, such as that which I have spoken of as reactive leucocytosis after anaphylactic shock, or for that associated with an infection easily overcome, is quite inadequate for the *maintenance* of a high leucocytosis.

CHART 11.



Showing the content of the bone marrow in neutrophil cells at mid-femoral level in rabbits dying from acute infection with the pyogenic cocci.

In presence of a grave pyogenic infection steps are at once taken to increase the plant necessary to keep up a due supply. In spite of this the patient or the animal may die, but it is permissible to assume that in every case showing a *sustained* circulatory leucocytosis this marrow reaction is present and that when, as is commonly the case, recovery occurs, the reaction has been part, and I think a very important part, of the machinery by which the body has overcome the infection. The prognostic value of the leucocyte count in such human diseases as pneumonia rests on a definite anatomical basis.

The second conclusion which may be drawn from the facts is that of the vast importance of the polynuclear leucocyte in the bodily struggle against invasion by the pyogenic cocci. The immediate steps which seem to be taken to provide an increased supply of these cells in presence of such invasion, and the disastrous results which seem to attend failure of the supply, can bear only one interpretation. If, in any given bacterial infection, a sustained polynuclear leucocytosis is found during life, and, after death, a neutrophil leucoblastic reaction in the bone marrow, we are fairly entitled to conclude that the defence of the body against the microbe in question rests largely, perhaps entirely, with the polynuclear leucocytes, and is probably phagocytic in essence. An impartial observer studying an invasion of this country by a foreign foe would note an excess of soldiers on the battlefield and on the railways leading to it; he would see an increased activity in the depôts where soldiers are trained and drilled; and he would justly conclude that we relied on our soldiers for the defence of our native land.

But if he saw few soldiers about, in spite of the imminence of the danger, and if he saw the invasion repelled without the apparent need for any increase in our soldiery, he would with equal justice conclude that in this particular invasion we had some other means of defence. And thus, I believe, and shall shortly endeavour to show, that the habitual absence of a circulatory polynuclear leucocytosis and of a neutrophil leucoblastic reaction in the bone marrow must mean that the polynuclear leucocytes play no part, or only a subordinate part, in that kind of bodily infection.

THE HUMORAL FACTOR.

In speaking thus of the importance of the polynuclear leucocyte in infections by the pyogenic cocci I do not wish to disparage the humoral accessories which render the action of these cells effective. I am convinced of the importance of opsonic action, but I desire to protest against the exclusive importance which some have in recent years attached to this phenomenon. Salt and mustard are valuable elements in a meal, but the beef-steak and the man who sits down to eat it must not be left wholly out of account.

In the course of my work on the pyogenic cocci I have obtained a certain amount of evidence that the intravenous injection of killed cultures of staphylococcus aureus is efficacious in producing a neutrophil leucoblastic reaction in the marrow of the rabbit. I mentioned in my last lecture an experiment in which ten rabbits received a weekly intravenous dose of 200 million killed staphylococci, two rabbits being sacrificed for observation each week. One of each pair of animals was simply examined as to the condition of its bone marrow. It will be remembered that in this experiment the immunity of the animals showed an increase for the first two or three weeks, but that their protection then faded away, owing probably to over-vaccination. The figures obtained from the bone marrows were as follows. A week after the first dose of vaccine the count showed 249,000 neutrophil cells per cubic millimetre of fresh marrow—a considerable increase above the normal. The animal killed a week after the second dose of vaccine had a marrow count of 315,000. After the third, fourth, and fifth doses the figures were respectively 232,000, 128,000, and 216,000.

There is thus seen a correspondence between the degree of leucoblastic reaction in the marrow and the height of the leucocytosis observed after vaccination as detailed in my previous lecture. Both corresponded with the degree of resistance manifested by the animals which were inoculated with living cocci, and I may add that the opsonic indices of the animals showed the same rise at first, followed by a fall towards the end of the series.

So far as this experiment goes, it shows a fairly close parallel between the degree of immunity on the one hand, and on the other the leucoblastic reaction of the marrow, the capacity for a high circulatory leucocytosis on stimulation, and the opsonic index. These three things seem all to be connected, and, in this experiment at least, to vary together: they are part and parcel of a common mechanism, the object of which is to secure the phagocytic destruction of the cocci. We should, I think, be wrong in assigning exclusive importance to any one factor in the process. The opsonic index

probably offers an easy method of determining the general efficiency of the mechanism as a whole, but I should not, on the evidence, be prepared to admit a humoral factor as the sole index of immunity, for I should expect to find it more fluctuating than the anatomical substratum of defence indicated by the changes in the bone marrow, and upon which the use and significance of the opsonic index must depend. I am referring here to the opsonic index against the pyogenic cocci, where phagocytosis plays an undisputed part as the main bodily defence.

Further Observations on Pyogenic Infections.

Before leaving the subject of the changes in the bone marrow in infections by the pyogenic cocci, I may add a few other observations bearing on the subject. In a rabbit which had been three times treated intravenously with a vaccine of streptococcus fæcalis, and which died for no apparent reason, I found 315,000 neutrophil cells per cubic millimetre of bone marrow, but in another animal killed after similar treatment the number was only 138,000, and in a third, which died much wasted, the number was only 128,000. In an animal killed after two intravenous inoculations with micrococcus citreus agilis I found no leucoblastic reaction in the marrow; the neutrophil count was 134,000 per cubic millimetre. Several of my rabbits have contracted a scaly disease of the inner surface of the ear, in which an accumulation of pus and epithelium forms a laminated mass over half an inch in thickness. I do not know the exciting cause of this, but a white staphylococcus of peculiar reactions is the most constant organism in the lesions, and sections of the affected ears show an obvious local accumulation of polynuclear leucocytes. There is also a circulatory polynuclear leucocytosis during life. I have examined the bone marrow in two rabbits affected in this way and in each case there has been an extreme leucoblastic reaction; in one the neutrophil count per cubic millimetre of marrow was 463,000 and in the other 540,000.

The general conclusion to which these observations have led me is that infections by, and vaccinations with, the pyogenic cocci lead in a few days to a neutrophil leucoblastic reaction in the bone marrow, pointing to the polynuclear leucocyte as the main element in defence.

Non-Pyogenic Infections.

I must now give certain data as to the changes in the bone marrow in infections other than those due to the pyogenic cocci.

My observations here are comparatively few. A considerable number of the experimental rabbits died, wasted, during the course of immunisation, and the low neutrophil counts obtained from such animals cannot be used in argument. The scanty data which follow are from animals which were in reasonably good condition at the time of death.

Tubercle.—An animal which had been five times vaccinated intravenously with doses of dead tubercle bacilli and was fat and well nourished was killed 19 days after the last dose. Its neutrophil marrow count was 159,000 per cubic millimetre.

Bacillus coli.—An animal six times vaccinated intravenously with killed B. coli communis in doses of 200 to 400 million was sacrificed some five weeks after the last dose. It was in good condition and its various humoral reactions (e.g., bacteriolytic power and opsonic index) were raised above the normal. The neutrophil marrow count was only 111,000 per cubic millimetre. Another rabbit, which had passed through three severe infections with living B. coli, intravenously administered, was killed on account of cage-palsy two months after the last infection; it had lost weight, but there was no depletion or mucoid transformation of the marrow. The neutrophil marrow count was here 164,000 per cubic millimetre. A rabbit vaccinated three times with a combination of B. coli communis and streptococcus fæcalis (100 million of each) and had later survived an intravenous infection with living B. coli (1600 million bacilli), died three weeks later for no apparent reason. Its marrow count was 149,000 neutrophils per cubic millimetre. In the coli-immune rabbit which I have previously mentioned as dying from anaphylactic shock after an intravenous injection of vaccine, the neutrophil marrow count was only 86,000 per cubic millimetre.

I have no reliable counts on rabbits immunised against the typhoid bacillus or Gärtner's bacillus; my animals died, wasted or septic, and yielded no data of value. The same is true of a diphtheria immune animal. Dr. J. W. H. Eyre of Guy's Hospital was good enough to furnish me with the femora of a rabbit dead of acute M. melitensis septicæmia three days after intracerebral infection. The marrow count in this animal was normal, 169,000 neutrophils per cubic millimetre.

These are, unfortunately, all the marrow counts which I have to offer bearing on the effects produced by bacteria other than the pyogenic cocci. Only in one case, that of B. coli communis, are the counts numerous enough to allow of any conclusion being drawn, and though further data are required we may provisionally infer that the colon bacillus has no power of exciting a leucoblastic reaction in the marrow. My single observation suggests that this may also be true of the tubercle bacillus. I may add that in the bone marrows of the cases I have just mentioned, not only was there no neutrophil leucoblastic reaction, but no other change which I could recognise; the marrows appeared in all respects normal.

The Varying Nature of Bodily Defence against Different Bacteria.

It will have been apparent, in the account which I have given of my own observations upon the bone marrow and upon the behaviour of the leucocytes in various conditions of infection and immunity, that the body reacts differently according to the species of bacterium by which it is invaded or against which it is vaccinated. The clinical facts in relation to different human infective diseases have long suggested this, and the more closely the cytological changes in the blood and the humoral properties of the serum are studied, the more apparent is the fact that the body has several means of defence, and that it employs now one and now another in resisting microbic aggression. I propose to devote the remaining time at my disposal to a closer review of these differences.

Observations on Harmless Bacteria.

I will first mention certain experiments which I have made as regards the effect of perfectly harmless bacteria upon the body. While I was working with well-known pathogenetic species it seemed to me that clues might possibly be obtained as to the nature of the differences which I observed by experimenting with bacteria which from their properties could never have been capable of growing in the mammalian body. Large numbers of bacterial species cannot grow at all at the temperature offered by warm-blooded animals. These are termed "psychrophil" bacteria by Fischer. Could it be shown that there were differences in the bodily response to the presence of different sorts of such psychrophil bacteria it would suggest that these variations depended upon some fundamental differences in the chemical nature of the bacterial proteins, and not upon any acquired properties on the part of the body, derived from past ancestral experience of infection.

The response of the animal body to the presence of non-pathogenetic bacteria is practically a virgin field of research, yet it is one which is full of promise as to the light which may be shed upon the more directly important problems of immunity. I have experimented with only two psychrophil bacteria and it may have been a happy chance that I chose two against which I found the animal body to respond in a fundamentally different manner. I possessed a strain of a coccus which I had isolated from the air many years before and which I identify with the organism described by Menge as "micrococcus citreus agilis." It is a coccus, positive to Gram's stain, and provided with one or two very long flagella—i.e., it belongs to Migula's genus "planococcus." My strain was totally incapable of growth at body temperature. The other species with which I have worked is a motile organism isolated from water. It is a rather long bacillus provided with one or two terminal flagella, negative to Gram's stain, and forming a feeble orange pigment. I identify it with the organism described as "bacillus fluorescens aureus." My strain is incapable of growth at body temperature.

These two psychrophil bacteria, the first two which chanced to present themselves, were inoculated in large living doses into rabbits, and the succeeding phenomena studied just as I should have studied those due to an important pathogenic species. The following differences at once became apparent. The injection of micrococcus citreus agilis into the circulation caused no leucopenia, but was

followed by a moderate leucocytosis. Nothing approaching anaphylactic shock was ever seen with this organism. B. fluorescens aureus, on the contrary, caused a definite though delayed leucopenia even on the first injection; the total leucocyte count fell from 9200 per cubic millimetre before inoculation to 1800 in two and a half hours; the subsequent leucocytosis was slight. And on each of the two occasions on which I injected the bacillus into the rabbit there was a marked dyspnœa in a few hours.

I wished to know whether these differences were associated with the presence of a lytic antibody in the serum in one case and not in the other, and Dr. Gordon very kindly undertook this investigation for me, carrying it out with all the details and controls prescribed by the classical method of performing Wassermann's reaction. I furnished him with sera from an animal twice immunised against B. fluorescens aureus, and from one three times immunised against M. citreus agilis, together with serum from a normal rabbit as control; at the same time I gave him suspensions of the respective micro-organisms in normal saline. His results were unequivocal. The animal immunised against B. fluorescens aureus had in its serum a lytic amboceptor against this organism; that immunised against M. citreus agilis had none.

I next instituted experiments on the bactericidal power of normal and immune rabbit's serum against these two bacteria, using Wright's method. A preliminary experiment showed that B. fluorescens aureus perished completely when an emulsion was incubated for 17 hours at 37° C. without the addition of serum, whereas M. citreus agilis survived, though in somewhat reduced numbers. I therefore modified Wright's technique by carrying out the experiments in a 20° C. incubator, in addition to a similar set at 37° C. Neither at 20° C. nor at 37° C. was there any evidence of bactericidal power against micrococcus citreus agilis in normal or immune serum. With B fluorescens aureus no result could naturally be obtained at 37° C., since the temperature alone killed, but at 20° C. there was evidence of a very marked bacteriolytic effect, both on the part of normal and of immune serum, no definite difference being found between the two.

I now turned to the opsonic effect of normal and immune serum upon these two bacteria and found differences no less striking. I tested them as regards spontaneous phagocytosis—i.e., in the absence of serum—and also as regards opsonic action with both normal and immune rabbit's serum, using the same human leucocytes, washed four times, for all the experiments. Micrococcus citreus agilis proved wholly insusceptible to spontaneous phagocytosis; not a single coccus was found ingested in a hundred consecutive polynuclear leucocytes. In presence of normal serum 232 were found ingested by 100 leucocytes, and in presence of immune serum 358. The latter number was swelled by the presence of several leucocytes containing 40 and even 50 cocci apiece. If no cocci over ten were counted in any given leucocyte (and none such were found with normal serum) the number found with immune serum fell to 269.

B. fluorescens aureus, on the other hand, was readily susceptible to spontaneous phagocytosis. In absence of serum 116 bacilli were found ingested by 100 polynuclear leucocytes, and by a curious chance the numbers obtained with normal and immune serum were equal—274 in each case.

These results are very striking. I was aware that differences of this kind existed amongst pathogenic bacteria, but I was surprised to find them so well marked in harmless species. In the absence of any possibility of aggressins or specially evolved toxins in such psychophil bacteria it is natural to refer the differences in the reaction of the body to some fundamental diversity in the chemical nature of the bacterial protoplasm in the two cases, or at least to the presence of some constituent of the protoplasm in the one which is absent in the other. The subject is one which seems well worth further investigation, and I should judge it possible to approach it from the chemical side.

Turning now to the reactions of the body against the better known pathogenic species of bacteria we find that differences exist such as I have just described, but even more strongly marked. It is worth while to consider these differences in some detail.

PYOGENIC COCCI.

The pyogenic cocci form a group which may be taken together, since the response of the body to their presence seems similar in all cases. Putting together the well-established clinical facts as regards human infection by these organisms, and the numerous experimental observations which have been made by animal inoculation, and adding the various observations which I have brought before you in these lectures, it seems possible to lay down the law with some confidence as to the means of defence employed against them by the body.

This defence is not only essentially phagocytic and dependent upon the activities of the polynuclear leucocytes, but it is also, in the main, opsonic. The arguments in favour of this view may be summarised as follows. Dealing first with negative evidence, it seems clear that the pyococci form no soluble toxin, and that antitoxic defence, in the sense in which we see it in diphtheria and tetanus, is out of the question. That endotoxins are present in the bacterial protoplasm is likely enough, but we are not in a position to affirm the provision of antibodies to neutralise them. Again, there is good evidence that the body deals with the pyogenic cocci by lytic action feebly or not at all. Experiments with serum *in vitro*, even with highly immune serum, show little or no bactericidal action upon these cocci. Wright's method of measuring bacteriolytic power has, in his and in all other hands, yielded negative results. Gordon and I have attempted to show by another method that in the early hours of contact between serum and staphylococci there is a distinct and often a marked decrease in the numbers of the cocci: it is possible that some minor degree of defence is thus explained, but we have never affirmed that this could be the main mechanism upon which the body relied for its protection. In the experiments as regards anaphylaxis, which I have detailed in preceding lectures, I have shown that initial leucopenia is almost absent with the pyogenic cocci, except in the highly immune animal. Even in such an animal the symptoms of anaphylactic shock are trivial or absent, and if the views I have expressed as to the nature of this phenomenon have any truth in them, this fact may be held to negative the idea of a lytic antibody as of serious importance in defence. Agglutination also, for what it is worth, is so capricious a phenomenon in relation to the pyogenic cocci as to be practically negligible.

On the other hand, the positive evidence which can be brought forward as regards phagocytic defence against these cocci is overwhelming. In almost every infection in which they are concerned, even when it is a secondary infection, we see a prompt polynuclear response. The only exceptions are grave septicæmias without local lesion: the strains of pyococci capable of producing such a result are of exceptional virulence. The visible polynuclear response seen in almost all infections by pyogenic cocci is in the first place *local*—i.e., there is an accumulation of these cells at and around the seat of bacterial invasion as a factor in the process of acute inflammation. In the second place, it is *circulatory;* in all but the most trivial infections we find a polynuclear leucocytosis. Lastly, it is *medullary;* the bone marrow undergoes a neutrophil leucoblastic change within a day or two of serious pyococcal invasion. It is inconceivable that the polynuclear leucocytes and their mother tissue should behave thus unless their functions lay at the foundation of bodily defence.

At the same time there is irresistible evidence of the coöperation of a humoral element in the defence. With all pyogenic cocci spontaneous phagocytosis is practically absent in experiments *in vitro*. It is abundantly proved by the labours of Wright and his disciples, and confirmed by every one who has worked at the subject, that the opsonic action of the serum is needful before phagocytosis can take place. It may be that in immune serum there is an opsonin differing in its nature from that of normal serum, as Muir and Martin have maintained. It is one of the difficulties which we encounter, in endeavouring to explain opsonins as lytic antibodies in another guise, that opsonic action is most signally manifest in the case of the pyogenic cocci, against which lytic action is feeble or absent.

I am therefore ready to accept the opsonic index in these infections as an important indication as to the degree of immunity in any given case. It is true that it measures only one factor in a complex process, but it is a very essential factor. I have already stated my reasons for not attributing exclusive importance to the opsonic index; I assign also much importance to the anatomical substratum of immunity.

THE TUBERCLE BACILLUS.

The mechanism of defence against the pyogenic cocci has been seen to present no apparent difficulty in explanation. It is otherwise when we approach the micro-organisms concerned in the causation of the infective granulomata. Some of these affections, such as actinomycosis, are largely suppurative, and here the polynuclear leucocytes are presumably concerned, much as they are in infections with the pyogenic cocci. But in regard to the two commonest and best known infective granulomata this is by no means the case. Syphilis and tubercle are almost non-suppurative affections: the so-called "pus" of chronic lesions is mostly, though not entirely, necrotic and softened tissue débris. True suppuration in these diseases is usually due to secondary infection with pyogenic organisms.

I do not propose here to consider the nature of the bodily defence in syphilis. The disease is not one which lends itself to laboratory experiment in this country, where the higher apes are hard to procure. I will only say that the clinical and histological evidence obtainable from cases of human syphilis suggests in the strongest possible way that the polynuclear leucocytes play no part whatever in defence. Apart from accidental complications polynuclear leucocytosis is a phenomenon practically unknown in syphilis. In the histology of syphilitic lesions the polynuclear leucocyte takes no part; this cell seems to stand aside from the conflict during the whole course of syphilis, and to play no part in the manifestations of the disease at any stage. If any leucocyte plays a part it would seem to be the lymphocyte.

Tubercle, on the contrary, lends itself well to investigation, and there is a considerable body of experimental, as well as of clinical, evidence to guide us in framing our views as to the nature of the defence offered by the body against the bacillus. I will consider first the clinical facts. It is habitually asserted, and I believe it to be true, that in acute tuberculous affections, without secondary infection, polynuclear leucocytosis is absent. This is the opinion of most of the observers who have studied the subject, amongst whom I may mention von Limbeck and Cornet. In pulmonary tuberculosis secondary infection can, of course, rarely be excluded; even in tuberculous meningitis a secondary streptococcal infection of the meninges is not infrequently found post mortem, when it had not been suspected during life; the high polynuclear counts occasionally found in meningitis may thus perhaps be explained. It is now part of the ordinary routine of clinical pathology to make a cytological examination of fluids withdrawn from the various cavities of the body for purposes of diagnosis, and the student is rightly taught that tubercle, whether of the peritoneum, pleura, or meninges, is associated with a lymphocytosis rather than with an increase in the polynuclear leucocytes.

The histological study of tuberculous lesions is emphatic in disclaiming any participation of the polynuclear cells; they form no part of the structure of a miliary tubercle, and even in a tuberculous "abscess" they are habitually sparse. The cells of a miliary tubercle are essentially fixed tissue cells—endothelial and connective tissue in nature, with a certain number of lymphocytes. The clinical evidence, as a whole, offers no suggestion that the body relies upon its polynuclear leucocytes in defence against the tubercle bacillus.

The experimental evidence connecting the polynuclears with defence against tubercle is not abundant or convincing. It is true that these cells will swallow tubercle bacilli *in vitro* if they are presented in company with a suitable opsonin, but they will swallow almost anything. It is also true that a similar phagocytosis occurs *in vivo* when tubercle bacilli are introduced into the body, but this seems an initial phenomenon only. I have seen it in the rabbit after the intravenous injection of bovine tubercle bacilli; the polynuclear leucocytes impacted in the lung may contain the bacilli after 15 minutes. Kisskalt has described it in mice cutaneously inoculated with human tubercle bacilli,[2] but, though he found phagocytosis of the bacilli by polynuclear leucocytes in the earlier stages, these cells were in a few days supplanted by large mononuclear cells which took up the work of phagocytosis. I have never succeeded in producing more than a trivial leucocytosis with killed tubercle bacilli in the rabbit, and even a prolonged course of intravenous vaccine treatment failed in this animal to excite any leucoblastic reaction in the marrow. It is stated that after injection of tuberculin there is a circulatory leucocytosis (in which the eosinophils take part) during the height of the reactive fever, but it appears to be a transitory phenomenon. On the other hand, there is abundant histological evidence that in established experimental tuberculosis in animals the polynuclear leucocytes play no more part in the lesions than they do in human tubercle.

A dispassionate survey of the preceding facts must, I think, from the strong contrast which they offer with those seen in the case of infections with the pyogenic cocci, convince us that in tubercle, as in syphilis, the polynuclear leucocyte takes little part in bodily defence. This seems essentially a function of the fixed tissue cells. The first reaction which appears to occur when a tubercle bacillus lodges in a lymphatic gland or elsewhere is a proliferation of the local endothelium, and when, in a favourable case, a local infection is overcome it is the connective tissues which wall in the caseous focus and reduce it to impotence.

What, then, is to be said of the tuberculo-opsonic index? Here I find myself confronted with a paradox which I cannot pretend to solve, and which has long been a stumbling-block to me. I cannot resist the evidence that the opsonic index is of value in the diagnosis of tubercle, and although I confess that I cannot see eye to eye with those who claim it as indispensable in controlling the dosage with tuberculin I freely admit that here, too, it has proved of use. But the tuberculo-opsonic index measures immunity by the behaviour of a cell which plays no apparent part in serious defence against tubercle. It may be that opsonin is essential to the ingestion of bacilli by the fixed tissue cells. I do not know that proof of this has ever been brought forward, nor do I know that bacilli engulfed by the fixed tissue cells are destroyed; more often it would seem to be the cell which perishes.

This difficulty has not, I think, received sufficient consideration by the opsonic school; the admitted usefulness of the opsonic index requires some explanation in view of the fact that nearly all that we know of pathological cytology points away from the polynuclear leucocyte as a factor in defence against tubercle. There is a possibility, at which I have before hinted, that some antibody which is evoked in immunisation against tubercle possesses, as an accessory property, the power of opsonic action, and that the opsonic index thus measures immunity indirectly.

BACILLUS COLI AND ITS ALLIES.

In this group, including not only B. coli but the typhoid bacillus, the dysentery bacilli, Gärtner's bacillus, and the paratyphoid organisms, we find a scheme of bodily defence which seems to differ from both those already discussed. This group of bacteria shares with the cholera vibrio the faculty of evoking the production of lytic antibodies to a degree which has no parallel amongst the pyogenic cocci. Even normal serum may possess well-marked bacteriolytic power against these organisms and in immunity the power is greatly increased. The existence of lytic antibodies probably explains why anaphylactic phenomena are especially well marked in animals immunised against the members of this group.

But although lytic action is readily witnessed in the test-tube, there is reason for the belief that in the living body, even though the serum be richly furnished with lytic antibodies, phagocytosis and intracellular destruction also take place freely. In the serous cavities of an immune animal lysis is doubtless seen, but it has been questioned how far it occurs in the tissues, even in the immune—much more in the normal animal.

If we look at the clinical evidence we find that most of the bacteria belonging to the colon group have some power of exciting suppuration. In acute infections with B. coli itself pus may be completely absent, as is occasionally seen in cystitis; but in chronic coli infections suppuration is common. I will not speak of perforations of the gut, because the infection is here a mixed one, at least at the outset. But suppurations due to an unmixed infection with B. coli or its near allies are commonly seen in chronic cystitis, in chronic inflammations of the bile passages, and

[2] Zeitschrift für Hygiene, Band xlv., No. 1.

elsewhere; the cells in the pus are in such cases true polynuclear leucocytes, and phagocytosis can often be demonstrated. Again, in typhoid cystitis a true pyuria is present, and from the purulent lesions of post-typhoidal periostitis one may obtain pure cultures of the typhoid bacillus. I need not multiply examples; it is clear that the polynuclear leucocytes play some part at least in defence against this group of organisms, though perhaps chiefly in chronic infections.

Nevertheless there is a great difference between these infections and those due to the pyogenic cocci as regards the changes seen in the blood and in the bone marrow. It is well known that in typhoid fever there is no circulatory leucocytosis. It is indeed asserted that in the very earliest stages of this disease the polynuclear leucocytes are increased, but I have never had an opportunity of verifying this. In practically every case of uncomplicated typhoid fever that one sees the circulatory polynuclears are not only not increased but actually lowered in number—often to 1000 or 2000 per cubic millimetre. Again, in chronic urinary infections with B. coli, though pus may be passed in large amounts, I have never found any marked polynuclear leucocytosis in the blood.

In experimental rabbits treated with intravenous doses of living and dead colon bacilli, Gärtner's bacillus, and B. typhosus I have indeed regularly noted a polynuclear leucocytosis, often a high one, following the anaphylactic leucopenia, but it is a transient affair, and I believe it to be a reaction following the leucopenia rather than a serious attempt at phagocytic defence. I have never found a leucoblastic reaction in the marrow of animals thus treated.

The colon group of bacilli would thus appear to differ from the pyogenic cocci in several important respects as regards the defensive mechanisms they excite. Certain humoral responses, notably agglutination and bacteriolysis, are better marked than with most other bacteria, and in spite of the fact that it is difficult to prove that these actually play their part in the tissues, it is equally difficult to believe that they have no meaning. The evidence as regards opsonic response is difficult to appraise, but I am disposed to attach less importance to it than in the case of the pyogenic cocci. And although these bacteria may excite suppuration in certain cases the absence of a constant polynuclear leucocytosis in the blood, and of a leucoblastic reaction in the marrow, forbids us to believe that the polynuclear cells are of more than subsidiary importance in defence.

We have thus in the pyogenic cocci, in the members of the colon bacillus group, and in the microbes of tubercle and probably also of syphilis, examples of micro-organisms against which the body seems to defend itself in very different fashion. So far as the polynuclear leucocytes are concerned, we seem entitled, from the facts I have reviewed, to conclude that these cells are of fundamental importance in defence against the pyogenic cocci, of merely secondary importance in the case of the colon group, while in tubercle and syphilis they seem to play almost no part at all. These three groups of bacteria by no means include all those of serious pathogenic importance, but they are those with which I have chiefly worked, and the short time at my disposal prevents me from dealing with such groups as the pre-eminently toxic bacteria in which yet other means of defence come into play.

At the present day it is almost superfluous to urge that no one theory of immunity can meet all the facts. The reactions between the body and its invaders are manifold and complex, and must be viewed from many sides if their meaning as a whole is to be fully grasped. Truth is a gem, cut by many different workers, each intent upon the facet on which he is himself engaged, striving to smooth and polish it that he may gaze into the interior. The view thus gained is too often but a partial one. Another, working at a different facet, may gain a glimpse of the same facts, but in an altered light, and may formulate a very different theory to explain what he sees. Yet little by little the crystal becomes cut and polished till in the end we may hope to view it as a perfect whole. My humble effort in these lectures has been to peer through only one facet in the crystal of truth, that at which I have lately been engaged in working. I am not blind to the fact that there are other facets of equal importance, but I shall have succeeded in my aim if I have attracted renewed attention to the significance and value of the anatomical element in immunity presented by the leucocytes.

THE ASPECTS OF DISEASE.[1]

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WHEN honoured by the request of your President to read a paper before this society I was in some difficulty to determine upon what subject I might venture to claim the privilege of your attention, but it occurred to me that perhaps if instead of treating of some limited surgical or pathological problem I asked you to consider with me a topic in which both medicine and surgery were concerned, I might hope to engage more general interest. And if in the course of my paper I allude to matters which belong more strictly to the medical side of our profession, I would ask your toleration and beg you to consider that since our work has become so complex and extended that some subdivision is inevitable, there is an increasing danger of contentment with a narrow and restricted view, as an antidote to which it is much to be desired that in whatever department of practice we may be engaged we should be in touch with the work of our colleagues in other directions.

I wish, then, to speak to you very briefly upon the aspects of disease as recognisable by that most beautiful and delicate of all instruments, the human eye—an instrument which you always carry with you, and which is capable of detecting many things not appreciable by any other instrument, the use and accuracy of which can be greatly improved by care and practice, and the value of which will remain, whatever other aids may be furnished us by advancing science.

Please do not suppose that I wish to depreciate the value of the many admirable contrivances which we have at our command to aid us in the observation and diagnosis of disease and injury; I only wish to recall your attention to the value of what we can see with the eye assisted only by the intelligence, and to show that there are some things better estimated by the eye than by any mechanical or artificial instrument. You will remember that Addison said: "Everyone is in some degree a master of that art which is generally distinguished by the name of physiognomy,"[2] and I would ask you to consider first what may be learned from the expression of the patient's face and the condition of the visible muscles.

Sir Charles Bell in his book "On the Anatomy and Philosophy of Expression" points out that "the motion of one part of the body produced by the excitement of another, and the movements produced by passion on the frame of the body, become *symptoms* when caused by disease";[3] and although these are but a part of the available evidence, "yet that partial view is attended with a train of consequences which none can perceive but those who are acquainted with the secret ties which bind the parts together."[4] And he gives as an example the fatal pneumonia after operation or injury which may occur with "no violent pain, no cough, no inflammatory pulse; you observe only a tremulous motion and swelling of the upper lip and working of the muscles of the nostrils," to which he might have added an expression of anxiety and a dusky complexion. Then Sir Charles Bell continues: "When we learn that the muscles about the lips and nostrils are respiratory muscles, and when we know that a respiratory nerve goes purposely to combine these muscles with the motions of the thorax, and above all when by such investigation of the anatomy, we find that these same motions indicate some powerful emotions of the mind, are we not prepared to be more attentive observers, and to discover such symptoms as must remain obscure to those who have no clue to them."[5]

But to obtain the full value of such observations we must be, as Sir Charles Bell says, "*attentive* observers," and we must learn to interpret correctly the expressions which we observe. We must have "the clue to them." We must endeavour to observe as one—

> "Who looks
> In steadiness, who hath among least things
> An undersense of greatest; sees the parts
> As parts, but with a feeling of the whole."[6]

[1] A paper read on March 10th, 1910, before the St. George's Hospital Hunterian Society.

[2] Spectator, No. 86.

[3] Essays on the Anatomy and Philosophy of Expression, by Sir C. Bell. Second edition, 1824, p. 13.

[4] Ibid., p. 15.

[5] Ibid., p. 16.

[6] Wordsworth, Prelude, Book vii.

I would remind you that our pathological studies, the value of which cannot be over-estimated, yet show us the results only of disease, not disease itself, which can only be studied in the living; but the expression or aspect of a patient will often give us signs of disease as it exists in the living which our imagination may connect with its results as seen in the dead. As Shelley said, "Reason is the enumeration of quantities already known; imagination is the perception of the value of these quantities both separately and as a whole."[7]

You may often see in the face, not only the mental character, but also the pathological character of a patient. For instance, a person whose expression shows the mental capacity for endurance may show in his face indubitable signs of premature age which we may translate into an indication of early degeneration of all the tissues of the body—the arcus senilis, tortuous temporal arteries, shrunken skin.

The expression of a person in severe pain is very striking: the lips retracted, the teeth clenched, the brow contracted, the nostrils dilated and quivering, the whole body restless except perhaps one limb or one set of muscles. It must be remembered, however, that although pain of short duration may be a stimulant, severe pain long continued is extremely depressing; and then the expression of the sufferer is quite different, and becomes that characteristic of depression, with possibly occasional brief recurrences of the restlessness described above. The condition has been well described by Darwin:—[8]

> After *prolonged* suffering the eyes become dull and lack expression, and are often slightly suffused with tears. The eyebrows not rarely are rendered oblique, which is due to their inner ends being raised. This produces peculiarly grooved wrinkles on the forehead which are very different from those of a simple frown, though in some cases a frown alone may be present. The corners of the mouth are drawn downwards. ..... The breathing becomes slow and feeble and is often interrupted by deep sighs.

How changed is the expression of the same patient when the pain has been relieved or brought to an end. The lengthened face expands, the head is held erect, the frontal muscle contracts, smoothing out the wrinkles of the brow and arching the eyebrows, the eyelids are raised, and the nostrils and the angles of the mouth relaxed. In children prolonged pain often gives rise to a pathetic expression of appeal (as though asking for help or relief), and when relief comes the expression of joy is more marked than in adults; the eyes brighten, the colour rises, and the corners of the mouth are retracted to the extent of a smile.

How often you must have recognised at once upon entering the sick-room, and without asking a single question, the improvement or declension in the patient's condition by simply observing such changes of expression as I have described, especially if the patient be a child. Children are especially worth study in this respect, for they do not try to conceal their feelings or control their expression, so that we can depend upon the tale told by their faces and are not liable to be led astray by the tale told by their tongues, as we sometimes are with adults. I consider that the two years that I lived in the Hospital for Sick Children, Great Ormond-street, as house surgeon and sole resident medical officer taught me more than any other two years of my professional life, and I shall never forget the lessons learned from the careful observation of the aspect of some of the children I then tended.

In interpreting the expression of children we must, of course, bear in mind that in them the nervous system, especially the sympathetic, is extremely sensitive; that they are especially liable to disease of *one* organ; and that they exhibit in a peculiarly marked manner the signs of the profound diathetic diseases, such as syphilis, tuberculosis, rickets. I know nothing more characteristic of the facies of disease than that of a child the subject of congenital syphilis. You are all familiar with the shrivelled appearance of old age, the dull brown complexion, the snuffling and discharging nose, the sore lips of the infant; and later on the sunken nose, the hazy corneæ, and the small grey and notched teeth. How unmistakeable, too, is the facies of rickets: the projecting forehead and small face, the flat and perspiring head, the open fontanelles, the languid expression, and the manifest objection to being handled.

I would, moreover, remind you how much may be learned of the condition of children by simple inspection if they are completely uncovered and allowed to be undisturbed in a cot. The decubitus of rickets is very characteristic, the child lying upon its back with the legs crossed, and the thighs flexed upon the abdomen. At a children's hospital you could always pick out the rickety children on going through the wards at night by most of them having kicked off the bed-clothes and assumed the position I have described. Then if one looked a little closer one would see the beaded ribs, the pigeon breast, the prominent abdomen, the enlarged wrists, and the bowed legs.

Contrast with this the child with tubercular meningitis, lying curled up in bed, the head buried in the pillow, the face flushed, the skin hot and dry, the knit eyebrows, the intolerance of light, the squint, the pulsating carotids, the irregular breathing, and the retracted abdomen. Or take a case of hydrocephaloid disease, described so well by Dr. Marshall Hall. The child who has been suffering from continued diarrhœa, and from whom you may probably detect the smell of a foul motion, lies in a dozing condition alternating with occasional restlessness, the face pale, the eyes sunken and devoid of speculation, the fontanelle depressed, the lips dry and parched, the breathing shallow and hurried. Here the expression is one of vacant indifference, whereas that of the child with meningitis, except in the very late stage, is that of irritability and hypersensitiveness to light, frowning, shutting the eyes, and with the lips retracted and the teeth clenched.

Then again, the aspect of the child with large tonsils and post-nasal adenoid growth, with its pinched nostrils and open mouth, is unmistakeable. Or look at the child with scrofulous ophthalmia, with its sticky eyelids half closed, its face turned from the light, and the eyes shaded by one hand while the other hand scratches the head on account of the irritation of impetigo; one sees also some enlarged cervical glands and some redness and swelling of the alæ nasi.

Note also the expression of the child who is myopic, the contracted brow and eyelids, and the stooping posture to bring the head near the book or toy. Or, on the other hand, the presbyopic child with wide open eyes and commencing squint. The deaf child, apparently inattentive and stupid, with raised brow and head held upward and forward, has another and equally significant aspect.

Chorea is a disease which gives a peculiar facial expression to the affected child. I think I should describe it as an irresponsible or, in severer cases, a somewhat imbecile aspect, with, of course, the grimacing and jerky movement increased if called upon to speak or act. And how striking is the aspect of the child with croup or other laryngeal obstruction; sitting up in bed, the head thrown back, the face suffused and perspiring, and with distressed and anxious expression; the lips livid, the chest heaving, the supraclavicular and intercostal surfaces receding with inspiration, the sibilant breathing, the ringing cough, and the hoarse voice.

The aspect of the cretin is usually sufficiently diagnostic; the stunted, ill-developed, stupid-looking child, with dull, flabby skin, thick lips and tongue, puffy face and neck, and awkward speech and manner. The idiot, too, is usually, even in infancy, recognisable; the small and often unnaturally shaped head rolling about from side to side, the want of speculation, of recognition, or of appreciation in the face, the vacant smile, the slobbering lips. It is curious that the mother, perhaps because the wish influences the judgment, often describes such a child as unusually intelligent, though she may be anxious about its delayed effort at speech or some other deficiency. I have often had children whom I at once saw to be idiots brought to me because of the absence or imperfection of speech, with the idea that there was some defect of the palate or mouth that might be remedied by operation, and which accounted for their condition.

Of course, I need not remind you how various joint diseases, bone affections, and paralyses may be recognised by observing the naked child; how, for instance, early hip disease prevents the complete flexion of the thigh upon the pelvis, while the sound limb is flexed and rotated with evident pleasure; how the stiff neck and avoidance of rotation of the head are indicative of cervical spine disease; how the unmoved or carefully held limb may point to epiphyseal or periosteal disease; and how the inequality of

[7] Shelley, Defence of Poetry.
[8] The Expression of the Emotions in Man and Animals, p. 179.

muscular action and the wasted limb may reveal the area of infantile paralysis.

Turning now from children to adults we have, of course, to remember that the expression of the face in adults is less reliable than in children because of their powers of control and even of deception. Still much may be learned by careful observation, and practice will enable you to detect deception and exaggeration, and to make allowance for sources of error.

I confess that Lavater[9] seems to me to have exhibited too complete a confidence in his power of reading the face and that his interpretations are sometimes erroneous. But he warns the physician of the danger of treating disease according to its specific class without adapting his prescriptions to the character of the patient as exhibited in the physiognomy. Duchenne's[10] researches have done much towards the determination of the muscles involved in the facial expression of the emotions, and studies of this kind may usefully be borne in mind. But the careful observation of the aspects of disease helps us to interpret the divergencies from the natural conditions and to recognise the changes associated with particular diseases.

We should, most of us I think, recognise the dyspeptic, with the thin, pale face and the red-tipped nose; or the albuminuric, with pale, puffy face and swollen feet; or the neurotic, with furtive glance, quivering eyelids, blushing skin, and intense pose. The habitual drunkard, too, is generally recognisable, his fat form, his bulgy face, his bleary eyes, his hypertrophied and reddened nose are features often accentuated by his hesitating and undecided manner and the smell of alcohol about him.

So also the large eater who leads a sedentary life may show in his face the condition of general plethora. Sir Thomas Watson, whose descriptions of the aspects of disease are unequalled, thus describes him:—

> Persons thus circumstanced are apt to grow fat, the adipous tissue seeming in these cases to form a kind of safety-valve for the diversion of the superfluous blood. Such persons have turgid or florid cheeks, red lips, red mucous membranes, and not uncommonly ferrety eyes. Their entire vascular system is preternaturally distended.[11]

Sir James Paget, another great artist, has admirably described the two types of senile degeneration:—

> Some people (he says) as they grow old seem only to wither and dry up; sharp-featured, shrivelled, spinous old folk, yet withal wiry and tough, clinging to life, and letting death have them, as it were, by small instalments slowly paid.
>
> Such are the "lean and slippered pantaloons" and their "shrunk shanks" declare a pervading atrophy.
>
> Others, women more often than men, as old and as ill-nourished as these, yet make a far different appearance. With these the first sign of old age is that they grow fat; and this abides with them till, it may be, in a last illness sharper than old age, they are robbed even of their fat. These, too, when old age sets in become pursy, shorted-winded, pot-bellied, pale, and flabby; their skin hangs, not in wrinkles, but in rolls; and their voice, instead of rising "towards childish treble," becomes gruff and husky.
>
> These classes of old people may represent the two chief forms of atrophy; of that with decrease and that with fatty or other degeneration of tissues. In those of the first class you find all the tissues healthy, hardly altered from the time of vigour. I examined the muscles of such an one—a woman, seventy-six years old, very lean, emaciated, and shrivelled. The fibres were rather soft, yet nearly as ruddy and as strongly marked as those of a vigorous man; her skin, too, was rough and dry; her bones, slender indeed, yet hard and clean; her defect was a simple defect of quantity and of moisture.
>
> But in those that grow fat as they grow old, you find, in all the tissues alike, bulk with imperfect texture; there is fat laid between, and even within the muscular fibres; fat about and in the fibres of the heart, in the kidneys, and all the vessels; their bones are so greasy that no art can clean them; and they are apt to die through fatty degeneration of some important part, such as the heart, the minute cerebral blood-vessels, or the emphysematous lungs. The defect of all these tissues is the defect of quality.[12]

That a patient is suffering from hæmorrhage may be indicated by the waxy pallor of the face, and the white lips and conjunctivæ, which may be exhibited by a person who is unaware of the loss of blood owing to the hæmorrhage being internal.

The diagnosis of internal cancer may sometimes be assisted by the sallow complexion and emaciated face of the sufferer. I need only mention the staining of jaundice, the patchy redness of hectic, the pigmentation of Addison's disease, the eruptions of the exanthemata of syphilis and of the various diseases of the skin, as conditions the observation of which may at once lead us to a diagnosis.

May we not be helped by noticing the distressed and dusky face, the dilated and moving nostrils, the dry herpetic lips, the dull staring eyes, and the rapid respiratory movements, as suggestive of pneumonia; or the venous and purple face and swollen lips of chronic heart disease? Or have we to interpret the serious meaning of the Hippocratic facies,[13] with sharp nose, hollow and sunken eyes, cold and shrivelled ears, dry and rough skin, and green, black, livid, or lead-coloured countenance, as presented by Falstaff when he made his end "at the turning o' the tide," with "his nose as sharp as a pen," and "babbling of green fields"?

Or may I quote Sir Spencer Wells's description of the *facies ovariana?*

> The emaciation, the prominent or almost uncovered muscles and bones, the expression of anxiety and suffering, the furrowed forehead, the sunken eyes, the open sharply-defined nostrils, the long compressed lips, the depressed angles of the mouth, and the deep wrinkles curving round these angles form together a face which is strikingly characteristic.[14]

Then how much may be learned from the eye; its sensitiveness or insensibility to light, the injected or pale conjunctiva, the dilated, contracted, irregular, or unequal pupils; and from the eyelids, puffy, or shrunken, or paralysed. Besides the protrusion of exophthalmic goitre one may see the globe pushed forward by tumours of the orbit and of the antrum. And we may see the globe sunken into the orbit by emaciation or by rapid loss of fluid.

The widening of the nostril due to the presence of polypi is very notable and gives a peculiar character to the face. The drawing of the mouth to one side and the open eyelid may unmistakably indicate paralysis of the facial nerve; as the drooping lid and outward divergence of the globe may point to paralysis of the third nerve.

The onset of tetanus may be detected by the sardonic expression given to the face by the contraction of the muscles of the mouth. I have seen this and slight stiffness of the neck the only symptoms indicative of the oncoming of fatal tetanus, the patient asserting cheerfully that there was nothing the matter with her but a slight cold and a little wound of no consequence. I ought, however, to mention that I have seen firm closure of the jaws of a youth due to the reflex irritation of a cutting tooth; but though the jaws were firmly closed there was no retraction of the angles of the mouth and therefore no risus sardonicus.

The swollen, spongy, purple, and bleeding gums and sallow complexion of scurvy are obvious signs of the disease, and may help towards the interpretation of bruises upon various parts of the body.

So far, I have dwelt chiefly upon the aspect of the face and what may be learned therefrom in disease, because I think the study of the face is especially interesting and instructive. But I need hardly say that there is much to be learned by the observation of the rest of the body. The carriage and gait of a patient will often tell you much; of weakness and fatigue, of paralysis, of joint trouble, of abdominal tumour, of cerebral disturbance. As the hand is given you, you may notice the clubbed fingers of chronic dyspnœa, the enlarged joints of osteo-arthritis, or the chalk stones of gout. On looking at the chest you may observe the beaded ribs and pigeon breast of rickets, the flattened infra-clavicular region of phthisis, the barrel chest of emphysema, the bulging lower right ribs from enlargement of the liver. The outline of the abdomen may suggest disease of the contained viscera, the pregnant uterus, or the distended bladder; and the enlarged and tortuous veins on the surface may tell of obstructed vena cava or iliac vein.

The lower limbs may give evidence by wasted muscles or arrested growth of paralysis or joint disease, or by the nodulated great toe of the gouty diathesis, or by the puffy and œdematous ankles of renal disease, or by the periosteal thickening of the shin of syphilis, observations which may be found especially useful in examining patients for life insurance.

So again, in medico-legal cases the presence and colour of a bruise may enable us to form a shrewd guess as to the

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[9] Lavater: L'Art de Connaître les Hommes par Physiognomie, Paris, 1806.

[10] Duchenne: Mécanisme de la Physionomie Humaine, Paris, 1876.

[11] Principles and Practice of Physic, vol. i., p. 47, fourth edition.

[12] Paget: Lectures on Surgical Pathology, 1863, Edinburgh, p. 82.

[13] Prognostics, Adams's Translation, p. 236.

[14] The Diagnosis and Surgical Treatment of Abdominal Tumours, by Sir Spencer Wells, Bart., p. 11; Churchill, 1885.

nature and date of an injury.[15] The presence and aspect of a scar may also tell something of the nature and date of a wound. The depressed scars of glandular abscesses in the neck may hint at the probability of a tubercular tendency. And the scars of rupial ulcers may tell us of the infection of syphilis.

I mention all these points just to remind you how much of importance may be recognised by the eye alone; and I should like to quote one case to show how such an observation may help towards a correct diagnosis. A lady was brought to me by her medical attendant to consider the question of colotomy for the relief of malignant disease of the rectum. There were great pain, hæmorrhage, and some difficulty of defæcation, and an examination of the rectum revealed an extensive ulcerated growth. She had lost flesh and was of somewhat sallow complexion. But when the nates were uncovered for the examination of the anus and rectum I noticed some extensive rupial scars. This led to further investigation and inquiry, and I found that she had had numerous sores on various parts of the skin, and severe ulceration of the throat. This, and the resemblance of the rectal disease to ulcerated gummata, led me to the belief that the disease was syphilitic and not cancerous; and that this was so was proved by a cure resulting from a carefully carried out course of anti-syphilitic treatment.

Then there are the varied cases of glandular enlargement indicative of tubercular, malignant, or lymphatic disease; the tubercular glands tender, soon involving the superjacent skin, and suppurating; the malignant less tender, less defined, and tending to ulceration, not suppuration; the lymphatic disease leading to early fusion and loss of definition, with comparatively little pain.

I would point out that the presence or absence of shortening of a limb may often be more accurately determined by the eye than by any measurement, especially in the lower limb. I venture to assert that the accurate measurement of the lower limb is by no means easy. It is difficult to be exact as to the points of measurement being precisely the same on the two limbs; moreover, a little difference in the muscular development, which is very common, will furnish an error in the measurement of the length. This is not imaginary, for I can tell you of a case in which five hospital surgeons were in consultation over an obscure injury of the hip, and in which no two agreed as to the presence or amount of shortening as shown by tape measurement. It was then suggested that a straight line should be drawn between the two anterior superior spines absolutely at a right angle to the median line of the abdomen as determined by the eye, and the two limbs extended side by side, when it was at once obvious that the soles were not on the same level, because of some shortening of the limb.

So, also, a fracture of the neck of the thigh bone may be certainly detected by ascertaining in the same way the presence of shortening and the eversion of the limb; and thus painful and harmful manipulation is avoided, which in the case of impacted fracture is of the greatest importance.

To the trained eye the outline of a Colles's fracture of the radius, with the projection of the lower fragment on the back and outer side of the forearm and the prominent styloid process of the ulna, is unmistakable. As also, if seen early, is the outline of a Pott's fracture, with the projecting internal malleolus and outward displacement of the foot. Fractured ribs may be suggested by the immobility of one side of the chest, just as immobility and rigidity of abdominal muscles may indicate injury or inflammation of the subjacent viscera.

Evidently, then, the skilled use of the eye may not only greatly help us towards a correct diagnosis but may enable us to avoid what would often be a painful and sometimes a harmful examination, and may even, perhaps, preserve us from serious error.

But the aspects of disease have been observed and described by others besides medical authors, by artists—both poets and painters. You will remember the well-known lines of Sappho picturing a swoon, translated thus into verse by Dr. Walter Headlam[16]:—

> . . . . . "Utterance of word
> Fails me; no voice comes; my tongue is palsied;
> Thrilling fire through all my flesh hath run;
> Mine eyes cannot see, mine ears make dinning
> Noises that stun;
>
> The sweat streameth down—my whole frame seized with
> Shivering—and wan paleness o'er me spread,
> Greener than the grass; I seem with faintness
> Almost as dead."

There is also an almost exactly similar description by Theocritus in the "Magic Wheel," Mr. Andrew Lang's translation of which is as follows:—[17]

> I grew colder all than snow, and the sweat streamed from my brow like the dank dews, and I had no strength to speak; nay, nor to utter as much as children murmur in their slumber calling to their mother dear.

Or in Mr. Walter Headlam's verse:—[18]

> "I went cold all over as ice; and on my brow
> Moisture broke out heavy as beads of morning dew;
> And I had no voice to utter so much as even in sleep
> Murmuring to their mothers weary children do."

A case of septic phlebitis and pyæmia is most graphically described by Chaucer:—[19]

> "The clothred blood, for any leche-craft
> Corrumpith, and is in his bouk i-laft,
> That nother veyne blood, ne ventusyng,
> Ne drink of herbes may ben his helpyng.
> The vertu expulsif, or animal,
> Fro thilke vertu cleped natural,
> Ne may the venym voyde, ne expelle.
> The pypes of his lounges gan to swelle,
> And every lacerte in his brest adown
> Is spent with venym and corrupcion.
> Him gayneth nother, for to get his lyf,
> Vomyt up-ward, ne down-ward laxatif;
> Al is to-broken thilke regioun;
> Nature hath now no dominacioun,
> And certeynly wher natur will not wirche
> Farwel phisik; go bere the man to chirche."

And you remember Shakespeare's description of the strangled Gloucester:—[20]

> "But see, his face is black and full of blood,
> His eye-balls further out than when he lived,
> Staring full ghastly like a strangled man;
> His hair uprear'd, his nostrils stretch'd with struggling;
> His hands abroad display'd, as one that grasp'd
> And tugg'd for life and was by strength subdued."

And what an idea of the misery of greatness ruined is given by Milton's description of the face of Satan:—

> "His face
> Deep scars of thunder had intrenched, and care
> Sat on his faded cheek."

There are many celebrated paintings depicting injuries and disease. Dr. Leonard Mark gave a most interesting address in 1906 on Art and Medicine,[21] in which he drew attention to some of the most remarkable of such pictures to be seen in the British galleries, of which Hogarth's "Pool of Bethesda" in St. Bartholomew's Hospital is a notable example.

I hope, however, that I have said enough to show that the aspects of disease are full of interest and are none the less worth study because we have also at our command a vast amount of valuable scientific apparatus. Moreover, it must be remembered that he who practises in the country, miles from a large town, must often have to make his diagnosis without much of the apparatus that we have available in our laboratories; that X rays are not always at hand; and that even the culture of bacilli and the ascertainment of opsonic indices may have to be discarded. And so what one can see and record with the eye may have a very special value.

I cannot help thinking that a careful and intelligent study

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[15] A very interesting example of this is the evidence in proof of the murder by strangling of Sir Edmund Berry Godfrey in 1678. See The Popish Plot, A Study in the History of the Reign of Charles II., by John Pollock, Fellow of Trinity College, Cambridge, 1903, p. 99. Also the case of Sir Edmund Berry Godfrey, by John Pollock, in the Law Quarterly Review, October, 1906, p. 431.

[16] Paleness greener than the grass is a striking phrase concerning which Dr. Headlam points out that: "The hue of pallor, white in northerners and ashy in the negro, is in olive complexions yellowish or greenish; and accordingly comparisons which Greek and Latin used were pale as grass (Longus, I., 17), or gold (Catullus, lxiv., 100), or saffron (Aesch. Agam., 1110)," &c. A book of Greek verse, by Walter Headlam, Litt.D., Cambridge, 1907, p. 5 and p. 263, notes. See also a translation by A. Phillips, quoted in Croonian Lecture on Human Physiognomy, by Dr. James Parsons, Philosophical Transactions, 1746. See also concerning the green pallor, Hippocrates in the Prognostics quoted above.

[17] Theocritus: Translated by A. Lang, M.A., Golden Treasury Series. Idyll II., p. 16.

[18] A book of Greek verse, by Walter Headlam, Litt. D., p. 173.

[19] The Knight's Tale.

[20] King Henry VI., Pt. 2, III., ii., 165.

[21] Art and Medicine, by Leonard Portal Mark, M.D Bale and Danielsson, 1906.

of the facial expression and aspect of a patient may often tell us at once in what direction our inquiries should be made, may lead us towards the essentials and away from the accidentals of the case, may help us in assigning the relative value of the facts elicited by our scientific apparatus, and in interpreting correctly the history obtained; and may, moreover, happily prevent us from reaching up to what a skilful writer has described as "that condition of high scientific abstraction in which the sensitive, striving, shrinking human being is merged in the mere case; and the delicate opportunity of psychological observation is disregarded in a calm and somewhat cold-blooded desire to add a fact or two more to the records of experimental physiology."[22]

And now, gentlemen, I feel that most of what I have said can only have served to remind you of what you already knew and may therefore have found it tedious to listen to. But, as Dr. Johnson said, "What is obvious is not always known, and what is known is not always present," and so I hope that you will not think me unappreciative of the honour you have done me by inviting me to read a paper before this society.

ADMINISTRATIVE CONTROL OF PULMONARY PHTHISIS IN SCOTLAND.[1]

BY W. LESLIE MACKENZIE, M.A., M.D. ABERD., F.R.C.P. EDIN.,

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1. *Historical.*—In the year 1902 the Local Government Board for Scotland, in response to various proposals by town and county public health authorities, considered in detail how pulmonary phthisis was affected by the Public Health (Scotland) Act, 1897. Lord Balfour of Burleigh was at that time His Majesty's Secretary for Scotland, and therefore *ex-officio* President of the Local Government Board for Scotland. All the elements of the phthisis problem were fully discussed by the Board and were considered in detail also by Lord Balfour himself. The general result is recorded in the Board's Annual Report for 1903, pp. 35-6. There it is laid down that phthisis is to be regarded as an infectious disease within the meaning of the Public Health (Scotland) Act, 1897. As that Act contains no definition of infectious disease the denotation of that term is to be determined by the scientific opinion of the day. Further, all local authorities for public health (that is, in Scotland, all the town councils and all the county district committees, the equivalent of the English sanitary authorities) are entitled to do for pulmonary phthisis all that they are entitled by statute to do for any infectious disease in the special circumstances and conditions in which its infectivity becomes operative. The medical member of the Local Government Board at that time was Dr. J. B. Russell, whose name is a revered name in the public health movement of Great Britain. He died in 1904.

In the three years following 1902 the Board were persistently asked to consider special questions, such as the legality of paying fees for voluntary notification of phthisis, the legality of establishing laboratories for examination of sputum, the legality of paying for sputum examined, the legality of using the wards in infectious disease hospitals for the isolation and treatment of phthisis, and the legality of adding phthisis to the list of diseases compulsorily notifiable under the Infectious Disease Notification Act, 1889. His Majesty's Secretary for Scotland for part of those three years was Lord Dunedin, who, both officially and personally, has powerfully supported the anti-tuberculosis campaign.

In 1905 several local authorities having, on various administrative issues, raised afresh the questions I have indicated, the Board reconsidered the whole legal position. At that date His Majesty's Secretary for Scotland and, therefore, *ex-officio*, the President of the Board, was the late Marquis of Linlithgow, one of the finest spirits that ever occupied a public office in this or in any other country. The Law Officers of the Crown went exhaustively into the individual questions raised. The result was the Board's circular of March 10th, 1906.

In the circular the great step taken in 1902 was followed by another great step, for the local authorities were told that not only were they under obligation to deal with phthisis as they dealt with other infectious diseases, but that the Board would be prepared to approve the addition of the disease to the list of diseases compulsorily notifiable under the Notification Act. This entirely new departure in official policy was due to the imprimatur of Lord Linlithgow himself, who had not only strong personal convictions on the problem of phthisis but felt that public opinion had sufficiently ripened to justify him in assenting to the proposal to furnish the local authorities with all the machinery available for the execution of their duties as determined in the great decision of Lord Balfour in 1902.

The resulting circular gathered into one coherent sequence all the leading administrative ideas. As the basis of a national scheme for realising the ends of the Public Health Act we adopted, overtly and frankly, the tested system advocated and developed by Dr. R. W. Philip in Edinburgh. As a deduction from the primary proposition that phthisis is an infectious disease within the meaning of the Public Health Act, we set forth the duties of disinfection, isolation, and treatment. We elaborated in some detail the functions of a dispensary, the varieties of possible hospital treatment available, and the need for a system of notification. Thus for isolation and treatment we showed that, as the experiments and experience of Dr. Philip, Dr. A. Newsholme, and others had demonstrated, hospitals might be classified into curative hospitals, all-day hospitals, all-night hospitals, convalescent colonies, work colonies, wards for educative treatment and control, and hospital wards for isolation of advanced cases. We fully detailed, on Dr. Philip's lines, the uses of dispensaries. But, as of equal and essential importance, we reminded local authorities that "these direct measures towards the control of pulmonary phthisis must be supplemented by indirect measures, the unremitting and systematic removal of nuisances, prevention of overcrowding, enforcement of good ventilation, reconstruction of insanitary houses, improvement of insanitary areas, improvement of drainage of soil and houses, stringent supervision of meat, of cowsheds, of dairies, cleansing of streets, proper disposal of refuse, &c. Direct prevention should go hand in hand with general sanitation."

Two years later—July 15th, 1908—the Board issued another circular, which summarised the work done by the local authorities as the result of the first. The record was of the most gratifying kind. But meanwhile another great step forwards had been taken. For it had been felt that certain clauses of the Public Health Act of 1897 were somewhat too inelastic to suit the peculiar conditions and the varied history of a disease like phthisis. In 1907, His Majesty's Secretary for Scotland, and therefore *ex-officio* President of the Board, Lord Pentland of Lyth, carried through a short relieving Act, whereby the over-stringency of the principal Act was adapted to the administrative conditions of all the infectious diseases common in the west, phthisis included. It can now with truth be said that, without unnecessary hardship to individuals, the full resources of the Public Health Law in Scotland can be brought to bear on every variety of pulmonary phthisis. Lord Pentland's short Act of three clauses adapting the Public Health Act fully and in detail to phthisis has, meanwhile, superseded the need for any special local legislation. Phthisis is in no sense a local disease; it is a national disease, and it is better that the country as a whole should advance along the lines made possible by the general law.

This short record brings us to the present date. The policy embodied in these various circulars and decisions has been justified by the event. I shall now indicate the leading results. Incidentally, I may take leave to add that the policy of the Board during these eight years has been—not, as some of our critics have hinted, the hasty and indiscreet application of doctrinaire ideas to a problem of great complexity, but—the well-considered policy of skilled statesmen, moving slowly and deliberately in response to ascertained social demands.

2. *Compulsory notification.*—In many localities voluntary notification systems have been tried, and in some localities they still continue. But experience has shown that voluntary notification is on the whole a failure. Now that the Public

[22] Lucas Malet in "Colonel Enderby's Wife."

[1] A paper read on July 4th, 1910, at the Edinburgh Conference on Tuberculosis.

Health Act has been adapted to phthisis local authorities are much more ready to add phthisis to the list of the compulsorily notifiable diseases. The following figures will indicate the rapid rate of progress now established. In 1906 not a single local authority of the whole 313 had adopted compulsory notification. In 1907 compulsory notification was adopted by 8 local authorities—four towns and four county districts, representing a population of 589,698, or 13·2 per cent. of the population of Scotland. In 1908 the number of adopting local authorities rose to 10—five towns and five county districts, representing a total population of 634,467, or 14·2 per cent. of the population of Scotland. In 1909 the number of adopting local authorities rose to 53—30 towns and 23 county districts, representing a total population of 1,150,344, or 26 per cent. of Scotland. In 1910, up to the end of June, 74 local authorities have adopted the Act—41 towns and 33 county districts, representing a total population of 2,177,886, or approximately 50 per cent. of the whole population of Scotland. The Board's first circular was issued in 1906. The phenomenal spread of notification has thus taken place within four years. In several places the Act has been only temporarily adopted, but it has always been renewed when the period expired.

These are the facts about notification in Scotland. In the days before notification became popular we heard a great deal about the probable hardships to individuals, social ostracism, boycotting, and similar difficulties. The same has always been said at some stage about notification of the ordinary infections. Yet no Act works more smoothly than the Notification Act. Up to now we have rarely heard of anything but friendly services to the sick. The stricken people are too eager to find ways of recovering their health to be worried about any sort of social consequences. The experience everywhere is that when treatment, whether much or little, is provided, the claimants never fail to come forward spontaneously. To use words like ostracise, boycotting, and similar terms of the inexperienced amateur is now a practice long out of date in Scotland. We know better. These are, I am afraid, only the prejudiced phantasies of the unilluminated. They are, however, balanced by the opposite strain of difficulties—namely, the exaggerated fear that the resources of any local authority will be overwhelmed by the claimants for treatment. This, too, is contradicted by experience. As numbers come forward, ways for their reasonable treatment continue to open up. Here a little and there a little, something is being done, and, as time grows older, the administrative pace grows quicker; for, on the one hand, the public authorities are more and more realising their public duty, and, on the other hand, the private patients are animated more and more by well-founded hopes of recovery. These two tendencies are now in full play, and already, thanks to the long and persistent educational efforts of conferences like this, local authorities and patients alike are swept forward by a social momentum that nothing will arrest or divert.

3. *Isolation and treatment.*—Hitherto men have rested the significance of the notification of phthisis on the fact that it is an infectious disease. This is important, but it does not explain the real significance of notification. This significance lies rather in the fact that when a disease is once notified the patients must be dealt with not in the mass, but as individual cases. In the days when we knew only of the existence of masses of disease, crowds of cases of typhus, of typhoid fever, of small-pox, of scarlet fever, naturally preventive measnres took the form of improving the general environment—the drains, the water-supply, the sites of houses, and the like. But as soon as individnal cases came to be notified each case had to be dealt with on its own special merits, isolated, and treated according to its needs. That is what notification has done for the ordinary infectious diseases. That is what it is now doing for phthisis. We are long past the stage when we stop at general improvement of the environment. We are now well into the stage when we must deal with the individual case and his individual environment. That is why notification is important. It enables the local authority to bring the full force of an improved environment to bear on the specific needs of the individual patient.

To give all the details for each locality would itself require a long paper. It is enough to state that in every administrative locality something definite of an official kind is being done. In two counties a combination of local authorities own and manage a sanatorium for early cases. In other two large counties a central sanatorium is available. In yet others the medical officer of health is authorised to keep a certain number of sanatorium beds filled with selected cases. In several counties wards are set aside in infectious diseases hospitals. In some others vacant small-pox hospitals are available and used for phthisis. In the towns there is also great progress. The position in Edinburgh is too well-known to need more than a reference. In Glasgow four dispensaries under municipal management have been instituted, with an adequate service of medical men and nurses. Glasgow also makes contributions to a large sanatorium. Dundee has a dispensary, and recently has arranged for a considerable number of sanatorium beds. In one case a town and a parish council combine in the management of a sanatorium that has come to them by bequest.

Health visitors have been appointed by three county districts and by 18 burghs, some of the latter having appointed two or three visitors. In other places arrangements have been made with local nursing associations. Four county districts and five towns provide shelters for home treatment of suitable cases.

Where no definite hospital arrangements have been made, a good deal of minor work has been done—disinfection of houses and clothing, appointment of health visitors, diffusion of information, provision of spittoons, &c. Nowhere can it be said that notification has remained fruitless. Almost every fortnight marks the accomplishment of something definite somewhere. And this without coercion. It is the declared wish of the Local Government Board to see every local authority equipped with the triple organisation of dispensary, sanatorium, and hospital, or their functional equivalents. No two localities are quite alike and every positive administrative development is welcomed. It should be added that the generosity of interested and wealthy men has been a very conspicuous feature of the campaign.

What is very impressive is how much can be effectively accomplished at a very small outlay.

4. *Work by Poor-law authorities.*—But we must not forget the splendid work constantly done for years by the Poor-law authorities. I have a special return for 745 parishes ont of the existing 874. At the present date there are 878 cases of phthisis under treatment in the poorhonses and 471 cases under outdoor supervision. In the Edinburgh poorhouses 100 cases are under treatment; in the Lanarkshire poorhouses, chiefiy Govan and Glasgow, there are 620 cases. Among the causes of pauperism phthisis stands very high. The facts exhibited in Dr. J. C. McVail's recent report to the Poor-law Commission deserve the most careful study. Probably no single disease contributes so much to the roll of the poor. But the treatment of phthisis is a heavy burden to place on the shoulders of the Poor-law authorities. So far as Scotland is concerned, the Local Government Board has taken the view that the treatment of phthisis is the duty, not of the parish council, but of the town or county council. And this view will, no doubt, ultimately be realised. The transfer from Poor-law to public health administration is rapidly taking place now and will continue until all cases of the disease are within the full control of the preventive medical authority.

5. *The declining death-rate.*—What has somewhat amazed, if not amused, me in this whole movement is the curions paradox that in all other infectious diseases—such as typhoid fever, scarlet fever, &c.—it is considered right and necessary for the public health authority to deal with the individual patient, but in pulmonary phthisis many maintain that we should leave the individual patient alone and deal only with the environment. The death-rate, it is alleged, is going down of itself. Improve housing, improve food, improve the environment generally, but leave the private patient to the private medical man. Apparently some men are more or less satisfied with the way the death-rate is going down. I am not. It is going down, certainly, but not fast enough for me. And it is not going down of its own accord or from any mysterious influence of the Time Spirit. It is going down becanse we are putting it down. It has been going down ever since the serious work of sanitation in Scotland began. It continues to go down because the medical men are getting to understand the disease better, because they are diagnosing it earlier, because they are helping forward the improvement of the surroundings, because they are letting fresh air into the houses, because they are reducing the consumption of alcohol, because they are

beginning to understand dietetics better. It is going down, too, because the medical officers of health are day in and day out pushing forward the operation of every variety of public health machinery, the cleansing of houses, the disinfection of houses and persons and clothing, the steadily increasing isolation of as many varieties of acute infection as are likely to benefit by that measure, and, in a word, every proceeding that places the individual patient in a better environment, permanent or temporary, so increasing the personal resistance and reducing the complications of the acute infections. It is going down, too, because the sanitary inspectors and burgh engineers maintain a ruthless attack on damp houses, defective drains, defective ventilation, dirty rooms, dirty people, dirty clothing, and over-crowding, so reducing at every hand the chances of contracting any infection, tuberculosis among the rest. It is going down, too, because the inspectors of poor and the parish councils are steadily strengthening their grip of this primary cause of pauperism.

But the pace of the down-going of the death-rate is still very slow. So long as we can say that in Scotland alone nearly 6000 people die every year from phthisis, this one form of tuberculosis, the pressure of administrative measures should never slack. And so long as I have an administrative breath to draw they never will slack. The belief that the death-rate is going down of itself, and rapidly enough, looks like the special pleading of the interested or the fatuity of the fatalist. The belief is an erroneous belief.

6. *Conclusion.*—Before I end this short paper I cannot resist the temptation to make a remark on certain "red herrings" that are persistently drawn across the administrative scent. I call them "red herrings" somewhat disrespectfully, because I have repeatedly found that they are offered, not as a reason for doing something positive on the special line suggested, but to prevent anyone from doing anything positive on any line whatever. For instance, it is said that phthisis is a housing question. Of course it is a housing question. So is typhoid fever. But the quickest way to get at the house is to deal with the patient in the house. That is what our Housing Acts and our Public Health Acts and, above all, our Town Planning Acts are there for. For my part, I should like to see every local authority in Scotland rise to the great height of the opportunities it now has to make every house, every hamlet, every village, every small town, every great town in Scotland serve to the full the ends of business, health, and beauty. But the direct attack on phthisis will still have to go on. For phthisis is much more than a housing question. It is an infantile question. To meet that, we have our Notification of Births Act and the Children Act. These contain immense powers, and all the powers are powers of dealing with the individual. The crop of health visitors, voluntary and official, is the answer to the children question. It is also a school child question. The answer to that is the system of medical inspection, now happily established over almost the whole length and breadth of the kingdom. If it should finally appear that the great period of personal infection is, as von Behring maintains, the period of infancy, the shortest way to bring assistance to mother and child is to deal individually with both. If it should be established, as is probable, that practically every child is, in one degree or another, at some time or another, infected with tuberculosis, and if it be true that a limited dose acts in some measure as an immunising agency, it is all the more imperative that by dealing with the individual child and his environment we should, by clearing away all sources of major infection, keep down the dose to the relatively harmless minimum. Phthisis is also a food question. The answer to that is our elaborate Food Acts, our powers of dealing with meat and milk. If milk is the chief factor of infection, the shortest way to the guilty dairy is to start from the infected child. All our Dairy Regulations and Milk Acts have arisen out of the clinical physician's demand for an explanation of this or that infectious disease. But phthisis is also a factory question. The answer to that is the unremitting enforcement of the Factory and Workshop Acts. And so, through every other one of the many relations of administrative control, we must work the administrative machinery we have or devise machinery more suitable. The whole campaign must go forward as one movement. For all these special questions are strung on a single thread—the thread of the individual life. We have talked long enough about the big things. We are now in the full tide of the little duties that make the big things possible. In Scotland we need no more legislation for the moment. We need first to work for all it is worth the legislation we have. In Scotland we have taken our own line and we intend to keep it. We have shown that the powers of our statutes are simple and effective; all we require is the wish and will to work them. The facts I have given you are proof that neither the wish nor the will is wanting. To every man that wants to live we wish to offer the chance to live.

PREVENTIVE MEASURES AND THE ADMINISTRATIVE CONTROL OF TUBERCULOSIS.[1]

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THE experiences of the city of Liverpool agree with those of other centres of population in showing a remarkable decline in deaths from phthisis and other forms of tuberculosis during the last few decades, the decline, however, being considerably more pronounced amongst females as compared with males than obtains in England (or Scotland) as a whole. The boundaries of the city having been extended, the population in the year 1895 closely approximated to three-quarters of a million inhabitants; the phthisis death-rate during that year was 2·1 per 1000 amongst males and 1·5 amongst females. Between that year and 1909 the rate further diminished, not of course without interruptions, and in 1909 the rate was 1·8 amongst males and 1·1 amongst females.

Within the narrow compass of ten minutes it is not possible to more than briefly outline the preventive measures and the administrative control which are associated with these results and to indicate what appear to be appropriate lines for future advance, always remembering that each city and each centre of population has some special difficulties of its own to contend against.

One of the most obviously necessary undertakings in the city of Liverpool was to undo the evil consequences of the want of foresight and design during the rapid growth of the city, by the removal of the almost overwhelming burden of dwellings which were unfit for human habitation by reason of their vicious construction, narrowness, closeness, and bad arrangement of the courts and streets in which they were situated, and from want of light, air, ventilation, and proper conveniences, which rendered them dangerons and injurious to the health of the occupiers. No halo of romance, such as surrounds your Edinburgh insanitary property, redeemed them; their records were the records of poverty and filth, of disease and death, and they were consigned to unpitied destruction.

Close upon one million sterling has been spent during the last 25 years by the sanitary authority in demolishing some 8000 such dwellings and in erecting some 2500 tenement houses. Commercial necessities, such as extensions of railways, warehouses, &c., have led to the demolition of probably an equal number of insanitary dwellings during the same period. Models of these houses are exhibited in the museum.

Generally speaking, the former inhabitants were housed by private enterprise, but for the very poorest the corporation themselves have had to provide, and to meet the needs of this latter class some 2500 tenement houses, housing some 10,000 people, have been erected. These houses are not let to any tenant, but are reserved exclusively for the poor dispossessed, and are occupied almost entirely by the same people who had previously been housed under most insanitary conditions.

The procedure has furnished a most interesting chain of evidence in regard to tuberculosis. The owners of insanitary property, it need hardly be said, did not willingly allow their property to be demolished, and resisted in every way the action of the corporation; consequently evidence was adduced which satisfied the Grand Jury and the Recorder that tuberculosis, notably phthisis, was prevalent to an extreme degree

[1] A paper read on July 4th, 1910, at the Edinburgh Conference on Tuberculosis.

amongst the occupiers of those houses. The re-housing in sanitary dwellings gave a check almost at once to that disease, and the phthisis mortality rate, which had reached nearly 4·0 per 1000 amongst those people in their old surroundings, has during the last two years fallen to 1·9 in their new surroundings. These great housing operations, therefore, which have cost the city a million of money, and bid fair to cost half as much again, have played some part in the decline of tuberculosis.

Education is an extremely important aid in diminishing tuberculosis. It is part of the duty of the large sanitary staff employed, more especially the female staff, to explain the advantages of personal and domestic cleanliness, free ventilation, and so forth, and to show that these and temperance are the agencies which strengthen the resistance of the threatened consumptive and prevent infection; that preventive measures, in other words, are curative measures, and curative measures are preventive measures. Suitable cards of instruction are widely distributed to emphasise this.

The cleanliness which is urged within the homes is followed as far as possible outside the homes, the frequent washing of the streets by means of hose-pipes being one of the uses freely made of the practically unlimited water-supply which Liverpool enjoys.

Facilities must be afforded for the diagnosis of the disease in order that every ameliorative measure which each particular case admits of may be put into operation as quickly as possible. The special and general hospitals, the general dispensaries, and Poor-law and private medical practitioners are generally available for this purpose; while the medical inspection of school children, being largely in the hands of the medical officer of health and in the closest association with the Public Health Department, has helped forward this work so far as school children are concerned. Some of the honorary staff of the Liverpool Consumption Hospital are willing to see actual or suspected cases of phthisis found by the medical inspectors in order that the diagnosis may be promptly confirmed, although a practical application of what are believed to be the best methods of dealing with the children has not yet been fully reached. The facilities afforded by the various medical charities, dispensaries, and so forth, within the city are very considerable, and tend to become more closely coördinated. Happily, the actual numbers of cases of phthisis or suspected phthisis discovered at school inspections are relatively few, but it is interesting to observe that the disease has been found more frequently amongst the new admissions to the schools than amongst those leaving the schools. This may possibly be due to the worst cases being cut off the rolls during the intermediate ages, either being ill at their homes or in the hospital, or some may have recovered and some have died between the two periods of inspection. In this connexion, and in the interests of health generally, it is regrettable that the teaching of hygiene and temperance in schools does not receive greater prominence than is at present given to it. Bacteriological investigations of sputum are conducted by the corporation bacteriologist.

So far as the provision of hospital treatment is concerned, by far the larger number of beds, approximately 600, are provided by the Poor-law guardians, and payment is taken from a very considerable proportion of those who use this accommodation; they are mostly occupied by advanced cases. Generally the situation and administration of the Poor-law institutions are quite good. The wards of some 50 beds provided by the sanitary authority for early cases are always full, but difficulty is experienced in inducing patients in the early stages to go to the sanatorium at Heswall. The difficulty is that a phthisical breadwinner, although he is aware of his condition, yet struggles manfully to follow his calling, solely because the support of his family depends upon it. The establishment of any fund, by insurance or otherwise, for the assistance of families whilst the sufferer is in hospital is greatly to be desired.

The question has been mooted as to what advantages are likely to accrue from the transfer of the treatment of phthisis patients from the Poor-law guardians to the sanitary authority. However desirable this may be from various considerations, it is quite a matter for consideration whether any actual benefit will accrue to the patient himself. The great majority of cases going to the Poor-law institutions are advanced cases, some of them very advanced, and incidents from time to time occur which raise the important question as to whether powers should be sought to detain compulsorily every consumptive whose condition, habits, or home surroundings are likely to be dangerous to others. It is obvious that where, in the words of the Public Health Act, "the patient is without proper lodging and accommodation" he should be detained, not only in his own interests, but in those of the public, for exactly the same reasons that a scarlet fever patient is detained. There is, of course, the great distinction that his detention may be protracted, and that he may never recover; on the other hand, he is not cut off from his relatives, who may visit him as freely as may be thought desirable, and in any case he is better in the hospital where he is getting proper attention than outside where he gets none. Compulsory detention for prolonged periods is advantageous in other mental and physical infirmities in which ultimate recovery is doubtful, and would in many cases be advantageous in phthisis.

The proper body to be entrusted with such powers must obviously be that which undertakes the treatment of the cases. The guardians of the poor at present accept this duty, and the power to detain should clearly be given to them, unless the entire obligations are transferred to the sanitary authorities. But compulsory detention of a case in the hospital must imply compulsory removal to the hospital of a patient found to be without proper lodging and accommodation. Compulsory removal of such a patient may, at first thought, appear to be harsh, but in my own recollection the same arguments were urged against the removal of typhus fever patients, and five-and-twenty years ago it was a common thing to obtain magistrates' orders for the removal to hospital even of such cases as these, whilst ordinary zymotic diseases were relatively seldom interfered with. To-day, if the patient is not promptly removed to hospital, the angry relatives want to know the reason why. There is no doubt that the same sentiment would in due course arise in regard to the compulsory removal and detention of the dangerous consumptive. In any case the interests of the patient would be safeguarded by the necessity of the authority obtaining the magisterial sanction. The duty of initiating compulsory removal could hardly, however, be imposed upon the guardians. Most sanitary authorities, at all events the large centres, have some appropriate hospital accommodation available, and there would be no difficulty in this respect.

In regard to infection by foodstuffs, it was in or about the year 1890 that the sanitary resurrection of the milk-supply commenced. A crusade was then started which, by the aid of special legislation, has resulted in reducing the amount of tubercle-infected milk to a vanishing point, so far as the city milk is concerned. Liverpool consumes about 34,000 gallons of milk daily, and of this amount approximately some 17,000 gallons, or about one-half of the total supply, comes from the country. In the year 1904, 9·3 per cent. of country milk was found to be tubercle-infected and 1·5 per cent. of town milk was found to be tubercle-infected. Last year the proportions were 1·8 per cent. of country milk, whilst the town milk was distinguished by a total absence of tubercle, and it is a fact that throughout all the years since attention was paid to the subject the town milk has been more free from tubercle than the country milk, for reasons which I have no time here to explain. But it is well known that no domesticated animal is more closely or more continuously confined than the milch cow, nor do the conditions of confinement of any other animal approximate so closely to those of the insanitary human dwellings in which tuberculosis is so rife. Cow-houses, shippons, or byres are found, more especially in country districts, in which dirt, darkness, and vitiated atmosphere are constant. Under conditions such as these tuberculous disease necessarily results.

Finally, temptations to one great predisposing cause of tuberculosis—namely, intemperance—have been largely diminished, and as this diminution continues the burden of the struggle against tuberculosis will be diminished likewise.

The saving of life from tuberculosis, like the saving of life from everything else, is a national gain, and everything now points to the recognition of the fact that the war against tuberculosis is one in which the educated community will play an important part.

Liverpool.

PREVENTIVE MEASURES AND THE ADMINISTRATIVE CONTROL OF TUBERCULOSIS.[1]

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MEDICAL OFFICER OF HEALTH OF THE CITY OF SHEFFIELD.

As regards preventive measnres, I suppose we shall all agree that if the whole population were well fed, well housed, and able to lead healthy lives, in other words, if destitution of adults and children were abolished, we should have little difficulty in dealing with the rapidly decreasing amount of infectious material and stamping out tuberculosis. I suppose it may be said from the experience of post-mortem examinations that the danger is not so much of contracting infection but of contracting infections of such degree that our systems cannot successfully deal with them. If the extra healthy life of a sanatorium can deal successfully with an infection that has made considerable progress it follows that an ordinarily healthy life ought to be capable of dealing with infections of minor degree.

I suppose most of us agree that infection usually comes from a human source. With regard to milk, I will only say that, although most children apparently consume bovine tubercle bacilli without ill-effects, in the interests of those who do not, as well as in the interests of agriculture, I hope a well-considered scheme for the extirpation of bovine tuberculosis on the lines adopted in Denmark will shortly be instituted in this country.

I will now pass on to measures for dealing with recognisable human infections.

The great thing is to have a comprehensive scheme, and for this purpose we want: compulsory notification, and as an aid to it free examination of the sputum for tubercle bacilli; home visiting of notified cases by visitors on the look out for other cases among the "contacts"; visiting of work-places where necessary, and as a result of these visits, disinfection and removal of defects; and suitable hospital accommodation for the various stages of the disease.

I cannot do better than describe the Sheffield system in order to show to what extent we approach completeness.

Examination of sputum.—An arrangement has been made with the Bacteriological Department of the Sheffield University by which any practitioner can have specimens of sputum examined free of charge.

Home visiting.—When a case of tuberculosis of the lungs is notified a special inspector visits and obtains the history of the case. He leaves printed "advice," gives an order for a pocket spittoon, disinfects if necessary, sees that nuisances or defects in the house are dealt with, inquires as to occupation and place of work, &c. As a result it may be necessary to disinfect or deal with defects at the workshop or report to H.M. inspector of factories. The printed reports of the inspector, giving the family history, are filed at the health office.

Much of the subsequent visiting is done by the Queen Victoria District Nurses in return for a subscription from the Sheffield corporation. There are 15 district nurses, and each sends in a weekly report of her visits and matters requiring attention. The matters which she is specially asked to note are: rooms requiring disinfection; cases wishing removal to corporation hospital; cases removed, or which ought to be removed, to union hospitals; changes of address; cases in overcrowded or dirty houses; failure to comply with instructions; and other occupants of houses showing symptoms.

Examination of "contacts."—As regards delicate "contacts," if they are of school age the nurse is asked to send them to the school medical officer for examination; if not of school age, to advise them to consult their medical adviser, or go to the hospital out-patient department. I am in hopes that something may be done in the way of special consulting hours at the hospitals for chest cases and suspected "contacts." If a more complete examination of "contacts" is found advisable it will be necessary to appoint one or more medical men for this purpose. In Sheffield it means the examination of the members of about 700 families annually.

[1] A paper read on July 4th, 1910, at the Conference on Prevention of Tuberculosis at Edinburgh.

If it is advisable to have a medical examination of all the "contacts," how often shonld it be repeated? It is obvions that in a slowly developing disease like consumption a "contact" who shows no signs in January may show signs in April, even although the source of infection has been removed to a sanatorium. I should like to have some information with regard to the Edinburgh system as to how many complete families are examined every year, and as to how often the same family is re-examined, and as to what percentage of the estimated number of infected households it is found possible to deal with in this manner.

For my own part, I think it is sufficient for the nurse to keep the family "on the alert" for members who look delicate, or who have coughs, &c., and especially to "rub in" the necessity for all the "contacts" or other members of the family leading healthy lives. Even under present conditions we may conclude that most "contacts," if they become infected, succeed in grappling successfully with the infection, because the number of deaths annually remains stationary, or shows a slight decrease, while the population increases. In other words, each victim to consumption bequeaths on the average a fatal legacy to one person only.

Important as examination of the "contacts" may be, it must be more important to deal with the actual "infecting" cases at the home, firstly, by educating them "how not to infect," and for this purpose a short period of training at a hospital is far more efficacious than any amount of advice and domestic visiting; and, secondly, by removing them to hospitals for advanced cases when they have reached that stage of the disease which renders them dangerous occupants of a home with limited accommodation, no matter how careful they may be. Dr. A. Newsholme has produced evidence tending to show that the isolation in workhouse hospitals of advanced cases has been the most powerful factor in the decline of the consumption death-rate in recent years. I append a table giving the Sheffield statistics with regard to this matter.

Table giving Statistics in regard to Tuberculosis of the Lung and "Phthisis" in the City of Sheffield.

Year.	Tuberculosis of the lung and "phthisis."				Deaths of notified "consumptives" classified under other causes.
	Deaths.			Death-rate per 100,000 per annum in Sheffield.	
	City.	Workhouse hospitals.	Percentage in workhouse hospitals.		
1889	552	62	11·2	168	—
1890	618	75	12·1	192	—
1891	551	81	14·7	169	—
1892	459	59	12·9	139	—
1893	552	74	13·4	165	—
1894	502	72	14·3	147	—
1895	473	76	16·1	136	—
1896	453	56	12·4	128	—
1897	522	90	17·2	146	—
1898	447	98	21·9	123	—
1899	502	117	23·4	136	—
1900	539	135	25·0	143	—
1901	580	142	24·5	141	—
1902	491	121	24·6	117	—
1903	573	142	24·8	134	—
1904	536	154	28·7	124	12
1905	490	135	27·6	111	17
1906	452	126	27·9	101	21
1907	524	146	27·9	115	24
1908	564	214	37·9	121	17
1909	523	174	33·3	111	13

Delicate "contacts" may be suitable for the open-air school or for convalescent homes. I hope part of the grant allocated by the Sheffield council to sending consumptives to sanatoria will shortly be utilised for sending delicate "contacts" to convalescent homes. Undoubted consumptives found among the "contacts" are, of course, treated as ordinary notified cases.

Hospitals for short periods of educational treatment.—Hospitals are provided by the corporation of Sheffield for short periods of treatment for consumptives at any stage of the disease except the last. By the short period of treatment it is hoped to educate the patient how to live without infecting others; to give the relatives a rest and a chance of increasing their resistance to the disease and to enable the home to be disinfected; and to select by the best possible method curable cases to be sent on for prolonged treatment at a sanatorium. I would here lay special emphasis on the valuable educational effect of "visiting day."

Sanatorium treatment.—Sheffield has no sanatorium of its own, and £1000 are put in the estimates for sending patients to other sanatoriums. At present there being no invalidity insurance scheme we could not fill a 40-bed sanatorium with suitable cases from Sheffield. It might be more satisfactory to have a sanatorium of our own, one advantage in having the sanatorium directly connected with the complete scheme being that the preventive side may not be lost sight of. Thus, in many sanatoriums when the patient leaves he has not been educated, and he knows no more than when admitted how to deal with his sputum.

Hospitals for advanced cases.—If, after the short period of treatment, the patient is obviously going downhill, and at an advanced stage of the disease, and he cannot have a bedroom to himself at home, and has no means, every effort is made to get him persuaded to go straight into one of the union hospitals, where there are separate wards for consumptives. The union hospitals, therefore, provide for the most dangerous of the advanced cases. Compulsory power of removal would be useful in a few cases, but it is not likely to be granted for removal to a hospital administered under the Poor-law.

After-care.—The cases which return from hospitals or sanatoriums to their homes continue to be visited by the nurses. If cured, their names are removed from the list. There is, of course, the difficulty of finding work. The Guild of Help does what it can. An after-care committee cannot meet this difficulty until the great question of the better organisation of the labour market as a whole has been completed.

No need for additional medical institution in the form of a voluntary tuberculosis dispensary in Sheffield.—As things have developed in Sheffield a dispensary would be no advantage. The sub-department of the medical officer of health becomes in fact the dispensary and the bureau of information with regard to consumptives, and can do everything that a dispensary can do. The addition of a dispensary would only cause overlapping and duplication of work by the necessity for cross-reporting and a double system of registers and records. At present all the information is in one office. The out-patient departments at both hospitals coöperate in the scheme.

We do not wish it to be thought that consumption is a thing to be shelved on to a special dispensary, and with which other medical institutions have no concern. All hospital wards and out-patient departments, both medical and surgical, will have to treat consumptives from time to time for complications; district nurses will be asked to visit them; and the guardians will have to provide for them and also for their relatives if the bread-winner is in hospital. All these bodies must feel that the prevention of consumption is their business and become allies in the campaign.

I can well imagine that special out-patient hours for consumptives, or suspected consumptives, may be thought, in some towns, preferable to establishing a new medical charitable institution. Such out-patient consultations could be restricted to the use of delicate "contacts," or of patients unable to pay for a consultation in the case of whom the medical attendant desires a second opinion. The great thing is that the scheme should be comprehensive. It is too much to expect that each town will work out its salvation in exactly the same way.

One of the weak spots in the scheme is that the bread-winner of the family usually remains at work until the disease is past the curable stage. Although the guardians coöperate by allowing outdoor relief while the bread-winner is at a sanatorium, this defect in the scheme can only be met adequately by invalidity insurance.

Other measures.—In addition to the general measures to increase the resistance of the individual by the prevention of destitution and by rendering a healthy life possible, and special measures for dealing with consumptives, there are two other matters which require attention.

By-law against spitting.—In the first place the campaign against spitting on the floor should be pushed vigorously. It is probably easier to stop everybody spitting than to stop consumptives spitting, and however perfect the system many cases will develop an infectious expectoration before being notified. We have in force in Sheffield the usual by-law, which runs as follows:—

> No person shall spit on the floor, sides, or wall of any public carriage, or of any public hall, public waiting-room, or place of public entertainment, whether admission thereto be obtained upon payment or not, or of any enclosed and covered market.

The prohibition ought to be extended to the insides of all buildings used in common, such as workshops, sale-shops, public-houses, &c., and also footpaths. It is surely not too much to ask people to spit in the roadway or gutter. If spitting generally is dealt with the consumptive becomes less of a marked man, and it would be a good plan if chronic bronchitics used pocket spittoons.

Occupational causes of consumption.—The second point is that more attention should be given to the effect of occupations in making people liable to die from consumption. Men are nearly always more liable than women. Is this due to the greater abuse of alcohol and to spitting in workshops? In seaports the male death-rate is not much higher than the female owing to the more healthy occupations. In inland factory towns the male death-rate is frequently double the female. In places like Dundee, where many women are employed in factories, the female death-rate from consumption is equal to the male. I do not think sufficient attention has yet been given in factories and workshops to the effect of occupations on health as distinguished from the prevention of accidents.

Sheffield.

PULMONARY TUBERCULOSIS AS A PROBLEM OF ADMINISTRATION: THE ECONOMICS OF PHTHISIS.[1]

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THE following remarks have reference only to tubercular phthisis and to some problems of administration which arise in connexion with it. They are such as must frequently occur to everyone who deals with the disease, whether clinically or administratively, and the only claim which they can have on your attention is that they may be regarded as field notes, taken, as it were, in the middle of the struggle. To this extent they may serve to represent some of the practical difficulties which await solution.

My illustrations are drawn from the city of Glasgow, which may be taken as a type of the industrial and commercial populations of this country. It differs from other Scotch cities mainly by reason of its size. It differs from cities of corresponding size in England in the character of its housing. To this one feature alone we in Scotland may, I think, look for some part of the reason why phthisis is more prevalent with us than in England, for our Scotch tenement system, running as it does to four or more storeys in height, with, it may be, 12 or more houses[2] entering from a common and usually enclosed stair, is the despair of everyone who believes that fresh air may and ought to be brought to everyone's door.

In the autumn of last year the corporation of Glasgow resolved to include consumption among the notifiable diseases. A system of voluntary unpaid notification had been in operation for several years prior to this, but the results failed to give any reasonable picture of the distribution of the disease in its currency. Knowledge of a *post-factum* character was, of course, available from the death-rates, and this had thrown some light on the economic incidence of the disease. It showed, for example, that when families were graded according to the number of apartments

[1] A paper read on July 4th, 1910, at the Edinburgh Conference on Tuberculosis.

[2] In Scotland the use of the terms "house" and "tenement" is reversed, the "tenement" being the building in which there may be several "houses."

they occupied, their risk of dying from phthisis fell as the size of the house increased:—

1 apartment	Death-rate	2·5 per 1000.
2 apartments	,,	1·8 ,,
3 ,,	,,	1·2 ,,
4 ,, and upwards	,,	0·7 ,,

The death-rate for the city is 1·8 per 1000.

Again, and still bearing on the economic aspect of the disease, we could apply to the information which death returns gave, and the test of the wage-earning power as indicated by occupation; and the impression created by adopting the house as the index of the economic position of the phthisical patient was further strengthened, the unclassed labourer having by far the highest death-rate from the disease.

Phthisis Death-rates per 1000 in Two Groups of Occupation at Certain Ages.

Age	—25	35—	45—	—65
Labourers	6·5	7·1	8·6	5·5
Professional classes	2·1	1·9	0·7	0·5

So far, however, we were dealing with results only. Consumption was shown to be relatively more prevalent where house room was most restricted, where wages were always low and possibly irregular, and where, we may assume, food also was on a correspondingly restricted scale. But considering the long continuance of the disease and the reduced earning power which it entails, the review of deaths alone left unanswered the question whether the family originally belonged to the economic grading in which it was found when death occurred. For this we required information of the disease in its development, and notification partly supplies this. Some of the indications which it affords I purpose placing before you.

But before doing so a word may be said regarding a purely machinery difficulty which occurs when phthisis is placed under the ordinary Notification Act. This Act, as you know, was designed to deal with short-lived infectious disease, and in applying it to one with the duration of phthisis the question of duplicate notification was to be expected; indeed, it was for this reason mainly that I recommended the adoption of the Act for a limited period only. So far, of course, we have only had six months' experience, but it shows that duplicate notifications are most largely received from dispensary or hospital practice and mainly from the Poor-law service.

Classification of 6 Months' Notifications.

	Private.	Public.	Total.
Notifications	945	1848	2793
Cases	865	1406	2271
Duplicates	80	442	522
Percentage of cases notified more than once	9	31	23

Here, again, we have further evidence of the economic position of the phthisis patient, for almost 62 per cent. of the cases notified are of those who seek medical advice at Poor-law or charitable dispensaries. It is, of course, possible that the terms of the Act are more rigidly observed in these than among patients obtaining private medical advice, but the number of omissions among these latter would, I believe, fall short of equalising the difference in the numbers here given.

It will be noted, however, that while only 9 per cent. of the private cases are notified more than once, this occurs in 31 per cent. of the public cases, and it is a question whether our Local Government Board might not with advantage adopt the terms of the circular of the English Board which requires Poor-law authorities to acquaint sanitary authorities of all cases of phthisis occurring in persons in receipt of Poor-law relief. It is probable, however, that an amendment of the Infectious Diseases (Notification) Act would be required to effect this.

Effect of excluding phthisis from general hospitals.—We may here notice a further illustration of the economic pressure produced by phthisis in the increasing proportion of cases seeking relief in Poor-law hospitals. In a sense, the policy of the general hospitals was bound, sooner or later, to raise the question of providing suitable hospital accommodation for the disease. Even before the days of open-air treatment the practice of excluding phthisis from the wards of general hospitals was determining a stream of cases towards the hospitals of the Poor-law. The following figures illustrate this. They are taken from the returns of the Glasgow hospitals. I quote only the figures for the oldest of these (the Glasgow Royal Infirmary), but the practice of the others corresponds:—

Table Illustrating Exclusion of Phthisis from General Hospitals.

Period.	Medical admissions.	Of which phthisis.	Per cent.*
1880-04	12,339	1,848	15·0
1890-04	9,683	1,115	11·5
1900-04	11,764	396	3·4
1907	2,556	74	2·9

* Percentage of phthisis to total medical admissions.

Coincident with this reduction from 15 to barely 3 per cent. of phthisis among the medical admissions there has occurred an increase in the proportion which the phthisis deaths occurring in Poor-law hospitals bear to the total deaths from the disease. Again, I take local figures to show the change in 15 years.

Deaths from Phthisis in Charitable and Poor-law Institutions.

	Year.	Number.	Per cent.*
Charitable institutions	1892	53	3·6
	1907	30	2·4
Poor-law ,,	1892	142	9·7
	1907	335	26·6

* Percentage of total deaths from phthisis.

During this period the proportion of the phthisis deaths occurring in Poor-law hospitals has risen from 10 to almost 27 per cent.

The disintegrating effect of phthisis on family life.—When current cases come under the notice of the public health authority through notification, the economic position of the family has been so far impaired that in the proportion of almost two to one medical advice has been sought from Poor-law or charitable agencies. It brings us therefore face to face with the social conditions under which the administrative problems arise, and in considering the form in which to present some of these conditions I desire to acknowledge my indebtedness to my assistant, Dr. Alexander S. M. Macgregor, for some most interesting notes of the cases coming under his observation.

I select three phases for notice: (1) the effect on the home conditions when phthisis affects the bread-winner; (2) the bed-ridden patient; and (3) the children.

To illustrate the first of these I quote one case as illustrating a group: A., a male adult, with wife and six children. On the disease being recognised he is able to become an inmate of a part-paying sanatorium, where he remains for three months. Then he returns home, works a little, but after eight weeks seeks Poor-law help, and for three months is treated in a Poor-law sanatorium. After this he is again for three months at home, but at the end of that time again applies to the Poor-law. At each period of treatment he improves a little, comes out, tries to get work, gets worse, and returns. During each of these intervals of trying to work the family is deprived of adequate support.

In another type of case the disintegration of the family is even more pronounced. This occurs when the husband contracts the disease and the wife becomes the wage-earner. The children suffer: they are underfed and poorly clad. The pawnshop enters at this stage, and its doubtful advantages are freely made use of. The house is changed for a smaller one. The wife may take in sewing or hawk clothes; both may be undesirable in the circumstances, but there may be no choice. If hospital treatment is accepted the man's anxiety for his family brings him out too soon, and he hesitates to go back. He may be unable to adapt himself to or to find work better suited to his condition.

2. *The bed-ridden patient.*—When the mother is the patient and the coöperation of relatives is unobtainable, the position of the children becomes precarious. Neglect which is not the result of indifference may be difficult to prevent. If the dwelling is small, the cough urgent, and tubercular diarrhœa present, there may be risk of infection. In my own district I desire to express my warmest appreciation of the readiness with which the Poor-law authorities render assistance in such cases. Another problem of the bed-ridden is the provision of nursing appliances—air cushions and bed-pans are sometimes essential to the comfort of the patient, while the provision of a separate bed reduces at least the risk to the family.

3. *The children.*—The greatest difficulty which our nurses experience arises where the parents' employment is irregular.

The children are poorly fed, and a neglected cold or untended attack of measles impairs the resistance of the mucous membrane of the respiratory tract. The history of many of our cases of phthisis in children begins in one or other of these conditions followed by weeks of failing health, loss of flesh, and night sweats, without any very definite signs in the chest.

Such, then, are some of the conditions which notification discloses and for which in time it must ask a remedy. Also they seem to me to push outwards the administrative horizon of the disease. For if my figures which represent the proportion of public to total notifications as almost 2 out of 3 are fairly maintained over a wider area of observation than the experience of one city can supply, then it brings the family of the consumptive within the zone of administrative requirement. For in the low standard of food and clothing and housing which it implies we have agencies at work which are preparing the soil best suited for fostering the disease we wish to eradicate.

Conclusion.

Thus, the administrative control of phthisis becomes a many-sided problem, and just because of its complexity and magnitude there is some risk of temporising with it.

In the allocation of function as between the several authorities whose sphere of action touches one or other aspect of the question, there is danger that each may be tempted to await developments on the part of the other. In this respect we suffer from limited views of administrative responsibility. In a general sense it is the function of a public health authority to prevent disease, while the Poor-law authority aims at preserving the economic independence of the individual. But the surest way of accomplishing the latter is to maintain individual health, while the prevention of disease is best accomplished when the economic status is maintained. The administrative problem requires the accomplishment of both.

A scheme has already been outlined in a book which for its comprehensiveness, as well as for its masterly arrangement of detail, has, I think, helped forward the solution of the problem more than any other work on the subject. I refer to the recent volume of Dr. Arthur Latham and Mr. Garland. Recognising the question as a national one, it proposes to enlist the active interest of the nation by a scheme of national insurance against the disease. In no other way does it seem to me shall we ever be able to continue the struggle with so reasonable a prospect of ultimate success. It is the principle of the friendly society applied to the nation as a whole. And among the advantages which would follow its adoption we should see, I think, a renewed and more vigorous effort on the part of local authorities to deal comprehensively with housing reform, which is so essential to success in the campaign against tuberculosis.

Glasgow.

A RECRUITING OFFICER'S NOTES ON THE PREVALENCE OF CERTAIN DISEASES IN EGYPT.

BY G. W. G. HUGHES, M.R.C.S. ENG., L.R.C.P. LOND.,
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THE following notes are made from observations on Egyptian conscripts.

According to the Recruiting Law of 1902 every Ottoman subject resident in Egypt between the ages of 19 and 27 years is liable for military service. There are many causes for exemption from this service which need not be detailed here excepting that the payment of £20 frees the payer from all liability. Consequently the conscripts are almost entirely drawn from the poorer classes. Conscripts are balloted at 19 years and called to the army when 21 years of age. Between 2500 and 3000 men are required annually for the army, but as the standard of fitness is a fairly high one large numbers of men have to be called up and examined.

The recruits have to be at least 167 centimetres (5 feet 6½ inches) in height, well developed, and sound in sight, heart, &c. The men called for the service pass through the hands of two English army medical officers (of whom I am one), who pick out the men who are up to the required standard. These officers move from one district to another, dividing the country between them, and seeing from 300 to 400 men in a day. The men are called up in turn and are first measured for height. If a man is under height he is pronounced at once unfit and not further examined. (For the purposes of this article I have, however, looked carefully at each man and made notes of any obvious abnormality.) Those who reach the necessary height have also their chests measured and go through a rapid examination. The eyes are examined by oblique illumination for opacities and nebulæ of the cornea, the lids are everted; the ears, the head, the teeth, and the movements of the various joints are tested and the heart is auscultated. The examination is necessarily little more than a rapid survey of each man, but with experience it becomes fairly reliable. The recruits, it may be said, are again examined by another English army medical officer in Cairo before final enlistment. The percentage of men found "fit" for the army is about 14.

The following remarks are made from rough notes made on some of the men who have passed before me within the last few months.

Eye diseases.—I examined carefully 2600 men, and of these I found 65 per cent. had some obvious gross lesion of the eye. (No ophthalmoscopic examination was made, and no test of vision was carried out by test types, &c.) Mr. A. F. MacCallan found amongst the pupils of a Government school that 96·4 per cent. showed signs of active or passive trachoma.[1] These pupils would be of a distinctly better class than the conscripts.

TABLE I.—*2607 Men aged about 21 years called for Medical Examination as to Fitness for Army.*

External diseases of eyes.	Granular ophthalmia.		Totally blind.		Favus of scalp.	Anæmia.		Spongy or bleeding gums.
	Cornea affected.	Cornea clear.	One eye.	Both eyes.		Severe.	Slight.	
1693 (64·9%)	961	389	165	33	339 (13%)	74	132	400 (15·7%)
	1350 (79% of eyes)					206 (7·9%)		

TABLE II.—*2227 Men and Boys aged between 14 and 20 years (Average Age about 18 years) all under 155 centimetres (5 feet 1 inch) in Height.*

External diseases of eyes.	Granular ophthalmia.		Totally blind.		Favus of scalp.	Anæmia.		Spongy or bleeding gums.
	Cornea affected.	Cornea clear.	One eye.	Both eyes.		Severe.	Slight.	
1524 (68·4%)	914	398	Not taken.		482 (21·6%)	195	270	284 (12·7%)
	1312 (86% of eyes)					465 (20·7%)		

Notes on Tables I. and II.—The most marked difference in the above two tables is in the percentage of "anæmia." This is to a great extent accountable for by the stunting of growth in ankylostomiasis alluded to in the text. The increase in the percentage of favus also in Table II. may very well be due to the increase in the proportion of anæmia—i.e., diminished resistance of the tissues. Out of 5000 men of a separate series similar to those of Table I. I found 14·2 per cent. had favus.

Every condition of ophthalmia can be seen in Egypt—ordinary acute and chronic conjunctivitis, varieties of granular ophthalmia, spring catarrh, and, what is almost the rule, combinations of two or more of these diseases. I imagine when percentages are given of the amount of "trachoma" in Egypt the term includes all the above conditions. Indeed, one seldom sees a case in which one can exclude "trachoma" as a specific disease with certainty. Personally, in the statistics given I have grouped them under the more ambiguous and comprehensive term of "ophthalmia." Cicatrisation of the granules may leave either a lineal scar tending to produce trichiasis or irregular lines, or occasionally a fine reticulation difficult to detect.

[1] THE LANCET, August 14th, 1909, p. 457.

The difference in the terminations of the granular ophthalmia appears to vary according to the depth of subconjunctival tissue involved. I was surprised to notice the number of cases of granular ophthalmia in which the cornea was unaffected. (Roughly one-quarter of the total cases, see Table I.) One frequently saw huge masses of granulations, or very severe cicatrisation without any lesion of the cornea. Trichiasis was a sequel to the disease in 1·5 per cent. of the cases. Night blindness is frequently complained of.

Conscription being still most unpopular in Egypt, intentional blinding is still occasionally met with, but with nothing like the frequency in previous generations of conscripts. The means employed are either the placing of a hot needle on the cornea, producing a dense white leucoma or a puncture often involving the lens; or by the introduction of lime or an irritant vegetable juice in the eyes.

Favus.—Favus of the scalp is met with in about 14 per cent. of the men. It is allowed by the natives to run its course, usually resulting in bald patches of varying sizes, often involving the whole head. It is essentially a disease of childhood and adolescence. It is more prevalent in the country villages than the large towns and therefore is practically confined to the fellahin (peasantry). It is common to see most of the men of one village affected and of another free.

Anæmia.—Ankylostomiasis and ophthalmia are the most common diseases of Egypt. Indeed, if the Government energy expended on the inquiry into pellagra were devoted to the prophylaxis of ankylostomiasis the country would be considerably more benefited. It has been stated that 70 per cent. of the population are affected. It would seem to be, like favus, a disease of the country villages rather than the large towns. A diagnosis of this affection, during the examination of recruits is, of course, impossible, and, indeed, no idea can be given of the real extent of its prevalence.

The typical picture of ankylostomiasis is as follows. More or less severe anæmia, more noticeable from the colour of the skin than that of the mucous membrane; often a fat, chubby, but pasty face; as a rule, enlarged parotids; the sclerotics are of a porcelain whiteness. The man often complains of pain in the epigastrium and in the back. There are very commonly marks of cauterisation (the native's panacea for most ills) or of setons over the epigastrium, below the occiput, and over the spine and sacrum. One very noticeable fact is that severe anæmia in childhood retards the growth. Thus it is very common indeed to see what seems a small child, with childish genitals and general appearance, about 4 feet in height, but with intense anæmia, whose age is undoubtedly at least 20 years.

But there are many cases where one can be morally certain of the presence of ankylostomiasis without there being any obvious anæmia. The percentage of men with obvious anæmia, more or less intense, is nearly 8 (out of 2600, see Table I.). It is frequently found that recruits have been enlisted, apparently not anæmic, who after a short period of service in the Sudan have developed very severe anæmia and have had to be discharged, the altered conditions of life and climate having rendered acute the latent disease.

Bilharziosis.—As in ankylostomiasis, the presence of this disease can as a rule, only be suspected at the time of examination of conscripts (a suspicion, however, is sufficient for rejection). Such cases complain of pain in the hypogastrium, say that they are "ill in their water," and that they have occasionally blood in their urine. Fistulæ in the perineum or bilharziosis of the rectum are occasionally complained of. Cautery marks above the pubis and over the coccyx give rise to suspicion of this condition.

Cirrhotic livers are fairly common amongst children. The liver is not, as a rule, enlarged, but has a hard, obvious edge. Occasionally there is a considerable enlargement of the spleen. Although usually associated with anæmia, this is not always present. Later stages show dropsy, ascites, and emaciation.

Teeth.—Caries of the teeth is, as would be expected, not a common cause for rejection. I examined 1300 men and found 1046 (83·0 per cent.) had perfect sets of teeth. 198 men of the 254 with imperfect sets of teeth had only one or two teeth missing or decayed. Pyorrhœa alveolaris is fairly common, leading to hypertrophy of the gum, but not usually to much loss of teeth. A very common condition indeed is spongy and bleeding gums, possibly due to some general disease as scurvy. (The Egyptian fellah lives almost entirely on vegetable food.) It is essentially a disease of the poorer classes. It produces loosening and loss of the teeth, especially the incisors. I have noticed that it is often associated with knock-knee in children.

Pellagra.—This disease has been the subject of a good deal of inquiry lately in Egypt. The question of attributing it to diseased maize has been much discussed. It is more common in the Delta than in Upper Egypt and is noticed more in the winter and spring months. The skin lesion is obvious and unmistakeable, but other symptoms of a nervous disease, excepting perhaps a slight increase of the knee-jerk, are seldom seen amongst the younger population. A curious fact, too, is that although one member of the family may have a markedly pellagrous skin, the others are perfectly healthy. Anæmia is almost invariably associated with it. Personally, what I have seen of the condition of pellagrous skin would not lead me to necessarily connect it with a nervous disease.

Congenital abnormalities.—THE LANCET of July 3rd, 1909, contained an interesting annotation on a letter from Professor F. E. Madden (to whom I am much indebted for assistance and advice in preparing this article) on the Rarity of Congenital Deformities in Egypt. I had paid no particular attention to the point before, but since then, while examining 12,000 men, I have made notes of the number and varieties of such abnormalities. THE LANCET remarked in the above annotation that "Professor Madden considers it to be impossible to endeavour to explain this rarity of congenital defects in Egypt, unless the time-honoured scapegoat of our too modern civilisation be invoked to account for their frequency in other conntries." Readers of these articles will be interested to hear that our "too-modern civilisation" is innocent of this slur. A glance at Tables III. and IV. will show this clearly.

TABLE III.—*12,000 Men, aged 21 years (of the same type as those of Table I., but not including them).*

Paralyses—		Other congenital deformities of fingers or toes	11
Arm, 7		Various other congenital deformities	5
Leg, 23	38*	Hare-lip	5
Arm and leg, 8		Cleft palate	2
Talipes	15	Enlarged mammæ	10
Ankylosis of, or fractures about elbow	31	Absence of pectoralis major	4
Flat-foot	16	Undescended testicles	9
Shortening of fourth metatarsal	28	Albinism	3
Webbing of second and third toes	16	Deaf-mutism	15
Polydactylism	7	Idiocy	8
		Leprosy	3

* 0·31 per cent.

TABLE IV.—*4947 Men and Boys, between 14 and 20 years, under 155 centimetres (of the same type as those of Table II., but not including them.)*

Patent umbilical ring, with or without hernia	168*	Polydactylism	2
Paralyses—		Other congenital abnormalities of fingers or toes	4
Arm 9		Undescended testicles	3
Leg 14	23†	Enlarged mammæ	8
Talipes	6	Idiots	10
Shortening of fourth metatarsal	9‡	Deaf-mutes	3

* 3·3 per cent. † 0·46 per cent. ‡ Out of 2442 only.

I am unaware of the percentage per population of congenital abnormalities in other countries, but these would seem to be by no means rare in Egypt. Professor Madden's note is interesting as proving the ignorance of the native as to the possibility of treatment for such conditions as cleft palate and harelip. The extent of intermarriage between near relations in the country villages would lead one to expect a comparatively large proportion of defective children.

A condition I have noticed as being particularly common is a congenital shortening of the fourth metatarsal. The fourth toe is markedly retracted, usually behind the level of the fifth toe. The phalanges are not apparently abnormally short, and the metatarsal bone can be felt, unfractured, but with the head very much farther back than usual. Commonly the digit is pushed upwards by the pressure inwards of the fifth toe. The condition is sometimes unilateral and sometimes bilateral. In one case the second metatarsal, and

in a second the third metatarsal, was in a similar condition in conjunction with the fourth. In two other cases the third metatarsals alone were shortened. Only once have I seen a similar condition in the hand when the second and fifth metacarpals were markedly shortened with no evidence of fracture. The most common form of polydactylism is a supernumerary fifth digit on the foot. One man had eight digits on the left foot. Another common condition is webbing of the second and third toes, either partial or complete.

A curious abnormality is a congenital absence of one pectoralis major. I have seen four cases out of the 12,000 of Table III. In two of these the pectoralis minor was also absent. The men seemed unaware of anything particularly abnormal, and movements of the shoulder were free. One cannot help being struck with the frequency of patent umbilical rings, with or without hernia. Inguinal hernia is not very common in young men.

Paralyses.—The vast majority of these are infantile and are very common indeed. More commonly of the leg than of the arm, they are usually said to be congenital, but the natives' statements are by no means reliable.

Injuries to the elbow.—I am at a loss to explain the frequency of fractures of the lower end of the humerus and of the condyles, dislocation of the lower epiphysis of the humerus, and ankylosis of the elbow-joint. The great majority of them have occurred in early childhood. Very possibly falls from donkeys and from the backs of cattle may be an explanation. Occasionally I have had ankylosis of the joint ascribed to small-pox.

Cairo.

Medical Societies.

OPHTHALMOLOGICAL SOCIETY.

Tubercular Iritis.—Inter-fascicular Endothelioma of the Choroid.—Intracranial Tumour.—Exhibition of Cases, &c.

A MEETING of this society was held on July 8th, Mr. G. A. BERRY, the President, being in the chair.

Mr. INGLIS TAYLOR showed a case of Tubercular Iritis of Severe Type, and raised the question of the efficacy of treatment by tuberculin.—Mr. E. TREACHER COLLINS said that when he used tuberculin in small and gradually increasing doses he did not get very good results, but recently he had had one very satisfactory case so treated. In one patient single nodules had disappeared from both eyes, and there had been no return.—Mr. J. B. LAWFORD and Mr. A. MAITLAND RAMSAY had found benefit from the use of tuberculin.

Mr. GEORGE MACKAY read a note on an Inter-fascicular Endothelioma of the Choroid situated at the Optic Disc. At the beginning of the year the patient had a momentary loss of power in his leg and fell. A fortnight later he fell while rising from his chair and lost consciousness momentarily. A week later he discovered that weakness of vision was due to a defect in the right eye; a neurologist found nothing abnormal in bis fundi, and ordered iodide of potassium and abstinence from tobacco and stimulants. When Mr. Mackay saw him he was a full-blooded man, 60 years of age, and was said to have had no cardiac trouble or kidney disease. There was no specific history. In his youth he had been noted for his feats of strength. His pupils reacted to light and to convergence; the right a little less than the left. The media were clear, and the tension was normal. From his shooting experiences the patient knew his right eye had good sight until four years ago. Recently he had occasionally had a sensation as if a long hair was touching his eye, and he had also colour sensations in thc right eye. Tbc left fundus was normal. The disc of the right eye presented a curious appearance, difficult to define until the pupil was dilated with homatropine. That showed the surface of the disc to he elevated by a tumour substance with adherent vascularisation. The veins disappeared in the disc substance. It was possibly a congenital abnormality. There was a narrow dark ring of pigment, especially towards the macular side. Iodide of potassium, which had been discontinued, was advised to be recommenced, but a month later there was no appreciable alteration. The patient did not note any dimness of vision. In the test-types he missed those to the left of the mid-line. Dr. Berry then saw the patient and confirmed the diagnosis, but desired to see him again in six weeks' time. In order to be safe Mr. Collins was also asked to see him, aud he said there was a new growth in the right eye, involving the optic nerve. Mr. Collins advised that the eye should be removed as soon as possible. Since the excision, the tumour was found to be a mixed spindle-celled and round-celled sarcoma, but extending only a short distance into the sheath.—Mr. TREACHER COLLINS described the pathological appearances, and exhibited slides by means of the epidiascope.

Mr. LAWFORD read a further note on a case of Optic Atrophy and Oculo-motor Palsy due to Intracranial New Growth. The patient was a man, 40 years of age, who died in St. Thomas's Hospital on May 7th last. There had been a gradual increase of proptosis on both sides, and a large growth between the eyeball and the nasal bone on the right side. The tumour also appeared in the left temporal fossa, and the movements of the mandible became restricted. A new growth developed in the roof of the mouth. A few weeks before death the right cornea began to slough from exposure, and the right fifth nerve became almost completely paralysed, showing how extensive was the spread. There were headache and a low delirium, followed by coma, which terminated fatally. A necropsy the day after death showed that the growth had extended all over the skull and nasal cavity. The olfactory lobe and the optic nerve were involved. The specimen showed a large glistening tumour, lobulated, smooth on the surface, and covered by dura mater. Mr. Shattock examined the growth and reported that it was a rapidly growing chondroma. The vision began to fail 12 months before death.—Mr. R. W. DOYNE and Mr. F. HEWKLEY discussed the case, and Mr. LAWFORD replied.

Mr. E. A. DORRELL showed an Unusual Form of Cataract.

Mr. W. H. H. JESSOP showed a new form of Lamp.

Mr. ARNOLD LAWSON showed a case illustrating an Unusual Variety of Macular Hæmorrhage.

Mr. H. L. EASON exhibited a case showing Massive Exudate in the Choroid.

SECOND INTERNATIONAL CONGRESS OF ALIMENTARY HYGIENE (BRUSSELS).—The Deuxième Congrès International d'Hygiène Alimentaire et de l'Alimentation Rationnelle de l'Homme, to give it its full title, will be held in Brussels from Oct. 4th to 8th next, under the patronage of H.M. the King of the Belgians and of the Belgian Government. National committees have been constituted for Germany, England, Austria, Denmark, Egypt, Spain, Finland, France, Greece, Hungary, Italy, Norway, Netherlands, Portugal, Sweden, Switzerland, Canada, and the United States. For England the president is Mr. J. A. Gardner, M.A., F.I.C., professor of chemistry and hygiene, St. George's Hospital Medical School, and the honorary secretary is Mr. Cecil H. Cribb, B.Sc., F.I.C., 136, Shaftesbury-avenue, London, W. There are 33 members of the English committee, whose names are all well known as public analysts or professors of physiology and chemistry or engaged in public health work. The meetings will take place in the Assembly Hall in the Universal Exhibition grounds. The subjects for discussion are the energy value of foods and alcohol, value and effects of cooking, influence of micro-organisms, use of antiseptics in food, purity of water, sterilisation of foods, contamination of food on sale in streets and shops, clean milk, analysis of butter, control of mineral waters, food legislation in different countries, legal responsibility of food vendors, the workingman's food, and cold storage of meat. The subscription is 20 francs (16s.) for ordinary members and 10 francs (8s.) for associates. Relatives of an ordinary member are admitted as associates. They cannot make any communications and do not receive the publications. The official languages of the Congress are French, German, English, Italian, and Spanish. The president of the organising committee is Professor L. Fredericq, and the secretary-general, to whom all subscriptions must be sent, is M. E Grognard, 3, Rue de Louvain, Brussels. Post-office orders are preferred, payable to Mr. Sterckx, treasurer for the Congress, who will give a receipt for the same.

Reviews and Notices of Books.

Treatises on Fistula in Ano, Hæmorrhoids, and Clysters, by John Arderne, from an Early 15th Cent. Translation. Edited with Introduction, Notes, &c., by D'ARCY POWER, F.R.C.S. Eng. Published for the Early English Text Society by Kegan Paul, Trench, Trübner, and Co., Limited, London; and by Henry Frowde, Oxford University Press. 1910. Pp. xxxviii.–135 and Index. Price 15*s.*

THE study of British medical history has of late years come much to the fore, and the foundation of the Fitz Patrick Lectures has been the means of enriching the medical profession with an admirable account of early medicine in these islands, as set forth in the lectures by Dr. J. F. Payne and Dr. Norman Moore. Dr. Payne's second set of lectures dealing with British medicine in the thirteenth century are, we believe, shortly to be published in book form, while we now have before us an impression of an early fifteenth-century translation into English of one of the most striking treatises of an English surgeon of the fourteenth century—namely, that upon Fistula in Ano, by John Arderne, who was born in 1307.

Patients in the Middle Ages, and, indeed, for some centuries later, must have endured a good deal from their medical attendants as well as from their disease. Anæsthetics were practically unknown, surgery was crude, wounds were commonly dressed with corrosives to "mundify them," and remedies, both internal and external, were often of appalling nastiness. To quote only one, another English medical man—namely, John of Gaddesden, physician to Edward I.—says, in speaking of colic: "Item balneum in quo ponantur omnia stercora quae possunt inveniri, mire valet in ventoso dolore." Small wonder that mediæval patients were accustomed to repeat Psalms lvi. and lxix. (lv. and lxviii. in the Vulgate) before they took their physic. It is one of Arderne's claims to praise that he modified the practice of his day in the direction of cleanliness and never meddled with a wound unnecessarily. Fistula was common in mediæval times and was much dreaded by surgeons. Complete fistulas were, as a rule, considered best left alone, and even if treated were so only by cautery, or by being slowly divided by a ligature being passed through and daily tightened up. Albucasis, however, who died in 1013, did recommend division by the knife. Arderne's operation was a modification of that described by Albucasis and he seems to have met with a fair measure of success, a success probably due to the simplicity of the remedies which he applied to the wound. They consisted of sponge pressure to stay the hæmorrhage, and afterwards the application of a styptic powder, such as burnt vitriol and alum. The dressing was the white of an egg with a bandage and the wound when washed was merely cleansed with warm water. An enema of oil with the yelk of an egg was also given, and Arderne lays stress upon the point that the wound is not to be dressed too often. To lay down such directions in the fourteenth century required no small amount of moral courage, but although Arderne met with success in many instances professional opinion was against him, and, says Mr. Power, "In spite of his success surgeons preferred to mundify their wounds and use incarnatives for nearly five hundred years after his death."

Arderne had a high ideal of the duties of his profession; higher, indeed, than the ideas of his immediate predecessors Henri de Mondeville and William of Salicet, although Lanfranc, who died in 1306, laid down rules for the manner and behaviour of the leech which are unexceptionable from the ethical point of view. He was also well read, and one of the points which strike anyone who studies the works of mediæval writers of medicine is the enormous number of other writers to whom they refer or quote from. Books were scarce and were the luxury of the rich and of corporations. In fact, it may be said that the very life of a secular corporate body such as the University of Oxford in her early struggles with the friars depended upon books. Gifts of books were entered in College chartularies quite as carefully as gifts of land, and the donors asked for prayers for their souls, which the recipients willingly gave. William Reed, Bishop of Chichester, ob. 1385, who gave a magnificent donation of books to Merton and New College, asked for prayers not only for himself but for the persons from whom he bought the books. Thus he writes in one of his books, "Liber Magistri Wilemi Reed, Episcopi Ciscestrensis, quem emit a venerabili Patre Domino Thoma Trillek Episcopo Roffensi. Oretis igitur pro utroque." But Arderne, and to an even greater degree John of Gaddesden, must have had access to a well-stocked library. Gaddesden, it must be remembered, was the King's physician, while Arderne was of the household of John of Gaunt, so that they were both in a position to obtain access to libraries.

As a lively picture of fourteenth century surgery and of the opinions of a surgeon of that date Arderne's treatise is full of interest. Mr. Power's introduction and notes are most illuminating for the reader who is not very well up in the little known subjects of mediæval medicine and surgery, and as the MS. Sloane 6, from which the translation was mainly taken, is wanting in the chapter about how to know the signs of the moon, this information, together with an astronomical table, has been supplied from a MS. in the Bodleian Rawlinson 355. Astronomical considerations were paramount in mediæval times with regard to the giving of medicines or of operating, though, curiously enough, Gaddesden does not mention them in his "Rosa Anglica." But with all their erroneous ideas as to anatomy, physiology, and pathology, the old masters of medicine knew and taught a great deal which is by no means unworthy of the recognition of surgeons and physicians of to-day; and both the society which has now published Arderne's work and the editor thereof should earn the thanks of medical men.

Medical Diagnosis: a Manual for Students and Practitioners. By CHARLES LYMAN GREENE, M.D., Professor of Medicine, &c., University of Minnesota. Third edition, revised. With 7 coloured plates and 248 illustrations. London: Rebman, Limited. 1910. Pp. 725. Price 15*s.* net.

THE appearance of a third edition of this book sufficiently shows that it is appreciated, and we recognise in it very definite merits. It is on rather different lines from ordinary volumes on diagnosis, containing as it does a considerable amount of information on etiology, morbid anatomy, prognosis, and so forth, besides diagnosis proper. It thus covers much of the ground of a text-book of medicine, only treatment being omitted. Its information is, however, mainly arranged with a view to facilitating diagnosis of disease, and this side of the subject is for the most part very fully dealt with. Here and there we have to complain of deficiencies, as in the paragraph on urinary calculi, in which no clinical features are given, the only diagnosis considered being the chemical distinction between various forms of concretions. A large number of illustrations are inserted, mostly of the "thumb-nail" order, and of very diverse degrees of merit. Incidentally we may note that the left-hand block in Fig. 169 has been inserted upside down. A good deal of new matter seems to have been added in the present edition. Some of the information with regard to parasites is very inaccurate: thus it would be difficult to cram a larger number of errors into a few lines than in the paragraphs headed "Oidiomycosis or psorospermiasis," which contain the following: "Psorospermes gregarenidae [*sic*] or psorazoa are occasionally

found in man in connexion with obscure febrile ailments ..... the lesions resemble the granulomata, but are found to contain coccidia. ..... The fungus cells may he identified without staining. ..... Budding forms strongly resemble the yeast fungus, but sporulation has also been observed." It is apparently implied that gregarines are the same as coccidia, and that hoth are fungi, whereas they are separate groups of the sporozoa (not "psorazoa"), which are protozoan organisms. Spelling is not a strong point: thus we find "pestes major" for pestis, "maculæ cerulæ" for cæruleæ, "myesthenia" for myasthenia, "Teichmann's" disease for Reichmann's. In spite of these faults we like the hook, which contains an immense amount of information, closely packed, and is good value for the money.

Myom bei Schwangerschaft, Geburt und Wochenbett. (*Myoma in Pregnancy, Labour, and Childbed.*) By Dr. THEODOR LANDAU of Berlin. With 17 plates. Berlin: Urhan and Schwarzenberg. 1910. Price M.60.

NOT long ago it was generally held tbat uterine myomata did not develop in young women, and that myomata and pregnancy never occurred together. The combination of myomata with pregnancy is not very frequent, but Dr. Landau has had in his private clinic 21 cases where total hysterectomy or supravaginal amputation of the uterus was performed during pregnancy and two cases where such operations were done in childbed. In all the cases where extirpation or enucleation was performed in pregnant women the pregnancy was uninterrupted. Prohahly no other gynæcologist has operated upon so many of these cases, and Dr. Landau draws many interesting conclusions from his experience. Of 250 cases of hysterectomy for myomatosis, 182 showed symptoms of a previous pregnancy and only 68 had been sterile; of the latter category 15 showed other morbid conditions which may have led to sterility. Dr. Landau notes, and offers an explanation of, the interesting fact that women with uterine myomata often become pregnant at a rather advanced age. According to him, a myoma, like a foreign hody, produces contractions of the uterus by means of which the growth obstructing the genital canal becomes eventually displaced and a free passage restored. That previously sterile women may become pregnant after enucleation of myoma is shown by three of his cases. In the second chapter the connexion between myomata and pregnancy is considered, also the retrogressive metamorphosis of myomata, the influence of the myoma on abortion, on tubal pregnancy (two cases), on the mechanism of labour, and on atony and rupture of the uterus. In the third chapter the symptoms of myoma in pregnancy are described. The fourth chapter contains valuahle hints for differential diagnosis. In the last chapter treatment is discussed. First the author deals with the procedure to be adopted when myomatosis is found to be present at an obstetrical operation; he then discusses the treatment of pregnancy complicated by the presence of a myoma. He is of opinion that a dead or premature fœtus should, from an operative standpoint, be dealt with as a submucous myoma. In the case of a living or viable fœtus, however, the treatment must be different, as the preservation of the fœtus is its principal object. The results obtained by the author in cases of myoma complicated with pregnancy are just as excellent as those obtained in uncomplicated cases, where the mortality was only 0·7 per cent. In the clinic of the University of Prague the mortality was 5·6 per cent. Of 283 cases of myoma operated upon by the author only two have died from the operation.

Dr. Landau's work is beautifully illustrated and well written.

LIBRARY TABLE.

The Operations of General Practice. By EDRED M. CORNER, M.A., B.C. Cantab., F.R.C.S. Eng., Surgeon in Charge of Out-Patients at St. Thomas's Hospital and Surgeon in Charge of the Infectious Wards; and H. IRVING PINCHES, M.A., M.B., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., Clinical Assistant to the Children's Hospital, Great Ormond-street, late House Surgeon at St. Thomas's Hospital. Third edition, revised and enlarged. London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 358. Price 15*s.* net.—We have reviewed with approval the two earlier issues of this book, and we consider that it has fully merited the success it bas attained. Comparatively few changes have been required because of the short interval between successive publications. The additions to the first edition appeared in a separate chapter in the second edition, and a similar plan has been followed in the preparation of the present issue, the recent additions being included in the final chapter. As these additions deal with many subjects they form a rather beterogeneous chapter, for they include such subjects as axillary infusion, excision of the umbilicus, vesical lavage after prostatectomy, intravenous production of local anæsthesia, suprapubic drainage, the treatment of mastitis with vacuum glasses, and so on. An examination of this volume has only served to confirm the opinion which we previously formed. It should prove of the greatest assistance to those in general practice who desire to perform some of the less serious operations of surgery.

An Index of Symptoms with Diagnostic Methods. By R. W. LEFTWICH, M.D. Aberd. Fourth edition. London: Smith, Elder, and Co. 1910. Pp. 451. Price 7*s.* 6*d.* net.—We reviewed the second edition of this excellent little book some eight or nine years ago, and can only repeat the praise which we then gave it, with the addition of saying that the present edition contains more matter, although in less space than former editions. The space allotted to diagnostic methods has been increased, and, so far as we remember, fuller explanations have been given of eponymic signs and symptoms, e.g., Stellwag's sign, Bolognini's symptom. This latter is a most useful feature of the hook. Seeing how progressive a science is medicine, the book is marvellously up to date, for so far as we have checked it we have only failed to find mention of one condition of disease, and that the condition known as "tuberose sclerosis," upon wbich a paper was recently read before the Edinburgh Medico-Chirurgical Society and reported in our issue of May 14th (p. 1351). That Dr. Leftwich's book has reached its fourth edition shows that it has heen a success. An examination of the book indicates that the success is well merited.

Grundriss und Atlas der Speziellen Chirurgie. (An Introduction to, and an Atlas of, Special Surgery.) Von Professor Dr. GEORG SULTON. Part II. With 40 coloured plates and 261 illustrations. München: J. F. Lehmann. 1910. Pp. 624. Price 16 marks.—We have on so many previous occasions spoken in the highest terms of the excellent bandhooks published in the series of Lehmann's medical hand atlases that it seems almost unnecessary to state anything in praise of this one before us. As our readers no doubt already know, these excellent little text-books and atlases appear in several languages, and they are characterised by a very large number of excellent illustrations. This, one of the latest volumes of the series, is fully equal to any of its predecessors wbich we have examined, and the illustrations are extremely good. It is only by publication of large editions in several languages that it has been possihle to include so many excellent coloured illustrations at a comparatively low price. The text is useful, but the chief value of the work resides in the illustrations.

The Oxford Colleges. By ELSIE M. LANG. London: T. Werner Laurie. Pp. 258. Price 1s.—Guide books to Oxford are many in number and of varying excellence, but considering the size and the price of the one before us we can truthfully say it is one of the best that we have seen. It gives a short account of the various colleges as they would be visited in a walk starting from Worcester, the college nearest to the two railway stations, and walking thence by way of St. John's, Balliol, Trinity, Wadham, Keble, and so back to Hertford, New College, Magdalen, and so on. Miss Lang is evidently an enthusiastic lover of Oxford, but her enthusiasm has marred her judgment in one matter, when she says of the "Eights" that it is pleasant to "watch the long slim boats, manned by Oxford's best oarsmen, strive to pass one another." But in view of the rest of the work this little slip does not much matter. The book is illustrated by well-reproduced photographs.

St. Bartholomew's Hospital Reports. Edited by H. MORLEY FLETCHER, M.D. Cantab., and W. MCADAM ECCLES, M.S. Lond., F.R.C.S. Eng. Vol. XLV. London: Smith, Elder, and Co. 1910. Pp. 476.—This is a specially good volume, and not the least important of its contents is a well-illustrated paper by Dr. H. G. Adamson on cases in the Skin Department, dealing especially with Dermatitis Artefacta. Dr. R. A. P. Hill contributes a long paper on Splenic Anæmia, and other papers of interest are on Perforation in Enteric Fever, by Mr. C. Gordon Watson; on the Influence of Local Injury in Determining Disease, by Sir Dyce Duckworth; on Bacillus Coli Infection of the Kidney during Pregnancy, by Mr. J. Barris; and on Cases of Persistent Œlema treated by Lymphangioplasty, by Mr. W. Bruce Clarke. A valuable portion of the book is devoted to a report on X ray Dermatitis, by Dr. H. Lewis Jones, Mr. L. Bathe Rawling, and Dr. Adamson. The second half of the book contains the usual reports from the medical and surgical registrars.

Transactions of the Ophthalmological Society of the United Kingdom. Vol. XXX. Fasc. 2. 1910. Pp. 103–186. London: J. and A. Churchill. Price 4s. net.—The fasciculus contains the accounts of more than 30 cases which were brought before the society during the past six months, many of them of considerable interest. Mr. N. Bishop Harman exhibited a case of Multiple Superficial Atrophic Areas of Irides in old Kerato-iritis of Inherited Syphilis. 22 atrophic areas of varying depth could be counted in the right iris and 13 in the left. Two figures display the appearances seen. Both pupils were completely blocked with lymph except for a small area in the left pupil at the superior external quadrant. Mr. Harman also describes a case of Exophthalmos and Facial Deformity (as in oxycephaly) without Deformity of the Skull Cap in an intelligent girl. He thinks that the term oxycephaly or "Tower skull" is incorrect since all the ocular and facial characteristics commonly associated with oxycephaly may be present without any sign of deformity of the skull-cap. Mr. A. W. Ormond gives a case of Recurrent Lacrymal Tumour on the Right Side. Mr. M. S. Mayou brought forward an interesting case of Congenital Anterior Synechia with Buphphthalmos (anterior staphyloma). The history of the affection, as Mr. Treacher Collins remarked, was valuable as showing that a congenital anterior synechia might be due to a developmental defect apart from ulceration. Mr. George Coats regarded the case in the light, not of a staphyloma due to a perforated corneal ulcer, but as resulting from a lack of differentiation in the mesoblast which surrounds the anterior chamber. There are some good illustrations of the appearances presented by the cases described, as those of Mr. A. C. Hudson of an unusual form of retinal disease, Mr. Leslie J Paton's case of connective tissue formation in the disc, Mr. J. B. Lawford's case of episcleral tubercle, Mr. R. Foster Moore's case of subretinal hæmorrhage, and Mr. R. R. James's contribution to the bacteriology of panophthalmitis. The volume is a compendium of the transactions of the society, and furnishes useful references to most of the cases that have been brought before that body.

International Clinics. Edited by W. T. LONGCOPE, M.D., Philadelphia. Vol. IV., Nineteenth Series, London and Philadelphia: J. B. Lippincott Company. Pp. 320.—Amongst the numerous interesting contributions to the last number of this well-known publication is one by Dr. C. B. Longenecker (Philadelphia) on Colour Photographs in Relation to Surgery. A brief account is given of the attempts hitherto made to produce satisfactory photographs in colours. Dr. Longenecker is of opinion that the autochrom process yields the most satisfactory results. Though seemingly intricate and requiring many steps to complete the picture, the process itself is fairly simple and is easily within the grasp of any person familiar with the underlying principles of photography. The technique is described, but it is admitted that failures are many. Nevertheless, good photographs may be obtained, and some are given which show the advantages of a colour process over the ordinary black and white pictures; for example, a colour photograph of a case of lupus vulgaris and photo-micrographs of carcinoma of the breast and of gangrene of the foot. Dr. Longenecker is possibly correct when he says that in spite of its faults the autochrom process represents an advance far beyond anything that has yet been introduced for scientific photography. Doubtless, he says, in the future it will be perfected and simplified, or perhaps some other process better adapted to daily requirements will be forthcoming. Amongst other contributions to this volume may be mentioned the following: The Use of Tuberculin in Treatment, by Dr. Louis Hamman (Baltimore); Diagnosis and Treatment of Pernicious Anæmia, by Dr. W. L. Bierring (Iowa); and the Use of Ethyl Chloride as a General Anæsthetic, by Dr. W. Estell Lea (Philadelphia).

JOURNALS AND MAGAZINES.

Jahreskurse für Ärztliche Fortbildung. (*Annual Course of Post-graduate Instruction.*) In 12 monthly parts. 16 marks per annum. Munich: Lehmann.—The May number of this journal is devoted to a consideration of diseases of the nervous system. Professor Edinger writes on the structure of the central nervous organs, briefly discussing the neuron theory and the comparative morphology of the brain. Lumbar puncture and the variations found in the amount, pressure, and cytology of the cerebro-spinal fluid are described in a usefully succinct manner. The presence of choline in this fluid in cases of epilepsy has special significance with regard to the destructive changes proceeding in the nerve elements. The findings of cytology and of the various forms of Wassermann's reaction in the cerebro-spinal fluid of syphilis, tabes, and general paralysis are of especial interest. The section on spinal cord diseases is chiefly occupied by the consideration of acute poliomyelitis. The epidemic and infective characters of the disease receive the fullest treatment. Professor H. Vogt writes about encephalitis of children and discusses the mechanism of the lesions left by this disease, its clinical manifestations and differential diagnosis. The question of the surgical treatment of epilepsy is treated chiefly with regard to the Jacksonian variety. Graf's figures relating to 146 cases of this disease, in which recovery lasting more than half a year followed operation 35 times, are given, and Krause's views on this subject are discussed. Professor Otto Binswanger deals with the subject of Psychiatry. A short historical and philosophical introduction

deals chiefly with the relation between structural defects and functional disorders of the nervous system. H. Berger's experimental researches on the temperature of the brain, and his deductions therefrom as to the energy involved by intellectual processes, are of great interest. The complicated problems involved in the connexion between the facts known about the physiology and pathology of the brain and the various mental processes are discussed in the light of recent researches, especially those of Monakow, Tschermak, Brodmann, Fischer, Strohmeyer, Binswanger, and Berger. Organic psychoses are shortly discussed by Professor Hans Berger. Dementia paralytica receives the fullest treatment both as regards its pathology and diagnosis. Psychical disorders associated with arterio-sclerosis of the cerebral vessels are described, and their diagnosis and treatment are discussed. The whole number affords a most valuable *résumé* of recent work on the nervous system.—The June number is devoted to a consideration of the diseases of children. Professor Pfaundler introduces the subject of the digestive disturbances of infants by discussing the physiology of nutrition both in breast- and bottle-fed children. The relation of the food substances to the digestive cells and the great importance of the difference between the mother's milk and cow's milk are considered. This latter is not simply a question of the relative proportion of the various food constituents, but involves the biological relation between the cells of the infant and albuminous substances of their own kind or those of a foreign nature. This factor very greatly complicates the question as to the nature of the toxic substances responsible for the nutritional disorders of infants which may be brought about by any disproportion between the digestive capacity and the nutritional demands. Finkelstein's work on the digestive disorders of bottle-fed infants is given at some length—in fact, it forms the bulk of this article. The normal amount of food to be assimilated is regarded as equivalent to 100 calories per kilogramme of body-weight, and the various nutritional disturbances are considered in relation to their variation from the normal. The symptoms of faulty nutrition are described under the headings of: (1) variations in body-weight, (2) variations in temperature, (3) abnormal conditions of the stools, (4) urinary anomalies, and (5) other symptoms. The treatment is also considered under various headings, viz.: (1) means of increasing the digestive capacity, (2) means of decreasing the work demanded of the digestive organs, and (3) the best manner of administering carbohydrate food. This article ends with a most valuable tabular classification of the digestive disorders of infants. They are divided into: (1) disproportion between supply and demand, (2) dyspepsia, (3) decomposition, and (4) intoxication. The symptoms, functional reactions, diet, and therapeutics of each class are set out in parallel columns. Dr. Ernst Moro writes on the recent work relating to tuberculosis in infancy. The various methods of diagnosis, von Pirquet's and the tuberculin ointment, are considered in some detail, and their limitations and fallacies are fully discussed. Hamburger and Monti's work on the incidence of tuberculosis at various age-periods[1] is epitomised. The relations of bovine and human tubercle are briefly considered. As a result of the fulness with which digestive and tuberculous affections of childhood are treated other diseases of infancy are not mentioned.

[1] THE LANCET, July 9th, 1910, p. 119.

Mr. Vaughan Grey will give a special matinée in aid of the Middlesex Hospital Fund at the Boudoir Theatre, Pembroke-gardens, W., on Thursday, July 28th, at 3.30 P.M., for which an interesting programme is announced. The entertainment is under the patronage of Prince Francis of Teck.

METROPOLITAN HOSPITAL SUNDAY FUND.

UP to Thursday morning, July 14th, about £45,000 had been received at the Mansion House, the collections at the churches generally showing an increase. Among the additional amounts are:—

	£	s.	d.
St. Peter's, Eaton-square (with St. John's, Wilton-road)	477	0	0
Essex Church, Kensington	274	0	0
Hampstead Parish Church	120	0	0
St. Mary's, Kilburn	117	0	0
St. Thomas's, Portman-square	102	0	0
St. Peter's, Bayswater	101	0	0
Brockwell Park Open-air Meeting	100	0	0
Christ Church, Mayfair	96	0	0
Roehampton Parish Church	77	0	0
St. Andrew's, Well-street	70	0	0
St. John's Presbyterian Church, Forest Hill	69	0	0
St. Paul's, Upper Norwood	64	0	0
Reigate Parish Church	62	0	0
Holy Trinity, Wandsworth	60	0	0
Christ Church, Hampstead	54	0	0
St. John's, Kennington	53	0	0
Wilesden Presbyterian Church	51	0	0
A. B. C.	50	0	0
St. Augustine's, Honor Oak	47	0	0
St. Mary Aldermary	46	0	0
St. Andrew's, Ashley-place	45	0	0
Highgate Presbyterian Church	44	0	0
All Souls', Langham-place	41	0	0
Emmanuel, West Hampstead	33	0	0
St. Martin's-in-the-Fields	33	0	0
Kensington Congregational Church and Sunday School	37	0	0
All Saints', Notting-hill	36	0	0
Trinity Presbyterian Church, Bromley	35	0	0
Christ Church, Streatham-hill	36	0	0
Brixton Hill Wesleyan Circuit	33	0	0
All Saints', Blackheath	32	0	0
All Saints', West Dulwich	31	0	0
Greenwich Parish Church and Missions	31	0	0
St. Michael's, Stoke Newington	30	0	0
St. Stephen's, Lewisham	29	0	0
St. James's, Norlands	29	0	0
St. George's, Campden-hill	29	0	0
Orange-street Congregational Church	28	0	0
St. John's, Upper Holloway	26	0	0
St. Mark's, Kennington	26	0	0
St. Mary's, Balham	26	0	0

DAMAGES FOR LIBEL AWARDED TO A MEDICAL PRACTITIONER.—An action for libel was recently tried before Mr. Justice Ridley and a special jury in which Dr. W. B. Benjafield, medical officer to the Edmonton Union, was the plaintiff, and Messrs. E. H. and W. Crusha, proprietors and editors of the *Tottenham and Edmonton Weekly Herald* and the *Wood Green Weekly Herald*, were the defendants. The libel arose out of observations made at a meeting of the Middlesex County Council at which a Mr. Cole made a speech in opposition to a proposed extension of accommodation for lunatics, which speech was reported and commented upon by the defendants in their newspapers. In respect of a report which was admitted to be a fair and accurate account of what was said by the speaker, published without comment, the learned judge, when he came to sum up the case, told the jury that no damages could be awarded to the plaintiff. Another paragraph, however, dealing with certain remarks of Mr. Cole at a later date, contained comment, and is thus quoted in the reports of the trial:—

> The remark made by Mr. Cole at the meeting at Wood Green to discuss the problem of the Poor-law and the unemployed conveys the idea that a very unsatisfactory arrangement at present exists with respect to certifying lunatics at the Edmonton Union. He says hundreds of persons are certified as lunatics who are not lunatics, but there are guineas behind the certifying of lunatics. This is a very serious statement to make, and it becomes the bounden duty of Mr. Cole, as chairman of the Board of Guardians, if he is aware of abuses, to endeavour to take effectual steps to prevent them. His remarks go to endorse the views we expressed in our leading article last week that there should be no such fees in matters of that sort.

The case for the plaintiff was to the effect that as part of his duties consisted in certifying lunatics, in respect of whom fees were paid to him in addition to his salary, the paragraph complained of suggested that he was influenced by the prospect of earning fees in the giving of certificates. For the defence it was urged that the words complained of did not express belief in the statements of Mr. Cole or reflect upon the character of the plaintiff, but were fair comment upon Mr. Cole's utterances, challenging him to prove the truth of his allegations. The jury did not accept the latter view and found for the plaintiff, awarding him £100 damages, for which judgment was given with costs.

THE LANCET.

LONDON: SATURDAY, JULY 16, 1910.

The Coroners' Law and Death Certification (Amendment) Bill.

A SUMMARY was given in THE LANCET of July 2nd of the Bill introduced in the House of Commons by Sir WILLIAM COLLINS for the amendment of the law relating to the certification of deaths and the holding of coroners' inquests. All are aware of the difficulties which lie in the path of any measure for which the Government of the day is not directly responsible, but the subject of the Bill in question is of great public importance, and we sincerely hope that it may receive serious consideration. In this we do not refer so much to changes of administration and of local jurisdiction sought to be brought about by some of the Clauses of Part I., as to those alterations of the law which necessarily follow in order that Clause 16 of the Bill, the opening Clause of Part II., may be carried into effect. This contains a principle the establishment of which the medical profession has long desired to witness, and the neglect of which hitherto has vitiated our vital statistics and made easy the operations of the criminal and the quack. Clause 16 is as follows: "No death shall be registered under the Registration Acts without the delivery to the registrar of a certificate of death duly signed by a registered medical practitioner, or by a coroner after holding an inquiry or inquest." In order to make this provision effective a preceding section has sanctioned the holding of an inquiry by the coroner, fortified, if necessary, by a post-mortem examination, which inquiry need not be followed by an inquest if it results in the coroner being satisfied that the deceased died a natural death. In this connexion we turn to Clause 26 of the Bill and find that one of the provisions of Part III., described as "Miscellaneous," is as follows: "Any dead child which has issued forth from its mother after the expiration of the 28th week of pregnancy, whether alive or dead, shall be the dead body of a person within the meaning of the Coroners Act, 1887, and this Act, and a person within the meaning of the Births and Deaths Registration Act, 1874." The object aimed at thus is the checking of the evils arising out of the burial without registration of children which are, or which may pass as, stillborn. It is an object of great importance, but we call attention to matters of detail in connexion with the manner in which it is to be attained. We apprehend that the medical practitioner attending the birth of a stillborn child can hardly be deemed, without statutory provision to that effect, to have attended the deceased "during his last illness," and that therefore he cannot certify the cause of death himself and is under no obligation to give information as to the "death" having taken place. Presumably the relatives are expected under Clause 20, Subsection 2, to inform the coroner, who will hold an inquiry and, if an inquest does not appear to be necessary, will give a certificate. Such an inquiry will be held on the ground that normally children are born alive, and that therefore a stillbirth is *primâ facie* an unnatural death, and in cases where a medical man has been in attendance at the birth the inquiry will consist chiefly in asking him to report the circumstances. If we are right in supposing that this is what is intended, and if Clause 3 of the Coroners' Act of 1887 will bear the construction suggested, reliance will have to be placed upon the statement of the medical attendant, and this being the case it is a matter for consideration whether the certificate of a medical man should not suffice for the burial of a stillborn child at whose birth he has been present. Whether this be permitted or not, the inquiry, which in the contemplation of the Bill will often conclude the matter without an inquest being held, is an enlargement of the responsibilities of the coroner that will make the need for medical training on his part of greater importance than ever.

It is not, however, proposed by the Bill to confine the office to registered medical practitioners, for Clause 5 proposes that "No person shall be appointed a coroner unless he be a practising barrister of not less than five years' standing, or a solicitor of not less than five years' standing, or a registered medical practitioner who is also a barrister or a graduate in law of a university in the United Kingdom." We have no doubt that a medical man who is a barrister, and more especially one who has seen something of the practice of the law in criminal courts, is the person best fitted to be a coroner. In the new circumstances indicated above we would suggest that a medical man, even without having passed the examinations required by the Inns of Court, would be far more likely to perform his duties efficiently than any barrister or solicitor without medical qualifications. A little practical work and observation would soon supply any defects due to not having learnt that which is necessary for a call to the Bar, but for one who only possesses the legal qualifications specified no practice or observation as a coroner can take the place of the long and laborious practical education that precedes the registration of a medical practitioner. The inquiries necessitated by the registration of stillbirths afford an example of duties which such a one would find it difficult to perform efficiently and without undue friction with those concerned. It is, perhaps, intended that this difficulty shall be met by the following section, but the precise position destined for the medical men referred to is not made quite clear, and the responsibility for the due performance of his own duties must ultimately rest with the coroner himself. Clause 10: "Any county or borough council may appoint one or more medical investigators or pathologists in each coroner's district to assist the coroner in his inquiries and inquests, and to conduct post-mortem examinations. Such medical investigators or pathologists shall be paid such remuneration out of the county or borough rate as the county or borough council may determine."

Part II. of the Bill deals with the registration and certification of death and burial, and contains several sections directly affecting the medical profession. For the satisfactory carrying out of these the willing coöperation of medical practitioners will be necessary, and we are surprised to see that,

apparently, it is not proposed that they should be remunerated for the performance of new and responsible functions. The Bill is silent upon this important subject and only provides that in the case of medical witnesses at inquests, who are not the investigators or pathologists referred to above, fees shall be fixed by regulations made by the Secretary of State, instead of by statute as heretofore. The need for consideration of this question will readily be appreciated. It is contemplated that the medical practitioner who has attended the deceased in his last illness shall certify the fact of death after inspection of the body as well as the cause of it, and a new form of certificate of an exhaustive nature is appended in a schedule. It is also proposed (Clause 19) that "Every medical practitioner who shall give a certificate of death shall, within 24 hours after such death takes place, send such certificate to the registrar of deaths for the district in which the death took place." This proposal has no doubt for its object the supplying of prompt information to the registrar, but we must point out that the medical practitioner is to be subject to a fine of 40*s.* for any infringement of this part of the Bill, and that under the clause he is to be bound by a time limit of 24 hours from the moment of death, a period liable to curtailment to any extent by delay on the part of those who should inform the medical man that his patient has died. We would suggest that the 24 hours, during which he has to inspect the body, should run from the time when he receives the necessary information. Further, when no medical practitioner has attended, the relatives, friends, or other persons having cognisance of the death are to inform the coroner, but (Clause 20, Subsection 2) if a medical practitioner has attended during the last illness and is unable to give a certificate of the cause of death, it is he who is to inform the coroner forthwith both of the fact of death and of the reason why he does not certify the cause of it. The provisions relating to the notification of death contained in the Bill follow lines suggested by the Death Certification Committee of 1893, and are in amplification of general recommendations made by the recent Departmental Committee which inquired into the law relating to coroners, death registration being, strictly speaking, outside the scope of reference. In other respects, to speak generally, the Bill gives effect to recommendations made by the latter committee, and contains, besides the points to which we have referred as being of direct interest to the medical profession, much which concerns those members of it who occupy the post of coroner, but this will have been gathered from our summary published on July 2nd.

Street-trading by Children.

AT whatever points the report of the Royal Commission on the Poor-laws may have failed to win universal assent, no dissentient opinion has been heard with regard to the views expressed in it upon street-trading by children and young persons. All who have given consideration to that report are agreed that many thousands of our population of both sexes who drift into panperism, crime, and immorality as adults, being then physically and mentally unfit to be healthy and useful citizens, owe their downfall to the position in which they find themselves on leaving the public elementary schools in which the compulsory portion of the education provided for them has been conducted. All also recognise the fact that the difficulty of improving the situation created is largely due to the outward temporary prosperity which awaits the boy, and in a lesser degree the girl, freshly released from school and to the ready opening offered by the "blind alley" occupations. In these they are able for a time to earn more money and to lead what are to them more agreeable lives than if they applied themselves at once to seeking that laborious training which alone can fit them for earning their living honourably when grown up, and of all the unsatisfactory occupations which "lead to nothing," or which, at all events, lead to nothing useful, street-hawking is admittedly one of the worst. We hardly need the findings of a departmental committee appointed by the Home Office in order to be convinced of this, but such a committee has now collected evidence and has issued its report.

The majority, including the chairman, Mr. J. A. SIMON, K.C., one of the ablest legal members in either party of the House of Commons, consists of seven out of eleven of the committee, and the minority of four members do not dissent from their fellows as to the existence or the importance of the evil to be combated, but suggest the application, for the present at all events, of less drastic remedies. We do not propose to recapitulate at any length either the reasons given for seeking to abolish street-trading by children or the evidence upon which they are based. The daily newspapers have given full extracts from the report, which can be obtained by those who desire to study it. An Act of Parliament passed in 1903 permits and recognises a system by which boys and girls of immature years can earn weekly incomes amounting in some localities and in suitable circumstances to 20*s.* a week; they can live lives independent of all control, associating with adults of whom the least undesirable are loafers on the kerbstone, wasting their earnings on gambling, smoking, and frequenting music-halls, eating no regular meals, and seeking no regular rest at nights. Some of them, wherein lies the difficulty of dealing with the matter, assist by their earnings deserving parents who are in temporary or permanent financial straits; others are the victims of parents and dependents who are dissolute and idle. The majority of the committee recommends that all street-trading be forbidden for boys until the age of 17, and for girls until the age of 18 years. They desire that the definition of street-trading should exclude the work done by errand boys and the like who are employed by tradesmen to serve regular customers, and they would place the enforcement of the law in the hands of the local education authorities, cases being heard in the children's court or, failing such a court, in a court of summary jurisdiction. The importance of these proposals will readily be recognised, and the difficulties in the way of carrying them out successfully so as to substitute a benefit to the community for an unquestionable evil will not be far to seek. The opponents to reform will include the children themselves, who, no doubt, will find a few sympathisers to make their complaints heard, and in the majority of cases their parents and those who profit by their undesirable industry. The supporters of it should be found in all thoughtful citizens and also in those who would gain by the enforced removal of rivals in trade, or by an

increased supply of young people needing employment by them. Recognising the difficulties and hardships likely to be brought about by the total prohibition advised by the majority, the minority, who will no doubt secure a measure of support for the compromise which they put forward, prefer to recommend the prohibition of street-trading up to the age of 18 years where it can be shown that other suitable forms of employment are available, and where a local organisation has been established for assisting parents and children in finding suitable forms of occupation for the children. In other cases the minority would refuse or withdraw a licence where the local authority is satisfied that street-trading is not being carried on for any beneficial purpose, while they suggest that it should be made a condition of a licence for boys over 14 that they should attend technical or continuation classes while holding the licence. Finally, they recommend the prohibition of all street-trading by girls up to the age of 18 in large towns, subject to further inquiry as to the case of costermongers employing children in London, and similar classes of traders elsewhere.

We doubt the efficacy of any system founded upon compromise and upon the promise of supervision in such a matter, while admitting the difficulties and, in some cases, the hardships which will attend prohibition. In connexion with the question of hardship, it will not be forgotten that we are proposing to interfere with the earning of a livelihood, more or less precarious, but nevertheless of importance to themselves and others, of more than 22,000 children under the age of 16 years, now licensed to trade in the streets in England and Wales, exclusive of London, where 13,873 boys and about 1000 girls were known to be trading in the streets in July, 1909. On the other hand, it will be remembered that this large army, the magnitude of which can only be estimated through the system of licensing (which is not universal), is recruiting the forces of pauperism and crime in a far greater degree than it is contributing to the public prosperity. The conditions in which the children of our working classes grow to maturity in our cities and large towns must necessarily fall short of the ideal in a vast number of cases, but any definite and practical proposals for their amelioration will have the support of the medical profession. Our readers must all recognise the physical evils inseparable from street-trading as an occupation for children of either sex.

Signs of Life.

THE moment at which the individual dies can usually be definitely determined by the cessation of the heart and failure of respiration, but it is a much more difficult matter to settle the time at which the various tissues of the body pass into a state of death. In ordinary practice we depend upon a manifestation of motion as a sign of life; yet matter may be apparently passive and yet living. The problem was one which greatly interested JOHN HUNTER a century and a half ago. He noted the different manner in which living and dead matter resisted cold: dead matter responds to the surrounding temperature, living matter strives to maintain its temperature in spite of its surroundings. By using such a test he was able to show that the fowl's egg is composed of living matter; he placed two eggs in a freezing mixture—one which had been killed previously by being frozen, the other a fresh egg. In the freezing mixture the dead egg became frozen seven and a half minutes before the fresh one. He devised tests to show that blood was a living tissue; the sign of death was coagulation. He regarded contractility as the best sign of life in arteries. He found by an ingenious series of experiments "that the vessels of the umbilical cord have the power of contraction (and are therefore alive) above two days after separation from the body"; a truth which has been amply confirmed by the recent obervations of Professor MACWILLIAM. Had HUNTER been with us to-day he would have found more delicate means at his disposal—means which would have permitted him to answer not only the question: "Is this tissue alive?" but, in the words of Professor WALLER, "How much is it alive?" Indeed, we owe much to Professor WALLER for the means now at our disposal; he has been a pioneer in the application of electrical methods to the study of life. He has done more: he has succeeded in condensing within the covers of a charming little book[1] 20 years of experiment and observation on the electrical reactions of living matter—a book which may be read, understood, and enjoyed by learned and unlearned alike. The means now at our disposal is the galvanometer, especially that form of it invented by Professor EINTHOVEN—the delicate string galvanometer. It catches and records the slightest movement in living matter. A muscle cannot contract, a nerve conduct, or a gland secrete and escape observation in the presence of a galvanometer. It marks the breaking down, or katabolism, of living matter which accompanies activity by a negative deflection of the mirror; it registers the upbuilding, or anabolism, which follows activity, the period of rest and restoration, by an upward or positive deflection. The "positive" and "negative" variations which past generations of learners have cold-shouldered as physiological bugbears are now on a fair way to a more friendly footing with medical students.

The lens of the eye is almost the last part of the body from which one would expect a definite vital reaction; its appearance is that of a passive piece of optical apparatus. Professor WALLER discovered not only that it was alive, but also the means to make it write its own living story. His attention was drawn to it in the following way. He was investigating the electrical changes in the retina of the excised eye; the retina responded to light and to pressure; the galvanometer recorded the degree of the response; in a couple of hours no response was obtainable: the retina was dead. Professor WALLER observed that the reaction was not confined to the retina; there was a disturbing factor in the anterior part of the eye which was traceable to the lens; the lens therefore became the subject of experiment. Compression gave a reaction or electrical discharge—the "blaze" current of Professor WALLER—which caused a negative deflection of the mirror.

[1] Physiology, the Servant of Medicine (Chloroform in the Laboratory and in the Hospital). Being the Hitchcock Lectures for 1909, delivered at the University of California, by Augustus D. Waller, M.D., LL.D., F.R.S., Director of the Physiological Laboratory of the University of London. Hodder and Stoughton. 1910. Price 5s.

The dead lens when compressed left the galvanometer unaffected. When on holiday at the seaside Professor WALLER found that the lens of the fishes' eye yielded definite reactions, but in London no result could be obtained until supplies were derived directly from the fishermen. Professor WALLER thus found himself in possession of a test for determining the freshness of his fish-supply; at least, he could detect the moment at which the lens of the fish had passed into a state of death. But his most fascinating experiments were carried out on leaves; he selected them because they offered an opportunity of examining living matter spread out in a thin stratum. He found the galvanometer could measure the action of a passing sunbeam on a green leaf; some leaves like those of the chestnut and ivy were "sluggish and sulky"; others, like the "fresh young leaf" of the iris, were "lively and communicative." Leaves vary in their reaction according to youth and age, the surrounding light, and heat; they can be made drunk and sober and the degree of their intoxication measured. He found that the vitality of seeds could be measured; there was no need to wait for the spring and the sowing to see if they would sprout. If they were all freely and fully alive as good seed should be, they gave a definite electrical reaction when compressed; if they were dead and useless, compression left the galvanometer untouched. The seed and the leaf can make no movement whatsoever which will escape the sensitive ear of the galvanometer. Nowadays man pries very closely into Nature's ways; it looks as if some day he may break through that barrier, hitherto deemed impassable, which separates him from the discovery of the nature of life itself.

Professor WALLER is a poet among experimenters, as may be seen from the references we have made to his work, but his little book also shows that he is a philosopher among physiologists. He is not one who is shocked when ni the course of pursuits desinged only to satisfy his own curiosity he stumbles across facts which may prove useful to practical men. He is interested in more than the reactions of living matter and the signs of life; he wishes to establish a closer and more amicable relationship between the physiologist and the physician. He recognises two kinds of medical men: those who "want to know"—the workers at the laboratory benches—and those who "want to help"—the workers by the bedside. The two groups, we dare think, are not so antagonistic as Professor WALLER believes; medical men combining a desire to know and a desire to help are not so uncommon. One has only to look round and see that the methods which Professor WALLER—as a man "who wants to know"—applied in the laboratory some 20 years ago to the study of the human heart are being adopted by the men "who want to help" and have become the methods applied at the bedside to-day. The galvanometer supplies the clinician with the most delicate means of analysing disturbances in the action of his patient's heart. There is no better introduction to this new chapter in the electropathology of the heart than that now supplied by Professor WALLER'S little book. Our readers will also find there an introduction to "Jimmie." The bearer of this name is a pet bulldog and has not only played a part in the pioneer work which his master has carried out, but was the unconscious cause of a wave of merriment that spread over the civilised globe when some 12 months ago his antivivisecting friend interrogated the Home Secretary on his behalf.

Annotations.

"Ne quid nimis."

MR. H. W. COX.

MEMBERS of our profession will learn with deep regret of the death of Mr. Harry W. Cox, one of the pioneers of X ray diagnosis, a distinction which practically cost him his life. His sad case was only recently brought into prominence in our columns by an appeal for funds for the sufferer and his family by Sir William Treloar. Several years ago he was compelled to relinquish his business owing to the terrible ravages of X ray dermatitis. He exhibited a marvellous patience in suffering, and in spite of the great infliction which early and repeated contact with the X rays brought him he continued to discuss the possibilities of their future application in ministering to the needs of humanity. Medicine owes Mr. Cox a deep debt of gratitude for the instruments which he has placed at its disposal. He was never happier than when he was perfecting an induction coil or getting maximum and steady results with his X ray apparatus. He was the author of a good many patents. Mr. Cox studied also the practical application of wireless telegraphy, and in this field again his genius served him well in the improved results which he obtained by paying great attention to details. His disease, when once established, pursued an unrelenting course, and at length released him in his forty-seventh year from unspeakable pain. To his immediate friends, his wife and family, it must be a consolation to realise how universally his name is regarded as belonging to that illustrious roll of men who have laid down their lives for their fellows.

WHAT IS MÉNIÈRE'S DISEASE?

THERE seems to be considerable confusion on the subject of Ménière's disease, if we are to judge by the widely varying conditions reported from time to time as instances of that affection: in fact, it may almost be said that the term is applied indiscriminately to any and every case of giddiness associated with a lesion of the ear. The usual description given of the disease is that it consists of a triad of symptoms—tinnitus, giddiness, and vomiting—and that in classical cases the onset is apoplectiform. Other symptoms may be included such as nystagmus, nausea, swaying, fainting, &c., but, as Dr. Alexander Bruce and Dr. J. S. Fraser, of the Royal Infirmary, Edinburgh, remark in a paper on the association of Ménière's symptoms with facial paralysis, which will be found in the *Review of Neurology and Psychiatry* for June, it cannot be too emphatically stated that this "disease picture" is merely that of a lesion of the membranous labyrinth or eighth cranial nerve. It would be preferable to discard the term altogether, since the pathological conditions which may give rise to Ménière's symptoms are legion. Thus variations in labyrinthine pressure, or excessive movements of the labyrinthine fluid, electrical stimulation, vascular congestion or anæmia, hæmorrhage into the labyrinth (in caisson disease, traumatism, bleeding diseases, arterio-sclerosis, the exanthemata, &c.), acute or chronic inflammatory conditions, neuritis of the auditory nerve, degeneration of the same, tumours, neuroses, &c.—such are

some of the factors producing the condition. As ultimately a pathological classification is the only scientific one, and until our knowledge of the anral labyrinth in disease is more complete, we should adopt the suggestion of the authors and speak of Ménière's symptoms rather than Ménière's disease. It is an interesting fact that almost all the cases of sudden occurrence of Ménière's symptoms in which a microscopic examination of the inner ear has been made have been cases of leukæmia; the case here referred to, however, was non-leukæmic. The patient was a pier-master, aged 65 years, who, on Dec. 1st, 1907, had a long day of exposure to cold on the pier, but went to bed at night feeling quite well. The following morning he woke up suffering from extreme giddiness and from deafness and noises in the left ear; the left side of his face was paralysed, but no history of vomiting was forthcoming. While in bed he felt as if surrounding objects were moving round him, and when he did get up he had to hold on to various articles of furniture in order to get about the house. He tended to fall to the right side, the side opposite to the ear lesion. The diagnosis was made of neuritis of facial and auditory nerves in the internal anditory meatus; hæmorrhage in this situation was also mentioned as a possible cause of the symptoms. There was no evidence of middle-ear disease, and the sense of taste was retained on the tongue; further, herpes auricularis was not present. The patient died suddenly from syncope some months later. The left inner ear and facial and auditory nerves were subjected to a painstaking and detailed examination. Briefly summed up, the condition was as follows: The inner ear was almost normal; the membranous labyrinth also was almost normal; there was no hæmorrhage in the endo- or peri-lymphatic spaces of the cochlea, vestibula, or canals. In the internal auditory meatns there was a considerable amount of hæmorrhage between the epineurium and the seventh and eighth nerves: this was most marked above the former. There was no hæmorrhage between the dura mater and the epineurium. The vessels in the meatus were markedly thickened and the muscular coat had undergone a hyaline change. The hæmorrhage did not extend into the Fallopian canal and did not therefore affect the geniculate ganglion.

THE COLD BATH IN THE PREVENTION AND TREATMENT OF INFANTILE CONVULSIONS.

IN the *South African Medical Record* recently Mr. M. G. Pearson has brought forward a new view of the pathogenesis and treatment of infantile convulsions. He rightly points out that the long list of causes of convulsions given in the text-books, ranging from teething and worms to epilepsy and astigmatism, are not causes. Putting aside gross brain disease such as meningitis, Mr. Pearson finds that in all cases of convulsions a high temperature precedes the fit or is present at its onset. The convulsions, therefore, cannot be the cause of the pyrexia. Either the pyrexia is the cause of the convulsions or they both result from a common cause. That the former alternative is true is suggested by the fact that by experimentally raising the temperature of animals convulsions are induced, and by Mr. Pearson's experience that by keeping down the temperature of children convulsions can be prevented, or, when they have occurred, can be cut short by reducing the temperature. So certain has he become of this that he tells the parents of acutely ill infants that they need not have much fear of convulsions with a temperature under 102° F., that above 103°, no matter what the illness, there is a considerable chance of convulsions, and that it is for them to watch the temperature by means of a thermometer, and lower it if necessary by cold baths. He compares convulsions to the boiling over of a kettle; they are produced and can be prevented in the same way. Among the cases given to prove this thesis are the following. A boy, aged 4 years, had a deep abscess in the neck. When seen he was unconscious, rigid, twitching, almost pulseless. The rectal temperature was 107°, and he was apparently on the point of death. He was put into a cold bath containing ice. After seven minutes the temperature had risen to 108°. It then began to fall rapidly; in 12 minutes it was 106°, his limbs were relaxed, and he began to look around. He was taken from the bath and kept nearly naked on the bed with a wall of canisters of ice around him for over an hour. A quarter of an hour after the beginning of the bath he was perfectly conscious. The abscess was cut down upon, but pus could not be obtained. In the evening the temperature rose to 105° and his hands and arms began to twitch. His father at once put him into an iced bath. The temperature fell and the twitching stopped. A few hours later pus burst through the incision and the trouble ended. A preliminary rise of temperature after putting the child into the cold bath was observed in other cases. It shows that a short bath is useless. The duration of the bath must be regulated by the thermometer in the rectum. But it should be remembered that once the temperature has begun to fall it will continue to do so. In another case, a boy, aged 5 years, had whooping-cough with bronchitis. While in bed his hands began to twitch and his eyes became fixed. The temperature was found to be 103°. The bed-clothes were removed and he was left with no covering except thin pyjamas. Almost directly the twitching ceased and in an hour the temperature fell to 101°. Mr. Pearson thus traverses the current treatment of convulsions by the warm bath and holds that "to put a feverish child into a bath, say, 10° hotter than itself can only increase the pyrexia, even though cold be applied to the head." The extent to which a hot bath will raise the temperature, even of a healthy person, is not generally realised. In his own case Mr. Pearson finds that a bath of 106° will raise his temperature 3·5° in a quarter of an hour, and in the case of his son, aged 8 years, the same result is obtained in half the time. If, however, the bath used for convulsions is only warm, as some direct, it will, he thinks, do less harm than a hot bath, and the snbsequent exposure in drying will cause some loss of heat. The colder the bath the quicker it will reduce the temperature; shock may have to be considered and the bath gradually cooled, but in an urgent case there should be no delay. Such are the author's conclnsions, and the matter is one upon which the experience of others is invited.

THE WORK OF THE GLASGOW PARISH COUNCIL.

WE have received two interesting pamphlets compiled by the authority of the Glasgow parish council, the first containing the statistical report of its inspector of the poor for the half year ending May 16th, to which are appended reports by the poorhouse medical officer and the medical superintendents of the parish hospitals; and the second being a supplementary report by the inspector of the poor upon the work done by the council under the Children Act, 1908. The statistics strike us as commendably complete and as supplying facts and figures relating to a wide variety of subjects, with regard to which the exchange of information between local authorities shonld be extremely useful. This is likely to be the case more particularly where the working of a new Act of Parliament is concerned, and when the task of administering it is necessarily more or less experimental. An example occurs in the reports before us, which shows

that the Children Act is a measure the ultimate effect of which must depend entirely upon the spirit in which it is carried out by local authorities. We refer to the powers given by Parts I. and II. for the protection of infant life and the prevention of cruelty to children and young persons. In carrying out the provisions of Part I. the attention of the parish council of Glasgow has been particularly directed to the misdeeds of a class of midwives whose business consists in conducting maternity homes where women can be delivered of their illegitimate children in secrecy, and where the infants are got rid of in circumstances which certainly justify the vigilance of the council. It has not taken that authority or the keepers of these "homes" long to discover the weak places of the new Act. The notice which now must be given to the local authority when any child is adopted for reward is not ordered when it is received without payment, and apparently there is a sufficient supply of persons willing so to undertake the care of children. The midwife who acts as a broker or agent receives a fee for so doing and for maintaining the child while it awaits its foster parents, but in the first place the statutory notice need not be given when the child is kept for less than 48 hours, and the midwives in question do not break the law if they have foster parents in readiness and hand over the child within two days of its birth or of its reception into their houses. Such children are not always born on the premises kept by the midwives, who supplement this branch of their business by advertising for infants and by obtaining them from anyone who may reply either in their own neighbourhood or elsewhere. We may point out also, although the inspector of the poor of Glasgow does not refer to it, that when the parent deals directly with the foster parent the fact of a payment having been made at the time of adoption is naturally less easily and certainly concealed than in the case of the professional agent and the foster parent, both of whom are interested in preserving secrecy and in refusing to reply to inquiries. The Glasgow council, we learn, has found it possible to prove the retention of a child by a midwife for two months while awaiting adoption, and yet to fail in convicting under the Act. In the instance cited the midwife's advocate set up the defence that the fee she had received was in respect of attendance bestowed upon the mother in childbirth, and not for the maintenance of the infant, a view which the sheriff accepted to the extent that he found the charge "not proven." The Glasgow council is, however, to be congratulated upon an excellent plan adopted by its inspector of the poor for checking a traffic in infants which is known to result in their being adopted by persons unfit to have charge of them, and in their becoming eventually in many instances a burden upon the parish. About three years ago the inspector arranged with the managers of the Glasgow newspapers and of the *Scotsman* that before inserting any advertisement by persons desirous of nursing or adopting infants they should obtain from them references as to their character and suitability from the inspector of the poor in whose parish they might reside. This course has been adopted with such success in Glasgow that the Local Government Board, to whom it was communicated, has taken the matter up, and the willing acquiescence of all respectable newspapers renders the operations of baby-farmers of the class described far more difficult than formerly. Strangely enough, the only difficulty that occurred seems to have been the refusal of inspectors of poor in some parishes to supply the references asked for on the ground that it formed no part of their duty to do so. It is to be hoped that their refusal has by now been brought before the councils to which they are responsible, and that their reluctance to assist has been overcome. The Glasgow council has amplified its policy in this respect by encouraging persons offering infants for adoption to refer to its inspector, who is able to advise them against undesirable localities and guardians. Outside this class of case the report gives several instances of cruelty perpetrated upon children by persons who have adopted them in return for substantial fees, where the offenders have been dealt with with varying success, including one in which not only had children been horribly neglected in a house devoid of all furniture, but blackmail had also been levied on an unfortunate mother to the extent of over £80. We note that at first the Glasgow council found a difficulty in bringing home to the class concerned the new law as to giving notice with regard to adoption. This difficulty seems now to have been overcome, for the notices given to the council have risen from 482 in November, 1909, affecting 552 infants, to 731 in the period under review, affecting 864 infants. The council is thus able to report the development of a better sense of duty towards adopted children, a satisfactory state of affairs which we hope will be maintained.

THE MEDICAL COLLEGES OF CANADA.

A FREQUENT Canadian correspondent writes:—"Five years ago, through the munificence of Mr. Andrew Carnegie, there was inaugurated in New York City the Carnegie Foundation. In the hands of trustees was placed an endowment fund of several million dollars to be expended for the benefit of teachers in the colleges of the United States, Canada, and Newfoundland. Bulletin No. 4 of the Foundation has just been issued, and treats of medical education in the United States and Canada in an interesting manner. At first there was no little opposition from some institutions which questioned the right of such an agency as the Carnegie Foundation to collect and publish facts and observations concerning them; objections were gradually overcome and the medical schools generally accepted the position. Indeed, they adopted the views of the Foundation and seconded its efforts, affording every facility for the Foundation to learn the opportunities and resources of the different schools. It is reasonable, therefore, to infer that the facts as published relating to the medical schools of Canada are absolutely true, while the conclusions deduced may be regarded as in the main correct. It is no news to the medical profession throughout the Dominion of Canada that some of its medical colleges do not come up to the standards and requirements of the Carnegie Foundation. This feeling was especially strong some six or seven years ago when amalgamation of Trinity Medical College, Toronto, with the Medical Faculty of the University of Toronto, the provincial university, was consummated. It was generally held that some of the smaller colleges, especially in Ontario, would do well to throw in their lot with the two larger institutions, and Professor William Osler expressed the hope that this would be brought about. But it must be remembered that in a young, sparsely-populated country like Canada denominational and local prejudices have been as rampant as commercial and material instincts. Also our colleges, hampered by insufficient income, have necessarily been manned by men who in large part had to earn a livelihood through the medium of their private practices. Earnest and diligent, hopeful, but lacking encouragement, these teachers probably accomplished as much good under prevailing circumstances as any similar body of men could do. Times and conditions, however, change and are changing rapidly in this new country; and now comes the report of the Carnegie Foundation, congratulatory concerning some of our medical schools and derogatory of others. The population of the Dominion of

Canada is put down at 6,945,228; the number of physicians, 6736—a ratio of 1 to 1030; the number of medical schools, 8. The attendance at these colleges is as follows: Queen's (Kingston), 208—teaching staff, 38; Western (London), 104—teaching staff, 20; Toronto, 592—staff, 68; McGill (Montreal), 328—staff, 99; Laval (Montreal), 217—staff, 8; Laval (Quebec), 92—staff, 22; Manitoba (Winnipeg), 115—staff, 41; Halifax, 63—staff, 23. Toronto and McGill are labelled excellent in the report; Toronto is said to have practically reached its level of efficiency, but McGill and Manitoba are held to be capable of considerable expansion. Queen's and Manitoba are said to represent a distinct effort towards higher ideals. But the Western school is described as being as bad as anything in the United States; this description is, however, on the face of it, unfair and overdrawn, as there are, or have been, colleges in the United States which made no pretence to teach, but sold their diplomas or degrees for a price. Laval and Halifax are reported to be feeble schools. All the faculties, except the Western, require a five-year course. The needs of the Dominion of Canada respecting medical schools could, it appears, be very well served by Toronto, McGill, Manitoba, and Laval at Montreal amalgamated with Laval at Quebec. The Western at London and Queen's at Kingston might be made to serve as feeding grounds for the large medical faculty of the provincial University of Toronto, where the McMaster University now and again coquets with the idea of a medical faculty. Years ago medical men of the provinces of Nova Scotia, New Brunswick, and Prince Edward Island were mostly educated at Harvard and other universities of the United States. Practically none is now. There is, though, a strong feeling in the maritime provinces for McGill; and if, in addition to the other modifications suggested, the Halifax Medical College became a preparatory school for McGill, ideals so far as medical colleges are concerned in the Dominion of Canada would be about reached, speaking for the country on the basis of its present population." Our correspondent, however, recognises that, as the West develops and expands, some day in the not very distant future there will be established a medical college in either Vancouver or Victoria. It will also be seen by reference to the letter from our United States correspondent[1] that the universities of the United States have received the reports of the Carnegie Foundation with very mixed feelings, and that in some instances legal proceedings are spoken of by the criticised institutions.

ST. MARYLEBONE WORKHOUSE INFIRMARY: THE WORK OF MR. J. R. LUNN.

AT their last board meeting the guardians of the poor of St. Marylebone parish paid to Mr. J. R. Lunn the unusual compliment of unanimously voting that he should receive from the Local Government Board the maximum superannuation allowance to which he is entitled, thus raising his retiring pension to £495 per annum. This was moved, partly on the grounds of the excellent service rendered by him as medical superintendent of the infirmary during the last 29 years, and partly in sympathy with the illnesses contracted by him in discharge of his duties. During his term of office the annual number of patients admitted to the infirmary had risen from 2273 to 2855, while the surgical operations have increased at least three-fold. In 1889, when statistics in this institution were first accurately made, 128 operations were performed, of which 30 were major operations, while in 1909 the operations were 386 in number, of which 79 were major operations. During the first four months of 1910 the number of operations has already exceeded those performed in the whole year of 1889. The surgical work was originally carried on under very difficult circumstances, with a very restricted supply of instruments, and operations had to be performed in the common day room or in one of the wards, but since 1902 a well-equipped operating theatre has been provided and all necessary appliances. This infirmary was truly the early pioneer of separate infirmaries, apart from workhouses, and every endeavour has been made to raise the staff of skilful, trained nurses on the lines of the best general hospitals. The reputation of the training school for nurses, which is a branch of the Nightingale Home, may now almost be said to be international, for Germany, Switzerland, and Norway have all sent representatives to be trained there. The physicians who conduct the official examination of the 64 nurses twice a year have often expressed themselves as highly pleased with the proficiency of the candidates. Every effort has been made to carry out the open-air treatment for tuberculous patients and to separate the phthisical from other patients, and the existing arrangements have lately been inspected and praised by the Local Government Board. Among other reforms which have been initiated during Mr. Lunn's tenure of office, attention may be drawn to the daily examination of the milk-supply, which has consequently improved in value; to the reconstruction of the receiving rooms, where every patient is examined before being sent to the wards; and to the mortuary, which has been removed from the main building and neighbourhood of the milk- and meat-supplies to a separate building, where there is also now a bacteriological laboratory. A late return of the Local Government Board, comparing the expenditure of 26 infirmaries, shows that the cost of this institution represents the average expenditure of all of them. It will be remembered that Mr. Lunn was lately the recipient of the honorary diploma of F.R.C.S. Eng. It is, we believe, the first time that the honorary Fellowship has been conferred on a Poor-law medical officer, while it is interesting to recall that a similar honour was paid to the father of Mr. Lunn, once a well-known surgeon in Yorkshire.

[1] THE LANCET, July 9th, p. 137.

THE PATHOLOGY OF TYPHUS FEVER.

AN outbreak of typhus fever in a certain district in Tunis has afforded an opportunity for some interesting pathological researches by M. Charles Nicolle, which are published in the *Annales de l'Institut Pasteur* of April 25th. He has succeeded in communicating the disease to certain monkeys, all previous attempts in this direction having failed, so that hitherto typhus fever has been regarded as a disease entirely special to man. The way is therefore now opened for an experimental study of this disease and for the discovery of the causal agent. M. Nicolle's observations are of sufficient importance to merit some brief description. His first attempt was made with Macacus cynomolgus. A cubic centimetre of the blood from a typical case of the disease, removed on the fifth day, was injected under the skin of the animal at the bedside of the patient. The result was entirely negative, even the temperature curve of the animal being unaffected. A similar negative result was obtained with a Chinese bonnet monkey (Macacus sinicus). With a young chimpanzee, however, he succeeded in transmitting the disease by inoculation of 1 cubic centimetre of blood from a case of typhus fever on the third day of the disease. After an incubation period of 24 days a typical attack of typhus fever occurred with a febrile period of seven days. A rash occurred on the face and behind the ears. M. Nicolle then inoculated a bonnet monkey with the blood of this chimpanzee in order to determine whether passage of the virus through an anthropoid would increase its virulence for the macaque, a surmise which proved to be correct, since the bonnet monkey developed the disease after an incubation

period of 13 days. In collaboration with M. A. Conor some further investigations were carried out. Another bonnet monkey developed the disease 14 days after inoculation with blood taken from the first one on the second day of the disease. A third after a similar inoculation developed the disease on the same day—that is to say, without any incubation period. Further experiments with this bonnet monkey virus showed that other macaques, such as the Macacus cynomolgus, Macacus rhesus, and Macacus inuus, possess an immunity against the virus from the bonnet monkey. The dog and the white rat also proved to be immune. Human blood withdrawn from a patient not suffering from typhus fever has no immunising power for the Chinese bonnet monkey, but, on the other hand, blood from a patient with typhus fever appears to confer immunity against subsequent infection with virus from the bonnet monkey. Some further experiments also showed that the serum of a bonnet monkey convalescent from typhus fever possesses a definite toxicity, causing a rise of temperature when injected into other monkeys. This fact is of some importance, since it has been suggested that the serum of convalescent cases of typhus fever should be used in the treatment of the disease, a procedure which, according to these experiments of M. Nicolle, is not devoid of danger. Some interesting observations were also made, in conjunction with M. C. Comte and M. E. Conseil, demonstrating that the human body louse (pediculus corporis vel vestimentorum) can be an agent in the dissemination of the disease. It is well known that the disease flourishes most in conditions of overcrowding, poverty, and dirt, and in Tunis many circumstances pointed to the body louse as a means of infection. It was found that these parasites, contrary to the statements often made, feed upon blood and not upon epithelial débris, and also that they could live upon macaques as well as upon the human subject. Some of these parasites collected from healthy men were allowed to feed upon one of the bonnet monkeys on the third day of its infection with typhus fever, and were subsequently allowed to bite two other monkeys of the same species, both of which developed the disease. These results indicate what steps should be taken to prevent the spread of the disease in subsequent epidemics. M. Nicolle also made some interesting observations in collaboration with M. E. Jaeggy upon the blood in the experimental disease in monkeys. They found a necrosis of the polymorphonuclear neutrophiles more or less in proportion to the intensity of the disease. There was also an increase in the total number of leucocytes towards the end of the incubation period, a diminution during the disease with a relative increase in lymphocytes, and an accompanying myelocytic reaction.

CLEAN MEAT.

WE have more than once referred to the objectionable custom of many of our tradespeople of exposing articles for sale to the obvious contaminations of the street. In an appreciatory letter which a correspondent has been good enough to write to us in regard to our attitude on kindred questions, and particularly our recent plea for washing the strawberry, he points out how inconsistent the English people are in regard to sanitary observance. While we wash our bodies scrupulously, he says, and while we are careful to adopt only the most exacting sanitary precautions in our homes, we apparently exhibit no concern in regard to the treatment to which some of our food-supplies are exposed. This is true, and the most forcible example is meat, although we have complained again and again of the careless way in which bread is brought to our doors from the bakers. It is a matter of common observation that most English butchers hang the carcass or joints cut from it outside their shops in the streets. The object of this procedure is not clear unless it be to make a great show of stock, implying that the business is a well-patronised one, or it may be that in some way or other an "airing" seasons the meat and makes it tender. But it is by no means necessary that the "hung" meat should be exposed to street contaminations. It is not difficult to comprehend that street contaminations are a fact, having regard to the befoulment of the road by the horse and to the stirring up of this befoulment by rapid motor traffic passing over it. This exposure of meat in the street is apparently not allowed in many continental countries, and it seems to us that a similar prohibition should be in force in this country. It is probable, of course, that cooking would kill germs attached to the surface of a joint, but the boiling and roasting process is not necessarily an absolute safeguard, since germs which have found their way to the interior have been shown to survive cooking. The superiority of English meat as regards flavour and tenderness is due probably to the superior quality of English pasture, but considerable tone is given to it by judicious airing or "hanging." But let us have our meat clean. The fine quality of English meat has no connexion with its exposure to street impurities.

SUBCUTANEOUS INJECTIONS OF NATURAL MINERAL WATERS.

THE theory of the ionisation of inorganic salts in solution and its application to pharmacology have been fruitful in explaining the action of some of these substances when introduced into the animal economy. The interesting observations carried out some years ago by Dr. Sidney Ringer upon the importance of certain mineral salts for the maintenance of life and protoplasmic activity have become classical. He showed that in solutions of sodium chloride of the same strength as sea-water small marine organisms quickly died, whereas they survived if small quantities of calcium chloride and potassium chloride were added. By similar experiments with fish, tadpoles, ciliated organisms and cells, skeletal and heart muscle, he demonstrated the importance of these salts to living organisms in general. In the light of these observations and of the activity of ions pharmacologically it is not surprising that special attention has been directed to the mineral constituents of natural mineral waters and to artificial combinations of similar salines. Dr. C. Fleig of Montpellier has recently recorded observations upon the results following subcutaneous injections of natural mineral waters, and although he may perhaps be unduly sanguine of the value of his method, his work is of sufficient interest to merit notice. Dr. Fleig prefers to use the mineral water, if it come from a spring under aseptic conditions, without sterilisation, but if this process is essential he recommends filtration at a low temperature through a Chamberland filter under pressure. If the water has to be kept it should be preserved in sealed flasks made of yellow or red glass. Natural mineral waters may be hypotonic, isotonic, or hypertonic, as compared with blood plasma, and to render them isotonic dilution may be necessary for hypertonic waters, or the addition of sodium chloride, sea-water, or sugar for hypotonic waters. Dr. Fleig describes the results of his experimental investigation of mineral waters on injection into the veins or subcutaneously, and states that any mineral water can be used for this purpose in large quantity without any toxic or unpleasant effects, and, indeed, he affirms that they are even less toxic than normal saline solution, and that they may be used with benefit after severe or repeated hæmorrhages. He also found that many mineral waters at a suitable state of molecular concentration are capable of preserving the excitability of various excised organs and tissues to a greater degree than

normal saline solution. From a therapeutical point of view he maintains that they are useful in all conditions where injections of normal saline solution or of isotonic sea-water are employed. He also suggests that waters of special composition may prove to be of increased value in the treatment of diseases for which they are already employed by the ordinary methods if they can be given by injection. He is further of opinion that some useful investigations on similar lines to his own might be carried on at some of the springs, using fresh or "living" water in place of the water such as he has employed, which has had to travel from the spring. The superiority of mineral waters over normal saline solution Dr. Fleig attributes to their complex mineralisation, and particularly to the presence of ions such as calcium. Although he gives an imposing list of conditions in which he has tried them he admits that great discrimination must be exercised in their use, and that they cannot be regarded as substitutes for other methods of treatment.

THE LACK OF WARMTH.

ANOTHER week of the cold and often rainy weather which has characterised the present inglorious summer finished with Saturday last, the temperature being even more extraordinary in its lack of seasonable warmth than during the week preceding, and the allowance of sunshine even more meagre over a large portion of the country. In London the mean warmth of the afternoons was only 62°, a figure about 11° below the average for the time of year, while a similar condition was general over practically the whole of England away from the coast. On Saturday the temperature during the greater part of the afternoon was only 54°—a figure about 20° too low for the season. On the coast, where, as a rule, the summer heat of the daytime is less than it is inland, the divergence from the average was not so great, although it was sufficiently large to be called abnormal. The lack of sunshine is, perhaps, more regrettable from the point of view of health than the absence of the normal degree of warmth, especially in the large centres of population, where it was naturally most marked. In London the official observations of the Meteorological Office, taken at Westminster, showed no more than 16¼ hours, or about 2¼ hours per day, much of which was recorded very early in the morning. An average July gives nearly 6 hours, and a bright one 8 or 9 hours per day. At Manchester a similar state of affairs prevailed, and the large cities of central England were scarcely more highly favoured. All sorts of theories have, as usual, been advanced to account for the general chilliness in these islands and a considerable part of the continent. According to some would-be authorities the comet is the culprit, while others attribute it to the increased employment of wireless telegraphy, without, however, offering a scrap of proof. There are, again, others who declare, conveniently forgetting all the fine warm summers that the last 20 years or so have supplied, that every summer is bad nowadays and that the climate has changed. The climate has doubtless changed since the time of the ancient Britons, for when the greater part of the country was covered with forest it is pretty certain that the weather was more rainy throughout the year, with a lower average temperature in summer than in modern times, and a somewhat higher one in winter. The carefully kept records of the past 40 years or so, however, prove that during that period there have been many cold and wet summers, as well as many fine and bright ones. Some were much wetter than the present has been so far, notably that of 1879 and that of 1903—only seven years ago. In the former year wireless telegraphy was bnt a dream, and in the latter it scarcely existed in practice. And as for the winters, there is no actual trustworthy record of such a continuously severe one as that of 1894–95. In the old days, about a hundred years ago, it is very probable that the Thames was frozen over in London, but before the building of the embankments, with no steam tugs ploughing the water, and relatively few barges and lighters on the river, such an occurrence was possible with a much less severe frost than would be necessary with the altered conditions of to-day. It is, as a matter of fact, trne to-day as it has always been, that the climate of both summer and winter depends, in the main, on the relative positions and intensities of the high and low centres of atmospheric pressure, which is only another way of stating that it depends on the direction and strength of the main wind current. With a current of air coming, generally at a very brisk rate, from some point of the compass between west and north-west, and occasionally from north, as has obtained this year, the weather cannot be other than cool during summer, although not necessarily wet. But when, in addition, the centres of the cyclonic systems, whether large or small, travel directly over the kingdom or in its close proximity, as they have done of late, the general condition cannot fail to be more or less rainy. A warm or hot and bright summer is always accompanied by a higher average level of the barometer than a cold and wet one, and whenever this country experiences a very warm, dry spell, it can be taken for granted that it is under an anticyclonic *régime*. All the recognised meteorological anthorities are agreed that the cause of such weather as that recently experienced is the unusual pressure distribution, but why the unusual condition should exist appears to be still an absolute mystery. There were evidences on Tuesday last of the beginning of a gradual change, the barometer started to rise, the wind shifted from its lately persistent quarter, the north-west, and veered to the eastward. There has evidently been a meeting of warm wet winds from the west and a cold downward current from the north, and the result has been a condensation or mist in the morning which had to yield to the sun. On Thursday the south-easterly wind promised to prevail, and with a steady glass we may look with confidence to a spell of summer weather.

THE POSSIBILITY OF TRAUMATIC TABES DORSALIS.

IN *L'Encéphale* for March, 1910, Dr. Ladame of Geneva has published an interesting article *àpropos* of a case of apparent traumatic tabes dorsalis which has come under his observation. Following on a severe railway accident, which cost the lives of several individuals in the same compartment as himself, a healthy married man, aged 52 years, developed all the characteristic symptoms of a profound traumatic neurosis. On the day after the accident medical examination of the patient revealed extensive bruises, a particularly severe contusion of the lumbar region, and general commotio cerebrospinalis. Immediately after the accident the patient had been unconscious for a short time; thereafter he had wandered about in a subconscious state for several honrs. Headache, vertigo, insomnia, pains in the back, incapacity for work, extreme feeling of fatigne—in short, all the symptoms of traumatic neurasthenia—continued for a long time with varying intensity. Finally, they commenced gradually to disappear. A few months after the accident it was discovered that he was beginning to show signs of tabes dorsalis. The sign of Argyll Robertson, which had not been noted dnring the weeks subsequent to the accident, made its appearance, while the knee-jerks became gradually more difficult to elicit, and were sometimes abolished. Slight distnrbance of static equilibrium was noticed, and diminution of deep sensibility became apparent, more particnlarly on the left side. The qnestion at once suggests itself: Is

there any relation of cause and effect between the accident and the tabetic symptoms? The importance of the subject in these days of litigation can scarcely be under-estimated. In former times traumatic tabes was not considered so unlikely as it has been since the work of Erb and Fonrnier; in fact, it may be stated that the opinion is almost universal that syphilis is the *causa causans* of tabes dorsalis. The sole episode of any significance in the history of the patient of Dr. Ladame was a slight attack of gonorrhœa 35 years before, but in spite of the apparent absence of syphilitic infection, it is necessary that all venereal incidents be excluded before one can prove tranmatism to be the unique cause of a case of locomotor ataxia. It remains probable, then, that syphilitic infection cannot be set aside in the present instance. The no less important qnestion arises: Has the railway accident been the exciting cause of a tabes which would otherwise have remained latent? This is a possibility which in view of present knowledge can neither be affirmed nor denied, nor is much light thrown on the snbject from pathological, experimental, or clinical considerations. In the classical monograph of Hitzig on traumatic tabes he remarks that apparent cases of that condition ought not to be passed over in silence, and supposes that traumatism may somehow develop a toxin more or less identical in its action with that of syphilis. In only three of his cases, however, did tabetic symptoms follow a general nervons system shock, and pathologically the changes in the spinal cord were not entirely typical of tabes. The idea that traumatic tabes always affects some part regionally related to the injury cannot be sustained, according to Flechsig, who in the whole medical literature bearing on the snbject found but two or three cases where a tabes said to be the resnlt of injury to the head began with ocular symptoms. The well-known theory of Edinger that the site of organic nervous disease is determined by preceding functional exhaustion receives some support from experiments in which rats have been rendered "tabetic" by extreme muscular fatigue, bnt it cannot be said that the lesions found in their cords were entirely similar to those of tabes. Clinically, the difficulties in the way of solving the problem are great. The appearance of tabetic symptoms in an injured limb simply represents the pathological reaction of an injured part whose resistance is lowered. Fortunately, there is another aspect of the matter besides that which it is the work of scientific medicine to attempt to decide. The physician in compensation cases is more concerned with the degree to which the accident may have aggravated the symptoms of a tabetic or potential tabetic, and with the prognosis of the case. These are questions relatively mnch more simple than the problem to which allusion has been made. From the point of view of statistics it is worth noting that in a series of 1500 accident cases in which Professor Mendel of Berlin was called on for an expert opinion, tabes was diagnosed 11 times, but of these 11 only one patient had shown no symptoms before the accident, and in his case syphilitic infection was probable.

"SURNATATION" AND THE AVOIRDUPOIS OF THE SOUL.

A PLEASANT writer has described how, in schoolboy days, when he was fishing from some neglected jetty, he was horribly startled at the sudden gurgling upheaval from the deep green water in front of him of a long-drowned sailor, covered with seaweed and embrowned past recognition after an immersion of many days' duration. The *surnatation*, as the French medical legists call it, of the drowned has long pnzzled the cnrious. That the drowned grow lighter after a lapse of days seems certain, though donbt has recently been thrown in these columns on the sudden lightening of the corpse on dry land immediately after death. We are not here concerned with the unctuous indecency of those who weigh a man in the article of death, and keep him on the scales, like a sack of merchandise, while the breath retires in gasps from his wasted frame. That inquiry after all is an ancient one, though it has been left to a transatlantic quidnunc to revive it as something novel. The qnestion of *surnatation* is undoubtedly ancient, too, but its examination involves no breach of good taste and has been little attempted. In his Montpellier thesis, "Contribntion à l'Étude de la Submersion de la Surnatation" (1906), Dr. Antonin Rouit has discussed the matter exhaustively. He agrees with his predecessors, notably Devergie, that the gases engendered by putrefaction tend to lighten the corpse until it rises to the surface. The putrefactive process is conditioned by the temperature of the water. In winter, for instance, this process is retarded and a body is slow in rising. In summer, on the other hand, and when the water is warm, a corpse rises to the surface in a very few days. Clothes, according to Dr. Rouit, play a great part in prevcnting the putrefactive process. He is no believer in the water-logging of the corpse. He has examined the drowned repeatedly and does not find water in the stomach or in the middle ear, though the bronchial tubes may be full of it. M. Rouit has occasion to quote Orfila repeatedly, but he is himself perhaps the chief authority on this strange and grisly subject. His thesis is a distinguished contribution to the huge sum of medical literature, almost always enriched with valuable bibliographies, published annually by the ancient Arabist University of Montpellier. In view of his researches, may we not suggest that the lightening of the corpse just after death, in normal circumstances on dry land, is due to the action of premature putrefaction, to what the old poets called the "beginnings of decay"? Twelve onnces or so is the amount of that lightening, and, apart from any theory of putrefaction, the wise old women who take delight in doing the proper thing when there is a death in the house—how they fly to rake out the fire for some tribal reason known only to themselves!—would tell us that several ounces, the exact figure being a matter of question, represent the weight of the last loss—to them a mysterious and abiding theme of discussion. The cannibal connects it with the smell of blood, with the sputum, and with any excrementitious matter. We may despise the cannibal, but he is our ancestor. A frequent writer in these columns has recoided that in early youth he believed the soul to be a dim grey oval thing, like a bladder or balloon, that had to find room somewhere inside him between the stomach and the lungs. A recent writer to the *British Medical Journal* refers to some half-dozen kinds of souls, from psyche onwards, misunderstood by many, but all such as the general practitioner must take into account in his daily round when dealing with "Healing by Faith"—faith in the medical man, presumably. Cruden's "Concordance" helps us not at all. "This word in Scripture," says Cruden, "especially in the style of the Hebrews, is very equivocal." What is the soul, and how shall it be weighed?

THE following is the list of officers and other members of council of the Royal Society of Medicine who have been elected at the annual general meeting for the society's year beginning on Oct. 1st next:—President: Sir Henry Morris, Bart. Honorary treasurers: Sir William Selby Church, Bart., and Sir Francis H. Champneys, Bart. Honorary librarians: Mr. Rickman J. Godlee and Dr. Norman Moore. Honorary secretaries: Dr. Arthur Latham and Mr. Herbert S. Pendlebury. Other members of council: Sir William Allchin, Dr. W. P. Herringham, Mr. H. T. Butlin,

Mr. D'Arcy Power, Dr. R. A. Gibbons, Dr. H. D. Rolleston, Mr. J. Warrington Haward, Mr. Charters J. Symonds, and Mr. E. F. White.

AMONG the recipients of the Civil List Pensions recently granted three names occur of great interest to the medical profession—viz., Mr. Thomas Bryant, Mrs. Mary Louisa Gamgee, and Miss Helena Stormont Murphy. Upon Mr. Bryant's eminent service to surgery there is no need for us to say a word; Mrs. Gamgee is the wife of the late Professor Arthur Gamgee, the famous physiologist and physiological chemist; while Miss Murphy is the daughter of the late Professor Edward William Murphy, who did valuable work in investigating the use of chloroform.

Dr. Dawson Williams, the editor of the *British Medical Journal*, last Saturday met with an accident due to a collision between motor-cars. The injuries which he received might have proved serious, but we are exceedingly glad to say that his progress has been in every way satisfactory.

Sir Alfred Downing Fripp, K.C.V.O., C.B., has been appointed an honorary surgeon-in-ordinary to the King.

BRITISH MEDICAL BENEVOLENT FUND.

AT the June meeting of the committee of the above Fund 21 cases were considered and grants amounting to £153 were made to 16 of the applicants. Appended is an abstract of the cases relieved:—

Widow, aged 62 years, of L.R.C.P., L.R.C.S. Edin. No income and dependent on children who cannot give much help. Voted £5.

Daughter, aged 53 years, of late L.R.C.P., L.S.A. Unable to obtain a situation on account of delicate health, and dependent on the uncertain help of friends. Voted £5

L.S.A., aged 67 years. Qualified late in life, and was obliged to dispose of a practice in London on account of ill-health. Has endeavoured to establish one at a seaside resort, but has exhausted his means, and does not yet cover his expenses. Children only able to give slight help. Voted £10.

Daughter, aged 59 years, of late M.R.C.S., L.S.A. Has maintained herself by teaching for many years, but is no longer able to obtain pupils. Voted £12.

M.R.C.S., L.S.A., aged 70 years. Has suffered from impaired vision for many years and is now nearly blind and quite unable to support himself. Voted £18.

Widow, aged 32 years, of M.D. Lond. Quite unprovided for at recent death of husband and endeavours to support herself by keeping poultry. Three children whom it is hoped to get into institutions. Voted £5.

Daughter, aged 69 years, of late L.R.C.P. Edin. Has been a governess for many years, but now only earns a few shillings a week. Voted £12.

Widow, aged 50 years, of M.B., C.M. Edin. Supplements a very small income by taking boarders, but has had two very bad seasons and is in delicate health. Seven children, aged 19 to 12 years; none at present self-supporting. Relieved 11 times, £126. Voted £12.

Widow, aged 63 years, of L.R.C.P., L.R.C.S. Edin. Is in delicate health and entirely dependent on a daughter who teaches in an elementary school. Relieved three times, £34. Voted £5.

Daughter, aged 67 years, of late M.R.C.S., L.S.A. Supported herself for many years and assisted several younger members of the family by keeping a school, but has been obliged to give it up owing to ill-health and is now practically incapacitated. Relieved once, £12. Voted £12.

Daughter, aged 53 years, of late L.R.C.P. Edin. Is a chronic invalid and dependent on her sisters who can ill afford to help. Relieved five times, £46. Voted £10.

Widow, aged 40 years, of M.R.C.S. Has a situation as a working housekeeper, but requires help for the holiday and other expenses of her two children, one of whom is in very delicate health. Relieved six times, £45. Voted £10.

Daughter, aged 59 years, of late M.R.C.S., L.S.A. Was fairly provided for, but lost everything by lending her capital to a friend on security which proved valueless. Relieved six times, £30. Voted £12.

Widow, aged 60 years, of M.D., M.R.C.S. No income; earns a precarious living by letting lodgings; children unable to help. Relieved six times, £72. Voted £12.

Deserted wife, aged 39 years, of L.R.C.P. Edin. Receives a home in return for services, and is given a little help by two of her children. Asks for a little assistance on behalf of the youngest daughter, who is a candidate for an institution. Relieved twice, £8. Voted £3.

Daughter, aged 54 years, of late M.R.C.S., L.S.A. No income, and unable to undertake laborious or continuous work owing to ill health. Relieved four times, £40. Voted £10.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole-street, London, W.

THE CONFERENCE AT EDINBURGH ON THE PREVENTION OF TUBERCULOSIS.

Annual Meeting of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Edinburgh, July 10th.

I GAVE last week a bird's-eye view of the Conference and propose now to deal more fully with the interesting debates. This will be the easier to do that I am informed that several important contributions to the first day's proceedings will appear this week in full in another part of this issue of THE LANCET.

The Avenues of Infection in Tuberculosis.

Punctually on Monday morning, July 4th, the Conference began its work without any opening ceremony, Professor OSLER, the President, calling upon Professor G. Sims Woodhead to open the discussion upon the Avenues of Infection in Tuberculosis.

Professor SIMS WOODHEAD, who spoke mainly on the dose of infection, commenced by protesting that many experiments have had results read into them which were not justifiable. Clinical and experimental observations differed widely and were not governed by the same general rules. In the experiment the amount of infectious matter would probably be much in excess of that producing disease in the ordinary course, while the minimum dose might produce the disease if absorbed by some susceptible person. The experiment had also been made with animals possessing a greater power of resistance than would be present in tuberculosis naturally incurred. When the bacilli were injected into an animal a large proportion got into the circulating blood, but did not appear to have any appreciable effect on the tissues, and the animal ultimately recovered. If an enormous dose was given, then we might expect tuberculous lesions in various parts of the body. But the human subject was infected by a minimum dose, and this constituted a distinct difference. The presence of tuberculosis in human beings was far more common than was generally believed. Probably more than 90 per cent. of the living had been affected at one time or another in their existence. Almost everyone who had reached the age of 45 years had been attacked. Through what channel? Through the lungs most frequently, through the alimentary canal sometimes. But the lungs, being in constant relation with the outside, gave the bacilli the best chances to enter. In the lungs the bacilli met with conditions that destroyed them if they were not too numerous. In the intestines the mucous membrane differentiated the sort of material that should be allowed to pass into the mesenteric vessels, and if bacilli are present in sufficiently large numbers the lymphatic glands will be affected. It was all a question of the number of parasites. If the intestinal canal were healthy and only a small number of tubercle bacilli are taken in there was no infection.

Professor J. G. ADAMI (Montreal) followed, and pointed out that it was impossible to dogmatise. They knew the numerous roads of infection but could not lay down the mode of infection in any particular case with any confidence. He agreed with Professor Sims Woodhead especially in regard to the unhealthy condition of the mucous membranes as a facilitating cause of tuberculosis. Many accepted medical convictions have proved false recently, so that they must walk warily, but the avenues of disease seemed almost always to be post natal. Infection of the newborn was more frequent than was generally imagined. If young calves were separated from infected mother cows they escaped disease. So also if infants are reared away from their infected mothers they will be spared. The bacilli may be diffused throughout the body and there is no tubercle, yet this blood will set up tuberculosis when injected into an animal. Infection of the tonsils and throat may be due either to infection by foodstuff or respiration, and many cases of infection of the lung have come from the ingestion of infected food. While the evil is localised

in the nose and nowhere else, we may say it comes from inhaling the poison and is a direct infection. But with an old lesion we cannot say what was the road of infection. The Canadian Government had subsidised schools for the children of Red Indians aged from 7 to 14 years. Almost every one of these children was more or less tuberculous before coming to the school, and yet none of these children were fed with cow's milk. They had fairly good health but did not recover readily from colds. The acute symptoms only set in after they left school. He thought they were mostly cases of human infection remaining dormant, and it was now proposed to organise out-of-door classes at the schools for these Red Indian children.

Dr. THEODORE WILLIAMS spoke next, chiefly upon infection through the skin. He pointed out that the classical case of the infection of a nurse's hand because she broke a spittoon at least proved that a wound in the skin could be an avenne of infection. At the Brompton Hospital they took elaborate precautions against such accidents, but, unfortunately, the nurses sometimes neglected to put on the gloves provided, and cases of infection through the skin had occurred. One man, after 20 years' work in the hospital, thought he was safe, neglected to put on gloves when cleaning the spittoons and was infected. He agreed that the intestines as well as the lungs were an avenue of infection. He had a long time ago made many experiments to see if drugs reached the lungs best by inhalation or from the intestines. He had convinced himself that he could not get iodine into the system by inhalation, but its presence could be noted in the urine five minutes after it had been swallowed.

Professor MCWEENEY followed, snpporting the view that the lungs were the chief avenue of infection. The trachea in post-mortem examinations might seem to be infected, but this was probably caused by sputum from the previously infected lung. Rabbits fed on contaminated cabbage leaves had their lungs infected; this was probably due to aspiring the bacilli from the leaves they were eating.

Dr. JAMES RITCHIE said that it was admitted that there was not only one road. He agreed with Professor Woodhead as to the caution necessary in drawing conclusions from experiments, especially with the smaller animals, to determine the question of the avenues of infection in tuberculosis. Except the dog, they were mostly nose breathers, but man, as a talking animal, was obliged to abandon his nasal line of defence. Most men, he thought, were on the borderland of complete immunity, but this was not the case with the smaller animals. Man's susceptibility to tuberculosis could not be compared to theirs. Dr. Ritchie went on to point out that the circulation of the lymph was not analogous to that of the blood. There is a backward and a forward flow of lymph, and this is very important in regard to infection. We have overlooked this physiological aspect of the lymph. If the respiratory pump fills the heart a corresponding suction may occur from the lymphatic glands that surround the lungs. There was no reason why this might not have an important effect in the infection of the lung. In that case, seeing the position of the heart, the infection by this cause was more likely to occur on the right side.

A paper was now read from Professor BARTEL (Vienna), who pointed out that the study of immunity had produced some progress and awakened knowledge of new possibilities of infection, while helping to bring together rival schools. The first localisations of tuberculosis seemed usually to indicate that breathing was the chief road of infection. But the lung conld be infected even by an injection into the bladder. The chief result of recent investigations is that we have to admit our ignorance. Immunisation experiments had demonstrated the importance of predisposition. In spite of continued divergence of opinion as to the road of entrance, there was no difference whatsoever as to the precautions that should be taken. To prevent infection we had to strengthen the body.

Dr. R. W. PHILIP spoke as a clinician and thought that more might have been said from the point of view of observing and studying the patients themselves. He agreed that we had to examine the susceptibility of the mucous membrane, bnt at the same time we must study how far the social life was likely to devitalise the mucous membrane. He had studied the progression of the disease for as long as 15 years in individuals, and he came to the conclusion that the tonsillar region was particularly vulnerable. The mncous surfaces of a child were probably more susceptible than those of an adult. Age provides protection.

Professor TENDELOO (Leyden) sent a paper which was now read. He urged that inherited bacilli might remain dormant for years, but this did not mean that they had no influence on the final result. Primary infection of the lungs was more frequent than that of the intestines, and therefore the spread of the disease was gcnerally due to contagion from man to man, but this did not justify the neglect of other means of infection.

Professor SIMS WOODHEAD, in reply, suggested that latency was not necessary for the argument, seeing how great are the facilities for infection. He did not wish to minimise the danger of food, but that of inhalation was greater. In this country, however, we had more intestinal infection than in China and most other countries of the world. There was much infected material about and we had to see that it was removed from circulation. He agreed with Dr. Ritchie that the aspiration effort might be an important factor to be considered. An undamaged skin resists the passage of infection; if we applied this fact to our consideration of the lining of the intestines we would see why in some cases a very small dose might suffice to spread the disease. As practical sanitarians we had enough information to know what to do, and this included the protection of the alimentary canal.

At the conclusion of the morning sitting all the visitors and many others were entertained to luncheon in the beautiful hall of the Royal College of Physicians of Edinburgh. The President of the College presided and proposed the usual loyal toasts, "The National Association for the Prevention of Tuberculosis," and "The Guests." Lord Balfour of Burleigh, Dr. C. Theodore Williams, and Dr. Hermann M. Biggs responded. The speeches, in so far as they dealt with the main issue before the Conference, were, as the President of the Royal College of Physicians pointed out, to the effect that to-day science has recognised the solidarity of human interests and the consequent necessity of united human endeavour. But there was not time for many or lengthy speeches as the Conference resumed its sitting at 3 in the afternoon.

Preventive Measures and the Administrative Control of Tuberculosis

was the subject set down to be discussed in the afternoon, but it cannot be said that this question was discussed at all. No criticisms were made, no speeches were delivered arising out of papers, but only a long series of papers was read.

The subject was opened by Dr. HERMANN M. BIGGS of New York, who related that during the last 20 years the law courts had never reversed a decision of the Department of Health of New York, now in charge of a population of 4,760,000. In 1881 they began by registering houses in which tuberculous deaths had taken place, and in 1897 compulsory notification was adopted. There was a squad of sanitary police, and they had to face exceptional difficulties. Nowhere in the world was there so dense a population, numbering from 600 to 1000 per acre. In many districts not a word of English could be heard, for there were a million and a half foreigners in New York. Last year 42,000 cases of tnberculosis were notified, of which 28,000 were new cases. Sputum examination was first adopted in 1894, in which year 500 specimens were received. Now the municipal laboratories receive annually about 36,000 specimens. There were 30 tuberculosis cliniques in the city, 16 of them being established by the municipality. Each has a different district assigned. There were medical inspectors and 170 trained nurses engaged in work in the tenement houses. Day camps had been established, and patients who worked during the daytime went to the camp at night, and out-of-door schools were maintained for tuberculous children, and an institution was maintained for children of tuberculous families who might become tuberculous if left in their ordinary surroundings. Patients who were dirty, or who would not, or could not, follow the instructions given them, were forcibly removed to hospitals. The subsidised accommodation for advanced cases was being increased from 2700 to 4500 beds, and a municipal sanatorium was now being erected for 1000 patients. These fignres suffice to show that the existing accommodation is altogether insnfficient. The best part of this paper was that describing the widespread measures taken for the spread of knowledge by the establishment of museums, the holding of lantern lectures, and the distribution of literature in regard to the dangers of infection.

Dr. LESLIE MACKENZIE, of the Scottish Local Government Board, next read a paper upon the Administrative Control of Pulmonary Phthisis in Scotland. (This will he found upon p. 162 of this issue of THE LANCET.)

The Prevention of Tuberculosis in Ireland.

Mr. T. J. STAFFORD, Medical Commissioner of the Local Government Board for Ireland, followed with a description of the system of notification enforced in Ireland. Individual liberty was only interfered with, he said, when the patient had a dangerous discharge and slept or worked in a room with others not so suffering, or when he handled or distributed milk or other food to other persons. The speaker quoted Hansard to show how much opposition there had been to this law and said that legislation could not go faster than the education of the public. Care, he thought, ought to he taken not to discourage voluntary effort. Public departments had to he rigid, and in Ireland they were so poor that their administrative action fell behind that of England or Scotland. But the speaker described in glowing terms thc work done hy the Irish Women's Health Association. Even if we were wrong in regard to our attitude as to the prevention of tuberculosis, he said, we should still have done much to reduce the general death-rate. Thus in Ireland since 1870 some £8,000,000 had been advanced on easy terms to build workmen's dwellings, and there were free grants made in rural districts. This meant from 50,000 to 60,000 new and better cottages for the people. Yet, and in spite of this, before the direct campaign was organised against tuberculosis there was no reduction in this disease. Nevertheless, proper housing was most essential from the general point of view.

Dr. E. W. HOPE, medical officer of health of Liverpool, next read a paper on the Preventive Measures against Tuberculosis adopted in his city (see p. 164).

The Housing Question at Edinburgh.

Dr. A. MAXWELL WILLIAMSON, medical officer of health of Edinhurgh, next read a paper in which he pointed out the necessity of selecting sympathetic officers who did not apply cast-iron methods. The victims of tnberculosis were freqnently poor people, and in Edinburgh 93 per cent. of the cases lived in tenements of four or fewer rooms; 60 per cent. of the cases lived in one- or two-roomed tenements. The poor suffered out of all proportion, and methods neglecting the honsing question were sure to fail. Families cannot in safety live in one or two rooms, especially if they are damp or hadly lighted. Snch places must be ruthlessly closed. They had closed recently 340 such houses in Edinburgh. Then the poor so frequently removed from house to house that they infected many dwellings. Therefore notification of tuberculosis must, he considered, be obligatory and followed by disinfection after each removal of a patient. Last year 560 houses were so disinfected in Edinburgh. The local authorities must provide hospitals for isolation; one-fifth of the deaths occurred in the Edinhnrgh hospitals. They needed more accommodation.

Dr. H. SCURFIELD, medical officer of health of Sheffield, read a paper on the Administrative Control of Tuhercnlosis in Sheffield (see p. 166).

Sisterhoods and Tuberculosis.

Professor ADAMI gave a short acconnt of the propagandist work done in Canada and the number of societies that existed for that purpose. The difficulty was with the indigent and incurable. He was thankful to say they had no workhouses in Canada, hut the Government, especially of Ontario, give liberal suhsidies to hospitals and sanatoriums. He also spoke of the great help given in nursing the poor hy the Roman Catholic Sisterhoods. While it cost a municipality a dollar a day to isolate a patient, the sisters were able to do it for $10 a month, and he wondered how they managed. He hoped that Protestant ladies, who were sometimes apt to become hysterical as a result of idle ease, would devote their energies to the forming of sisterhoods, not religious sisterhoods, hut organisations to relieve the hitter lot of the sick-poor.

The afternoon sitting, which had been prolonged to a late hour, was now hrought to an end after Dr. A. K. CHALMERS, medical officer of health of Glasgow, had read a paper on Pulmonary Tnherculosis as a Prohlem of Public Health (see p. 167).

(To be continued.)

THE TITLE OF DOCTOR IN MANY TONGUES.

THE following compilation will he found, we have no doubt, of service to many of our readers who may have experienced the difficulty in finding out what are the titles for "Doctor" and "Surgeon" in languages used in different parts of the world. It is not always possible to find these titles in guide-books, and at any moment visitors and travellers may find that the one word essential for them to know without delay is "Doctor" or "Surgeon." It will also he found of use in connexion with the work of the increasing numher of international medical congresses which now take place where delegates come from all parts of the world, whose titles are somewhat of a mystery to other memhers of the congress. The titles of the medical men written in the Hnngarian language and used at the latest International Medical Congress in 1909 must have heen puzzling to not a few unacqnainted with that langnage. We own ourselves to have been often at a loss for an accurate translation. Besides these uses and the philological aspect, other interests will be obvious to those engaged in literary pursuits or whose reading is in several languages.

THE SYNONYMS FOR "DOCTOR" AND "SURGEON" IN VARIOUS LANGUAGES.

English.—Doctor, Physician. Surgeon. (*Old:* Doctor of Phisik. Leech.)

Anglo-Saxon.—Læce.

Welsh.—Meddyg, Physigwr. Llawfeddyg.

Irish.—Fear Leigh.

Gaelic.—Leigh.

Manx.—Ferlhee.

Cornish.—Medhec, Medhek, Methec, Vethek, Methik, Medhik.

French.—Docteur, Médecin, Docteur en médecine, Docteur-Médecin, Médecin-chirurgien (*general practitioner*), Chirurgien. Aide-chirurgien (*assistant-surgeon*), Chirurgien en chef (*head surgeon*). (*Old:* Mege, Medze (Meggier—*appliquer des remèdes à un malade*), Physicien, Cirurgien).

Italian.—Dottore, Medico. Chirurgo. (*Also:* Medicatóre, Medicánte. Medichézza, *a female physician.*) Medico di marina (*navy surgeon*). Medico militare (*army surgeon*).

Spanish.—Doctor, Médico. Cirujano. Médico de huque (*ship surgeon*). Médico militar (*army surgeon*). (*Old:* Mege Menge, *Doctor of Medicine.*)

Portuguese.—Doutor, Physico, Medico. Cirnrgião. (*Old:* Mege.)

Basque.—Dótora, Medikûa.

Breton.—Den Gwizick.

Provençal.—Douctour. Cirurgien.

Romansch.—Miedi. Docter de la Medicina.

German.—Doctor der Medizin, Physikus, Physiker, Medicus. Arzt, Wundarzt, Chirurgns *or* Chirurg. Oherarzt (*ohief medical officer*). Hof-arzt (*physician to the Court*). Chefarzt (*Head Physician*). Schiffsarzt (*ship surgeon*). Bezirksarzt (*district medical officer*). Sanitätsrat (*Sanitary Councillor—a title of honour*).

Dutch.—Dokter, Geneesheer. Arts. Heelkundige, Heelmeester. Wondheeler.

Hungarian.—Doktor, Tndor. Orvos. Sebész (*surgeon*). Bányakerületi föorvos (*mining district ohief medical officer*). Ezredorvos (*regimental surgeon*). Föorvos (*chief medical officer*). Fürdöorvos (*bath-physician—at a watering-place*). Gyermekkórházi orvos (*children's doctor*). Hajóorvos (*marine surgeon*). Járási tiszti orvos (*district medical officer*). Katonaorvos (*military surgeon*). Kerületi orvos (*district medical officer*). Kórháziorvos (*hospital surgeon*). Községi orvos (*parish doctor*). Központi tiszti orvos (*central district medical officer*). Mütöorvos (*operating surgeon*). Rendörs orvos (*police surgeon*). Tiszti föorvos (*district ohief medical officer*). Törzsorvos (*staff*

surgeon). Udvari orvos (*Court physician*). Városi tiszti föorvos (*urban district chief medical officer*).

(N.B.—*List extended on account of International Congress at Budapest in 1909.*)

Illyrican (*Dalmatia, &c.*).—Lecnik. Vracitelj. Vidar. Ranarnik. Ranar.

Bohemian.—Lékar. Fysik. Hojic. Ranhojic. Ranléck. Chirurg.

Gothic.—Leikeis.

Dano-Norwegian.—Doktor. Læge. Kirurg. Feltskicer (*army-surgeon*).

Swedish.—Doktor. Läkare. Kirurg. Fältskär (*army-surgeon*).

Icelandic.—Læknir.

Eskimo.—Angekok (*sorcerer or diviner*).

Russian.—Doktor. Medik. Vratch *or* Vrach. Lekar. Chirurg. Korabelnye Vrach (*marine surgeon*). Voennye Vrach (*military surgeon*). Lekarka (*lady doctor*).

Lettish or *Livonian* (Kurland and Livonia, Russia).—Ahrste. Mahzitais (*doctor or learned man*).

Greek.—Iatros. Cheirourgos. Klinikos. Therapeutes. Akestes (*healer*).

Latin.—Medicus. Physicus. Doctor in Medicinis. Medicinæ Doctor. Chirurgus. Vulnerum Medicus.

Hebrew.—Rōphé.

Polish.—Doktor. Medyk. Medrzec. Lekarz. Chirurg. Cyrulik.

Roumanian.—Doktor.

Turkish.—Hakim. Hakim-Baschi (*chief physician*). Hakim-Eféndi (*first physician-in-ordinary*). Jarrah (*surgeon*).

Maltese.—Tabib (*doctor*). Cerugiku (*surgeon*).

Armenian.—Pejichq.

Arabic.—Hakim. Tabib. Jarrah.

Egyptian.—Hakim.

Hindustani.—Hakim. Tabib. Baid. Jarráh (*surgeon*). Fassád. (*Also* "*Doctor Sahib.*")

Sansorit.—Bhishak. Vaidya. Ayurveda (*science of life or general medicine*). Salya (*surgery*).

Persian.—Tabib. Hakim. Jarrah.

Chinese.—Ishang *or* I shêng.

Japanese.—Isha (*physician; doctor*). Guni (*military or naval surgeon*). Rikugun guni (*military surgeon*). Gekwai (*surgeon*). Gekwa (*surgery*). Funa-isha (*marine surgeon*). Isha ni kakaru (*to consult a physician*). Gun-i-sōkan (*surgeon-general*). Gun-i-kan (*deputy surgeon-general*). Kosan-gun-i (*senior military medical officer*). Byo-in (*hospital*). Byo (*disease*).

Cambodgian.—Krupet.

Annamite.—Thày. Thuôc.

Burmese.—Sétbarna Thakin ("*Medicine Lord*").

Tamil.—Pariyāri.

Malay.—Dūkun. Tuan Doktur.

Tibetan.[1]—Sman-pa (1. *Medicine*. 2. *Physician*). 'am-chi, 'am-ci, 'em-chi, em-ci (*a word of Turkish origin, meaning* "*physician*"), gso-ba-po (*physician*). (*Note.*—gso *pronounced* so.) *Also* Gso-byed, Gso-rig-byed, Gso-rig-hdzin-pa, Tshehi-rig-byed *and other words.*

Swahili (*Zanzibar, &c.*).—Mganga, Tabibu. Wachawis *or* Waganga—*wizards and witch doctors—the medicine-men of Zanzibar.*

Masai (*Brit. East Africa*).—Laibon *or* Ol-oiboni (*medicine-men*).

Akikúyu.—(People of Kikúyu, Brit. E. Africa.) Mún-du Mú-gu ("*A clever man*").

Haussa.—(Haussa States, Sokoto, W. Africa.) Maimágani.

North American Indian.—Powwow.

Esperanto.—Doktoro. Fizikisto. Kuracisto. Medicinisto. Hirurgiisto (*surgeon*). (*Note. — pronounced* Ch(*guttural*)eeroorghee-eestoh.)

[1] The authors are indebted to Mr F. W. Thomas, Reader in the Tibetan Language at University College, London, for the ample explanation of the Tibetan words, and to Professor L. D. Barnett, Professor of Sanskrit, for the two Sanskrit words for "Doctor."

Volapük.—("World Speech.") Dokel. Medinel. (*Note.*—A universal language invented by Johann Maria Schleyer, a German priest. 500,000 persons were said to be using it in 1888.)

"QUACK" IN VARIOUS LANGUAGES.

Some of the names of "quack" in various languages have been appended. The inquiries made in the course of the compilation would indicate that the word "charlatan" is a sort of international term for a quack.

Basque.—Chirchila.

Danish-Norwegian.—Kvaksalver.

Dutch.—Kwakzalver. Knoeier (*bungler*). Snoever (*boaster*). Bedrog (*charlatanry, cheating*). Kwakzalverij.

English.—Quack. Charlatan. Mountebank. Saltimbanco. Medicaster. Sawbones. Bone-setter.

Esperanto.—Ĉarlatano.

French.—Charlatan. Empirique. Saltimbanque. Médicastre. Hâbleur. Médecin d'eau douce (*water-gruel doctor*). Médecin—charlatan. Renouenr; Rebouteur (*bone-setters*). (*Old:* Marchand ou vendeur d'Orviétan.) (N.B.—Orviétan was an electuary invented by Ferranto of Orvieto in Italy.) Boniment. Hâblerie ou Hâblerie artificieuse (Annonce pompeuse de Charlatan) (*Harangue*).

German.—Kur-pfuscher. Quacksalber. Salbader. Marktschreier (*market-bawler*).

Greek.—Agyrtes. Alazōn (*vagabond*). Kompsologos iatros ("*fine-speaking*" *physician*).

Hindustani.—Nim-hakim (*half-doctor*). Bázárú Hakim (*common, bad, doctor*). Thag-baid (*swindling doctor*). Fareb (*charlatanry, deceit*).

Hungarian.—Kuruzsló. Sarlatán. Kuruzslónő (*female quack*). Szédelgő (*swindler*).

Italian.—Ciarlatano. Medicastro. Medico d'acqua cotta (*cooked water doctor*). Cantambanco. Furbo (*cheat*).

Japanese.—Yabnisha.

Latin.—Circulator. Medicus circumforaneus. Agyrta.

Portuguese.—Charlatão. Empirico. Saltimbanco.

Provençal.—Charcutiaire (*flesh mangler*).

Romansch.—Scharlatan.

Russian.—Sharlatan. Ploshtchadnoi Doktor (*market-doctor*). Plochoi Medik (*paltry doctor or medicaster*).

Spanish.—Charlatán. Curandéro. Empirico. Matasános.

Swedish.—Qvacksalfvare. Dalig Läkare (*paltry doctor*).

Turkish.—Lāfazan.

Welsh.—Crachfeddyg. Twyllwr (*cheater*).

ASYLUM REPORTS.

Annual Report of the Warneford Hospital for Mental Diseases for the Year 1909.—There were 22 admissions to this hospital during the year. The average number daily resident on the registers was 99. The discharges numbered 17, of whom 10 were men and 7 were women. Of the discharges 8 persons were recovered, this being a proportion of 36·5 per cent. on the admissions. Six persons died during the year and among them was a patient who entered the hospital in the year 1843 and who was within a few weeks of her 100th year.

Annual Report of the St. Andrew's Hospital for Mental Diseases at Northampton for the Year 1909.—To this hospital 87 patients were admitted during the year and the average number resident was 421. Fifty-seven patients were discharged, and of these 33 were discharged recovered, the percentage of recoveries to the total number of admissions being 37·93. The number of deaths was 27, the percentage of deaths to the average number resident being 6·41.

Annual Report of the Kent County Lunatic Asylum, Barming Heath, Maidstone, for the Year 1909.—There were admitted to this asylum during the year 423 patients. It is interesting to note that in as many as 52 per cent. of the admissions hereditary predisposition was ascertained. The average daily number on the registers was 1601. Discharges numbered 195, and of these 37·1 per cent. of the total admissions and 40 per cent. of the direct admissions recovered. In 69·4 per cent. of the recoveries the

disease was of less than a year's duration. Deaths numbered 234, and the death-rate was 16·4 per cent., the highest on record. The medical superintendent, Dr. H. Wolseley-Lewis, reports well of the conduct of his staff, and especially refers to Attendant J. Minifie, who on Dec. 18th saved a patient from drowning at the imminent risk of his own life. Dr. Wolseley-Lewis publishes a most interesting *résumé* of the statistics of the last five years, and makes therefrom several important deductions. We quote from the report *in extenso* :—

BARMING HEATH ASYLUM: RÉSUMÉ OF THE LAST FIVE YEARS.

As it is only by a consideration of what has occurred in the past, that it is possible to form an estimate of what is likely to happen in the future, I am placing before you this year some of the results of the working of the asylum for the past five years.

Movement of the Asylum Population (Jan. 1st, 1905, to Dec. 31st, 1909).

	Males.		Females.		Total.	
		Per ann.		Per ann.		Per ann.
Admitted	1012	(202·4)	1062	(212·4)	2074	(414·8)
Discharged	334	(66·8)	428	(85·6)	762	(152·4)
(recovered)	33·00%		40·31%		36·74%	
Discharged	87	(17·4)	104	(20·8)	191	(38·2)
(not recovered)						
Died	482	(96·4)	487	(97·4)	969	(193·8)
	13·77%		11·60%		12·63%	
Increase	109	(21·8)	43	(8·6)	152	(30·4)

N.B.—Percentage of recoveries is calculated on the number of admissions, and the percentage of deaths on the average number resident.

From a consideration of this Table may be deduced the following facts :—

1. *Admission rate.*—That there is a tendency for the number of female admissions to increase, and that the number of male admissions remains remarkably constant. The average number of admissions during the last 20 years is 407·3 (202·9 men and 204·4 women) per annum, as against 414 8 (202·4 men and 212·4 women) for the last five.

2. *Recovery rate.*—That the recovery rate of 36·74 corresponds very closely with 36·67 which is the average recovery rate for the last ten years in all the county and borough asylums in England and Wales: the rate for men being rather low (33 as against 33·38) and that for women rather high (40·31 as against 39·97).

3. *Discharged not recovered.*—That the number per annum of 38·2 (17·4 men and 20·8 women) is very small as compared with the number per annum for the last 20 years, which is 75·7 (33·7 men and 41·9 women). This comparison, however, is of little value, as large batches of patients were transferred from time to time to other asylums before the last quinquennial period. The numbers for the last five years may be taken as an average under normal conditions.

4. *Death-rate.*—That compared with the average death-rate for the last ten years in all county and borough asylums in England and Wales, which is 10·3 per cent. (11·62 men and 8·98 women) our death-rate for the last five years is very high, being 2·15 per cent. above the normal for men and 2 62 per cent. above it for women; and that compared with the average death-rate during the last 20 years at this asylum it is 0·9 below the average for men and 1·6 above the average for women. A study of the death-rate here for the last 20 years in quinquennial periods shows that the rate for men is very constant, but that the rate for women has increased very much during the last ten years, the percentage-rate for the last ten years being 11·6, and that for the first ten years only 8·4, giving the remarkable difference of 3·2 per cent. between the two decennial periods.

In considering the cause for this change in the death-rate, we find that during the last five years three diseases—tubercle, heart disease, and senile decay—account for 66·5 per cent. of all female deaths. Compare the death-rate from these diseases during the first ten years and the last five years of the twenty-year period and we find in the former tubercle 27·0 per cent., heart disease 18·8 per cent., senile decay *nil*; and in the latter tubercle 26·9 per cent, heart disease 22·3 per cent., senile decay 17·2 per cent. Observe how very little the death-rate from tubercle varies; it has always been higher at this asylum than at most other county asylums; it is a hereditary disease closely connected with insanity. We find that in the last period heart disease and senile decay account for an increase of 20·7 per cent., the incidence falling on the ever-increasing numbers of feeble old women. .....

5. *Rate of increase.*—That the rate of increase of 30·4 per annum (21·8 men and 8·6 women) is very satisfactory, as compared with the rate of increase in the last 20 years, which is 36·9 (21 men and 15·9 women). .....

6. *Heredity as a cause of insanity.*—We have at the present time in this asylum brothers, sisters, brother and sister, father and daughter, uncle and niece, aunt and niece, aunt and nephew, besides many cases of more distant relatives. .....

Out of a total of 1934 persons admitted during the last five years I have discovered evidence of insanity in the family, and often in many members, in 828 instances, or 42·7 per cent. An analysis of these 828 cases brings into prominence three well-recognised but very important facts :—

I. *That the disease makes its appearance early in life.*—Out of 410 male patients with a family history of insanity 53·3 per cent. were under 35 years of age when first attacked, and out of 418 female patients with insane relatives 60·6 per cent. were under that age when first attacked. Now, according to the Lunacy Commissioners' Report of all admissions into asylums, 37·1 per cent. of males and 36·3 per cent. of females were under 35 years of age on admission. The young people in asylums, then, are those that have the hereditary taint. They are either discharged or die.

II. *Should they be discharged they are prone to relapse.*—Out of our 410 males we find 93 who have been in asylums two or more times, in one case eight times, representing in all 271 admissions into this or other asylums; in the case of 418 women we find 115 relapsing cases representing 304 admissions, one of these women having been admitted eight times. Comparing these figures with our non-hereditary cases we find out of 524 males 81 recurrent cases representing 222 admissions, and out of 650 females 109 recurrent cases representing 271 admissions.

It is evident then that many of these young hereditary cases are discharged to their homes only to relapse again and again, in the meanwhile marrying and begetting children, the women often returning here several times after childbirth.

III. *Should they remain and die here they usually do so at a good old age.*—Of our 828 hereditary cases 141 have died, and of these 50 per cent. of the men and 61·5 per cent. of the women were over 55 years of age at death. Comparing this with the age incidence at death in asylums generally, as given in the Lunacy Commissioners' Report, of 41·8 per cent. for men and 50·2 per cent. for women over 55, it is difficult to avoid the conclusion that the regular routine life of an institution leads to longevity.

Dr. Wolseley-Lewis's general conclusion is that the population of the asylum is recruited from and maintained by persons who have inherited brain defects.

Annual Report of the Glasgow Royal Asylum for the Year 1909.—The average number resident at this asylum for the year was 442. 133 cases were admitted, 109 under certificates and 24 as voluntary patients. In a large proportion of both classes the illness had been of more than six months' duration when treatment was sought. The medical superintendent, Dr. L. R. Oswald, writes that alcohol was the principal factor in 16 cases, this being a percentage of 12 as compared with a percentage of 22 on the admissions into the district asylums of Glasgow. Dr. Oswald's experience is that alcohol is becoming less frequently a cause of insanity among men of the middle classes. "I fear, however, that in women of the same social class the alcoholic and drug habits are on the increase, and physicians in large general practice tell me that that is also their experience. The mental and moral deterioration produced in women by alcoholic and drug excess is extremely grave, and is deeper and more persistent than the corresponding condition in the male sex. It is to be greatly deplored that such drugs as morphia, sulphonal, and paraldehyde can be so easily obtained without medical prescription, for their administration over long periods brings about deleterious effects short of actual mental disorder." Discharges from this asylum numbered 95. 43 persons left as recovered, being 34 per cent. calculated on the number of admissions. Deaths numbered 36, being a percentage of 8·2 on the average number resident. One of the important events of the year has been the establishment of the Western Asylums Research Institute, its first director being Dr. I. M'Kenzie.

Annual Reports of the Surrey County Lunatic Asylums at Brookwood and Netherne for the Year 1909.—At Brookwood Asylum the average number resident was 1149. There were admitted 391 cases. 630 persons were discharged, but of these 475 were transferred to the new asylum at Netherne. 95 persons were discharged recovered, and this represents a proportion of 35·09 per cent. of the admissions. 118 patients died during the year, giving a death-rate of 10·27 on the daily average number resident. Post-mortem examinations were made in 75 per cent. The new asylum at Netherne was opened in April, 1909. To it there were admitted during the year 689 persons. There were 39 discharges, the recovery rate being 7·7 per cent. 24 deaths occurred and post-mortem examinations were held in 14 cases. The Commissioners in Lunacy, who have visited the asylum, appear to be favourably impressed by its arrangements, and, we are happy to note, make a suggestion that provision should be made for verandahs where the open-air treatment of cases of tuberculosis may be undertaken. We may hope that some day in the near future there may be suggested provision of suitable arrangements for the open-air treatment in bed of the various psychoses in which this therapeutic measure has proved so valuable.

Annual Report of the Bucks County Lunatic Asylum for the Year 1909.—The average daily number on the registers during the year was 632. The admissions numbered 157. There were discharged 108 persons and of these 54 were recovered, giving a recovery rate of 37·5 per cent. on the direct admissions. Deaths numbered 77, the rate being 12·2 per cent. of the average number resident. In as high a proportion as 97 per cent. of the deaths the cause was verified by post-mortem examination. The medical superintendent, Dr. H. Kerr, gives a table illustrating the growth of the numbers of the pauper insane in the county since 1870. This table shows that of an increase of 193 in the period of 40 years, the 10 years from 1895 to 1905 accounts for 138, and that while the total number of the insane has increased by 193 the numbers in the county asylum have increased by 253. There has been since 1890

a continuous increase in the numbers treated in the asylum as compared with those cared for in workhouses or with friends. This is largely accounted for by the four-shilling grant, which has had the effect of bringing a larger number of imbeciles under asylum care, and also a number of senile dements, who formerly would probably not have been certified.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF MEMBERS OF COUNCIL.

A MEETING of the Fellows of the College was held at the College in Lincoln's Inn Fields on July 7th for the purpose of electing four members of Council. The President, Mr. H. T. Butlin, presided. 865 Fellows voted; of these votes 856 were received by post and 9 Fellows voted personally. 3 voting papers were received too late and 5 voting papers were spoilt as they were incorrectly marked or attested.

The following was the result of the poll:—

	Votes.	Plumpers.
CHARLES BARRETT LOCKWOOD	532	 58
BILTON POLLARD	514	 38
JOHN BLAND-SUTTON	499	 63
CHARLES ALFRED BALLANCE	484	 19
JAMES ERNEST LANE	383	 35

The PRESIDENT declared Mr. Lockwood to be re-elected and Mr. Pollard, Mr. Bland-Sutton, and Mr. Ballance to be elected members of Council.

Mr. H. J. Price and Dr. R. H. Paramore acted as scrutineers.

Looking Back.

FROM

THE LANCET, *SATURDAY*, July 14th, 1832.

Use of the Ventricles.—Much dispute has arisen with regard to the use of the ventricles. Even in the healthy living animal they contain some portion of fluid. If the horse is destroyed and the cranium opened as speedily as possible, serum is found in the lateral ventricles. Some physiologists have contented themselves with observing that the ventricles are merely cavities left in certain parts of the brain where irregular surfaces are opposed to each other; others as plausibly have imagined that they are formed by the foldings of the convolutions of the brain—while some have supposed that they were intended to preserve that full and perfect occupation of the cranial cavity which seems to be necessary to the safety of the brain in the natural motions of the animal. If a portion should be diseased and absorbed, the plexus choroides or the membrane of the ventricles may secrete a proportionate quantity of fluid: to which we may add these spaces left in the centre of the brain or filled only with fluid, are adapted to neutralise any concussion to which the brain may be exposed.[1]

[1] Excerpt from "Lectures on Veterinary Medicine, delivered in the University of London, by Mr. Youatt. Lecture XXXVI. The Brains of Domesticated Animals."

COLONIAL MEDICAL SERVICES.—*West African Medical Staff.*—The following promotions have been announced: Dr. E. W. Graham, medical officer, Southern Nigeria, to be senior medical officer, Northern Nigeria; Dr. C. B. Hunter, medical officer, Sierra Leone, to be senior medical officer, Gold Coast; Mr. G. J. Rutherford, senior medical officer, Gold Coast, to be provincial medical officer for Ashanti; and Mr. E. H. Tweedy, senior medical officer, Gold Coast, to be provincial medical officer for the Northern Territories of the Gold Coast. Dr. J. W. S. Macfie and Dr. W. Morrison have been apppointed to the staff in Northern Nigeria. *Other Colonies and Protectorates.*—Mr. H. L. Duke and Dr. R. E. McConnell have been selected for temporary employment as medical officers in Uganda, and Dr. J. O. Shircore has been appointed a medical officer in Nyasaland.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8344 births and 3579 deaths were registered during the week ending July 9th. The annual rate of mortality in these towns, which had been so low as 11·2 and 11·0 per 1000 in the two preceding weeks, did not again exceed 11·0 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns averaged only 12·7 per 1000, and was 1·6 below the mean rate in these towns in the four preceding corresponding quarters. In London during the same period the death-rate, calculated on the estimated population, did not exceed 12·2 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 3·2 in Hornsey, 5·7 in Willesden, and 5·9 in Newport (Mon.); the rates in the rest of the 77 towns ranged upwards to 17·7 in Oldham, 18·3 in Dewsbury, 18·9 in Stockport, and 20·6 in Swansea. In London the reported death-rate last week was only 10·7 per 1000. The 3579 deaths registered last week in the 77 towns were 9 below the low number in the previous week, and included 358 which were referred to the principal epidemic diseases, against 353 and 336 in the two preceding weeks; of these 358 deaths, 115 resulted from measles, 109 from whooping-cough, 71 from diarrhœa, 28 from scarlet fever, 28 from diphtheria, and 7 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·1 per 1000, against 1·1 and 1·0 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in East Ham, Brighton, Leyton, Southampton, or in 11 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·9 in Oldham, 3·1 in Manchester, 3·8 in Burton-on-Trent, and 3·9 in Merthyr Tydfil. The fatal cases of measles in the 77 towns, which had been 94 and 113 in the two previous weeks, further rose to 115 last week; and caused the highest annual rates, 1·3 and 1·6, in Sunderland and Barrow-in-Furness. The 109 deaths from whooping-cough showed a further slight decline from the numbers in recent weeks, but caused rates equal to 1·3 in South Shields, 1·4 in Oldham, and 1·6 in Tottenham and in Gateshead. The deaths attributed to diarrhœa, which had been 75, 70, and 55 in the three preceding weeks, rose again to 71 last week; the highest death-rates from this cause were 1·5 in Burnley and 3·3 in Merthyr Tydfil. The 28 fatal cases of scarlet fever exceeded the numbers in recent weeks, and included 9 in London and its suburban districts, 3 in Liverpool, and 2 both in Manchester and in Stoke-on-Trent. The 28 deaths from diphtheria also showed an increase; 7 occurred in London and its suburban districts, 3 in Burton-on-Trent, and 2 each in Huddersfield, Halifax, and Bradford. The 7 deaths referred to enteric fever, which included 2 in London and 2 in Smethwick, were fewer than in any previous week of this year. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been 1353 and 1378 on the two preceding Saturdays, had further increased to 1439 at the end of last week; 188 new cases of this disease were admitted to these hospitals during last week, against 187 and 183 in the two preceding weeks. The Metropolitan Asylums contained 3 small-pox patients on Saturday last, of whom 2 were admitted during the week. Of the 997 deaths registered in London during last week 117 were referred to pneumonia and other diseases of the respiratory system, and were 12 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 25, or 0·7 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Leeds, Sheffield, Bristol, West Ham, Newcastle-on-Tyne, Hull, Leicester, Nottingham, and in 52 other smaller towns; the 25 uncertified causes of death in the 77 towns last week included 4 in Liverpool, 3 in Norwich, and 2 each Birmingham, Sunderland, and Gateshead.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 864 births and 439 deaths were registered during the week ending July 9th.

The annual rate of mortality in these towns, which had declined in the five preceding weeks from 14·3 to 13·2 per 1000, further declined to 12·1 in the week under notice. During the 13 weeks of last quarter the death-rate in these towns averaged 15·4 per 1000, and exceeded by 2·7 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 6·1 and 7·9 in Paisley and Aberdeen to 15·6 in Greenock and 18·2 in Perth. The 439 deaths from all causes in the eight towns during last week showed a further decline of 38 from the numbers in recent weeks, and included 44 which were referred to the principal epidemic diseases, against 61 and 48 in the two preceding weeks; of these 44 deaths, 19 resulted from diarrhœa, 9 from diphtheria, 8 from measles, 4 from scarlet fever, and 2 each from whooping-cough and "fever," but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·2 per 1000, against 1·1 in the 77 English towns; the highest rates from these diseases in the Scotch towns last week were 2·1 in Greenock and 2·8 in Dundee. The 19 deaths attributed to diarrhœa in the eight towns last week exceeded by 2 the number returned in each of the two preceding weeks, and included 11 in Glasgow, 3 in Dundee, and 2 in Edinburgh and in Aberdeen. The 9 fatal cases of diphtheria also showed an increase upon the numbers in recent weeks; 4 occurred in Glasgow and 3 in Dundee. The 8 deaths from measles were fewer than in any recent week, but included 4 in Glasgow and 3 in Dundee. The 4 fatal cases of scarlet fever corresponded with the number in the previous week, while the deaths from whooping-cough, which had been 11 and 12 in the two preceding weeks, declined to 2 last week, both of which were returned in Glasgow. Of the 2 deaths referred to "fever" one each occurred in Glasgow and in Greenock. The deaths referred to diseases of the respiratory system in the eight towns, which had been 61 and 55 in the two preceding weeks, rose to 66 last week, and exceeded by 5 the number in the corresponding week of last year. The causes of 10, or 2·3 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 627 births and 376 deaths were registered during the week ending July 9th. The mean annual rate of mortality in these towns, which had been equal to 18·9, 17·9, and 16·1 per 1000 in the three preceding weeks, rose again to 17·0 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these Irish towns averaged 20·1 per 1000, whereas the mean rate during the same period did not exceed 12·7 in the 77 largest English towns and 15·4 in the eight principal Scotch towns. The annual death-rate during last week was equal to 16·8 in Dublin, 19·3 in Belfast, 13·0 in Cork, 20·4 in Londonderry, 10·9 in Limerick, and 15·6 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 15·2 per 1000. The 376 deaths from all causes in the 22 town districts last week showed an increase of 21 upon the number in the previous week, and included 46 which were referred to the principal epidemic diseases, against 68, 50, and 39 in the three preceding weeks; these 46 deaths in the Irish towns were equal to a mean annual rate of 2·1 per 1000, and in Belfast it was equal to 4·1; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·1, and in the eight Scotch towns it was 1·2. The 46 deaths from these epidemic diseases in the Irish towns last week included 26 from measles, 14 from diarrhœa, 3 from diphtheria, 2 from whooping-cough, and 1 from enteric fever, but not one either from scarlet fever or small-pox. The 26 fatal cases of measles in the 22 towns corresponded with the number in the previous week, and included 24 in Belfast. The deaths attributed to diarrhœa, which had been but 3 in the previous week, rose to 14 last week, of which 6 occurred in Dublin and 5 in Belfast. Two of the 3 deaths from diphtheria were returned in Dublin, and both the fatal cases of whooping-cough occurred in Belfast. The death from enteric fever was registered in Cork. The deaths in the 22 towns referred to pneumonia and to other diseases of the respiratory system, which had been 72 and 43 in the two preceding weeks, rose again to 61 last week. The causes of 19, or 5·1 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent., and in the eight principal Scotch towns it was equal to 2·3 per cent.

VITAL STATISTICS OF LONDON DURING JUNE, 1910.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 4·0 per 1000 of the population, estimated at 4,872,702 persons in the middle of the year. In the three preceding months the rates were 4·1, 4·2, and 3·9 per 1000 respectively. The lowest rates last month were recorded in Paddington, Kensington, Fulham, Chelsea, Hampstead, and the City of London; and the highest rates in Hammersmith, St. Pancras, Bethnal Green, Poplar, Bermondsey, Battersea, and Woolwich. Two cases of small-pox were notified during the month, one from the City of Westminster and one from Shoreditch. The prevalence of scarlet fever showed but little variation from that recorded in the preceding month; among the several metropolitan boroughs this disease was proportionally most prevalent in Hammersmith, Bethnal Green, Poplar, Bermondsey, Battersea, Lewisham, and Woolwich. The Metropolitan Asylums Hospitals contained 1358 scarlet fever patients at the end of June, against 1584, 1489, and 1422 at the end of the three preceding months; the weekly admissions averaged 180, against 180, 183, and 177 in the three preceding months. Diphtheria was slightly more prevalent than it had been in the previous month; this disease was proportionally most prevalent in Stepney, Southwark, Bermondsey, Battersea, Deptford, Greenwich, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 852, 794, and 734 at the end of the three preceding months, had further declined to 673 at the end of last month; the weekly admissions averaged 80, against 82, 75, and 73 in the three preceding months. The prevalence of enteric fever showed a considerable increase as compared with that in the two preceding months; the greatest proportional prevalence of this disease was recorded in Kensington, the City of Westminster, St. Pancras, and Islington. There were 46 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 84, 66, and 60 at the end of the three preceding months; the weekly admissions averaged 8, against 6 and 8 in the two preceding months. Erysipelas was proportionally most prevalent last month in St. Pancras, Holborn, Finsbury, Shoreditch, Bethnal Green, Deptford, and Greenwich. The 25 cases of puerperal fever notified last month included 4 in Wandsworth, 3 in the City of Westminster, and 2 each in Hammersmith, Fulham, Islington, Stepney, Southwark, and Lambeth. The 11 cases notified as cerebro-spinal meningitis included 4 in Islington, 2 in Bermondsey, and 1 each in Paddington, the City of Westminster, Stepney, Poplar, and Lambeth.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates are further corrected for variations in the sex and age constitution of the population of the several boroughs. During the five weeks ending July 2nd the deaths of 4705 London residents were registered, equal to a corrected annual death-rate of 10·6 per 1000; in the three preceding months the rates were 13·9, 14·0, and 12·4 per 1000. The lowest death-rates last month were 7·8 in Hampstead and in Lewisham, 8·0 in Fulham, 8·8 in Battersea and in Wandsworth, and 9·0 in Deptford; the highest rates were 12·9 in Bethnal Green, 13·3 in Shoreditch, 13·8 in Southwark, 14·0 in Finsbury, 14·1 in Holborn and in the City of London, and 16·1 in Bermondsey. The 4705 deaths

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JUNE, 1910.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1910.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.		
LONDON...	4,872,702	2	972	445	2	73	2	25	320	11	1852	4·0	—	210	19	22	128	—	8	1	74	462	1·0	4705	10·6
West Districts.																									
Paddington	153,004	—	22	7	—	2	—	—	7	1	39	2·7	—	4	1	—	4	—	1	—	—	10	0·7	136	9·9
Kensington	184,635	—	18	9	—	5	—	—	10	—	42	2·4	—	4	—	—	1	—	—	—	2	7	0·4	174	10·6
Hammersmith	127,413	—	38	12	—	1	—	2	8	—	61	5·0	—	2	2	1	4	—	1	—	4	14	1·1	118	10·1
Fulham	181,282	—	23	12	—	2	1	2	6	—	46	2·6	—	9	—	—	2	—	—	—	—	11	0·6	132	8·0
Chelsea	75,457	—	5	5	—	—	—	—	3	—	13	1·8	—	—	—	—	5	—	—	—	1	6	0·8	82	11·7
City of Westminster	167,233	1	22	12	—	6	—	3	6	1	51	3·2	—	3	1	1	3	—	—	—	4	12	0·7	164	11·4
North Districts.																									
St. Marylebone	125,195	—	21	17	1	1	—	—	6	—	46	3·8	—	3	—	—	—	—	1	—	2	6	0·5	121	10·8
Hampstead	95,729	—	16	2	—	2	—	—	3	—	23	2·5	—	—	1	—	2	—	—	—	1	4	0·4	63	7·8
St. Pancras	237,792	—	62	25	—	8	—	—	24	—	119	5·2	—	10	1	2	12	—	—	—	1	26	1·1	272	12·4
Islington	353,356	—	61	28	—	9	—	2	22	4	126	3·7	—	5	—	—	10	—	1	—	6	22	0·6	329	10·1
Stoke Newington	54,838	—	11	1	—	—	—	1	3	—	16	3·0	—	1	—	1	—	—	—	—	1	3	0·6	61	12·1
Hackney	239,979	—	32	16	—	—	—	1	19	—	68	3·0	—	19	—	—	4	—	—	—	4	27	1·2	210	9·5
Central Districts.																									
Holborn	53,142	—	9	4	—	1	—	—	6	—	20	3·9	—	—	—	—	—	—	1	—	—	1	0·2	67	14·1
Finsbury	94,578	—	14	9	—	1	—	—	14	—	38	4·2	—	4	1	1	6	—	1	—	4	17	1·9	122	14·0
City of London	17,132	—	1	—	—	1	—	—	1	—	3	1·8	—	—	1	—	—	—	—	—	1	2	1·2	21	14·1
East Districts.																									
Shoreditch	114,387	1	24	10	—	2	—	—	10	—	47	4·3	—	8	—	—	5	—	—	—	2	15	1·4	139	13·3
Bethnal Green	131,579	—	38	15	—	1	—	—	21	—	75	5·9	—	11	3	2	2	—	—	—	5	23	1·8	162	12·9
Stepney	314,379	—	71	43	—	6	—	2	26	1	149	4·9	—	12	2	2	9	—	—	—	8	33	1·1	297	10·3
Poplar	172,432	—	51	19	1	3	—	1	14	1	90	5·4	—	6	—	2	3	—	—	—	2	13	0·8	168	10·5
South Districts.																									
Southwark	211,832	—	24	27	—	2	—	2	17	—	72	3·5	—	35	—	1	10	—	—	—	6	52	2·6	268	13·8
Bermondsey	127,238	—	41	17	—	1	—	1	8	2	70	5·7	—	14	3	2	4	—	—	—	6	29	2·4	191	16·1
Lambeth	327,074	—	83	13	—	6	—	2	12	1	117	3·7	—	15	—	1	3	—	—	—	4	23	0·7	283	9·3
Battersea	188,222	—	50	26	—	3	—	—	12	—	91	5·0	—	3	—	—	11	—	1	—	—	15	0·8	148	8·8
Wandsworth	305,838	—	72	28	—	3	—	4	11	—	118	4·0	—	4	—	—	6	—	—	—	5	15	0·5	243	8·8
Camberwell	286,058	—	33	23	—	5	1	1	17	—	80	2·9	—	18	2	1	9	—	1	—	4	35	1·3	289	10·9
Deptford	119,642	—	29	13	—	2	—	—	12	—	56	4·9	—	5	—	2	2	—	—	—	—	9	0·8	99	9·0
Greenwich	112,935	—	13	17	—	—	—	—	11	—	41	3·8	—	4	1	1	4	—	—	—	—	10	0·9	104	9·8
Lewisham	164,899	—	50	14	—	—	—	—	3	—	67	4·2	—	3	—	1	4	—	—	—	1	9	0·6	119	7·8
Woolwich...	135,422	—	38	21	—	—	—	1	8	—	68	5·2	—	8	—	1	3	—	—	1	—	13	1·0	123	10·2
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

† The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

from all causes included 462 which were referred to the principal infectious diseases; of these, 210 resulted from measles, 19 from scarlet fever, 22 from diphtheria, 128 from whooping-cough, 8 from enteric fever, 1 from ill-defined pyrexia, and 74 from diarrhœa, but not any from small-pox or from typhus. The lowest death-rates from these infectious diseases last month were recorded in Kensington, St. Marylebone, Hampstead, Holborn, and Wandsworth; and the highest rates in Finsbury, Shoreditch, Bethnal Green, Southwark, Bermondsey, and Camberwell. The 210 deaths from measles were 19 fewer than the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in Hackney, Shoreditch, Bethnal Green, Southwark, and Bermondsey. The 19 fatal cases of scarlet fever showed a decline of 30 from the corrected average number; of these 19 deaths, 3 belonged to Bethnal Green, 3 to Bermondsey, and 2 each to Hammersmith, Stepney, and Camberwell. The 22 deaths from diphtheria were 20 below the corrected average number, and included 2 each in St. Pancras, Bethnal Green, Stepney, Poplar, Bermondsey, and Deptford. The 128 fatal cases of whooping-cough were slightly fewer than the corrected average number; among the several metropolitan boroughs this disease showed the greatest proportional mortality in Chelsea, St. Pancras, Finsbury, Shoreditch, Southwark, and Battersea. The 9 deaths referred to "fever" were 5 below the corrected average, and belonged respectively to Paddington, Hammersmith, St. Marylebone, Islington, Holborn, Finsbury, Battersea, Camberwell, and Woolwich. The 74 fatal cases of diarrhœa were 15 below the corrected average; this disease was proportionally most fatal in Hammersmith, Fulham, Bethnal Green, Stepney, Southwark, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was nearly 18 per cent. below the average.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff-Surgeons: J. H. Fergusson to the *President*, additional, for temporary service at the Admiralty Recruiting Department; and D. W. Hewitt to the *Hood*.

ARMY MEDICAL SERVICE.

Colonel Henry J. W. Barrow is placed on retired pay (dated July 7th, 1910).

Lieutenant-Colonel Thomas J. O'Donnell, D.S.O., from the Royal Army Medical Corps, to be Colonel, vice H. J. W. Barrow (dated July 7th, 1910).

ROYAL ARMY MEDICAL CORPS.

Colonel A. Peterkin, Principal Medical Officer of the London District, has been selected to act as Administrative Medical Officer of the Second (Aldershot) Division during the Army manœuvres. Colonel H. J. Waller Barrow, Principal Medical Officer of the Third (Lahore) Division, has arrived home from India. Lieutenant-Colonel W. E. Berryman has been transferred from Delhi to Fyzabad and appointed to command the Station Hospital. Lieutenant-Colonel T. W. O'H. Hamilton, C.M.G., Staff Officer to the Principal Medical Officer of the Aldershot Command, has notified his intention to retire from the service. Lieutenant-Colonel C. E. Nichol, D.S.O., has arrived home on leave from India. Major M. P. C. Holt, D.S.O., surgical specialist at Ambala, has been transferred to Kasauli. Major J. W. Jennings, D.S.O., from Warrington, has taken over medical charge of the troops in Trawsfynydd camp. Major W. A. Ward has been transferred from the London District to the Eastern Command, and appointed a specialist in Dermatology and Venereal Disease at the Alexandra Hospital, Cosham. Captain J. W. L. Scott and Captain E. D. Cadell have arrived home on leave from India. Captain F. J. Brakenridge, from the London District, has taken up duty at Dover. Captain H. M. Nicholls has been transferred from Deolali to Colaba. Captain V. C. Honeybourne, from Rawal Pindi, has been appointed to the Station Hospital at Mhow. Captain G. E. Ferguson, from Alexandria, has arrived at Cyprus for a tour of duty. Captain A. H. Bond has been transferred from Rangoon to Naini Tal. Captain E. G. Anthonisz has joined at Bangalore from Madras. Captain J. D. Richmond has been appointed for duty at Kilkenny from Fermoy. Captain H. Harding, from Portland, has been posted to Cosham. Captain T. S. Blackwell has left Secunderabad for a tour of duty in Burma and has been posted to Bhamo. Captain W. McConaghy has been posted to the Southern Command. Lieutenant A. P. Hart has been appointed a specialist in Dermatology and Venereal Disease to the Burma Division.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel W. D. Sutherland has been confirmed as a Civil Surgeon, first class, vice Lieutenant-Colonel J. L. Poynder, retired. Lieutenant-Colonel H. H. Hendley has been granted two and a half months' extension of his combined leave. Lieutenant-Colonel W. H. Quicke has arrived home on leave. Major A. Leventon has been placed on deputation to the commission to inquire into the labour conditions in the Indian Tea Gardens, being relieved as civil surgeon, Rampore, Baulia, by Captain D. P. Goil. Major J. C. Robertson has been appointed to officiate as Sanitary Commissioner of the United Provinces during the absence on leave of Lieutenant-Colonel J. Chaytor-White. Majors E. V. Hugo and G. Hunt have arrived home on leave. Captain H. H. G. Knapp has been appointed Superintendent of the Central Prison at Rangoon in place of Lieutenant-Colonel G. J. H. Bell, who has been appointed Inspector-General of Prisons in Burma. Captain O. St. J. Moses, civil surgeon, of Purneah, has been appointed to officiate as Police Surgeon, Calcutta, during the absence on deputation of Major W. D. Hayward. Captain D. N. Anderson, officiating civil surgeon of Nagpur, Central Provinces, has been granted furlough on medical certificate for one year. Captain W. L. Harnett has been appointed in charge of the brigade laboratory, Jubbulpore, and to the officiating medical charge of the 22nd Punjabis. Captain G. A. Jolly, after a residence of two years in Japan, has qualified as an interpreter in the Japanese language. Captain J. N. Walker, civil surgeon, on being relieved at Mussooree, has been posted to Rae Bareli. Captain A. S. Leslie has joined the Jail Department of Burma and has been appointed Officiating Superintendent of the Insein Central Jail in place of Captain H. H. G. Knapp, transferred. On return from leave, Captain H. M. Mackenzie has taken over the appointment of Health Officer and District Medical Officer for plague prevention, Simla, relieving Lieutenant-Colonel H. B. Melville. Lieutenant A. M. Jukes, in charge of the brigade laboratory at Shillong, has been appointed a specialist in the Prevention of Disease. Lieutenant C. G. Jolly has been appointed a specialist in Radiography and Electrical Science to the Second (Quetta) Division.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

No. 18 Field Ambulance: The under-mentioned officers of the Royal Army Medical Corps, Territorial Force, are appointed in the ranks as stated against their names (dated March 7th, 1910):—Lieutenant-Colonel John B. Mann, 1st East Lancashire Field Ambulance, Royal Army Medical Corps, to be Lieutenant-Colonel; Major William B. Pritchard, 1st East Lancashire Field Ambulance, Royal Army Medical Corps, to be Major; Major Fred D. Woolley, 2nd East Lancashire Field Ambulance, Royal Army Medical Corps, to be Major; Captain George Ashton, 2nd East Lancashire Field Ambulance, Royal Army Medical Corps, to be Captain; Captain Charles Roberts, 1st East Lancashire Field Ambulance, Royal Army Medical Corps, to be Captain; Captain Henry G. Smeeth, 1st East Lancashire Field Ambulance, Royal Army Medical Corps, to be Captain; Lieutenant A. E. Hodder, from the List of Officers Attached to Units other than Medical Units, to be Lieutenant; Lieutenant Thomas Carnwath, 2nd East Lancashire Field Ambulance, Royal Army Medical Corps, to be Lieutenant; Lieutenant William H. P. Hey, 3rd East Lancashire Field Ambulance, Royal Army Medical Corps, to be Lieutenant.

TERRITORIAL FORCE.

Royal Field Artillery.

2nd West Riding Brigade: Supernumerary Surgeon-Captain John C. Wright is restored to the establishment (dated Jan. 17th, 1910).

Royal Engineers.

Lancashire (Fortress): Surgeon-Captain John Wesley

Lloyd to be Surgeon-Major (dated April 1st, 1908). Surgeon-Lieutenant John Owen to be Surgeon-Captain (dated Oct. 5th, 1908).

Royal Army Medical Corps.

3rd East Anglian Field Ambulance: Major and Honorary Surgeon-Lieutenant-Colonel Harry Thornton Challis takes precedence next above Major Josiah Oldfield.

2nd Northern General Hospital: Leonard Ralph Braithwaite to be Captain, whose services will be available on mobilisation (dated May 1st, 1910).

2nd Western General Hospital: Archibald Donald to be Captain, whose services will be available on mobilisation (dated March 6th, 1910). George Redmayne Murray to be Captain, whose services will be available on mobilisation (dated March 7th, 1910).

Attached to Units other than Medical Units.—Captain John F. Crombie to be Major (dated May 26th, 1910). Captain Robert Rannie to be Major (dated June 1st, 1910). Lieutenant John B. Rous resigns his commission (dated July 13th, 1910).

For duty with Units other than Medical Units.—Arthur Hill Burnett to be Lieutenant (dated June 1st, 1910). Percy Luke Armstrong to be Lieutenant (dated June 3rd, 1910). Alfred Sigismund Bruzaud to be Lieutenant (dated June 4th, 1910).

Unattached List.—Cadet Louis Lawrence Cassidy, from the Royal College of Surgeons (Ireland) Contingent, Senior Division, Officers Training Corps, to be Lieutenant, for service with the Royal College of Surgeons (Ireland) Contingent, Senior Division, Officers Training Corps (dated July 9th, 1910).

TERRITORIAL TRAINING.

The First Eastern General Hospital (Territorial Force) carried out their annual training at Colchester from June 25th to July 9th under the command of Colonel Joseph Griffiths. The camp was located close to the Military Hospital, Colchester, by the side of a section of a field ambulance occupied by No. 9 Company, R.A.M.C. Reveille sounded at 5 o'clock each morning, followed by company and stretcher drill until 7.30 A.M., when breakfasts were served. Lectures and demonstrations on field medical equipment were given from 9 to 10 o'clock, after which the duties varied. The general scheme employed was to attach the Territorial *personnel* to the respective posts they would occupy on mobilisation. This was carried out by allotting some to nursing duties in the wards of the military hospitals, others to cooking, store-keeping, and other routine duties. Half the regular *personnel* of the military hospital was withdrawn, to allow of the Territorials being trained, and sent out for field training under canvas with the sections of a field ambulance. Demonstrations were given in practical camp sanitation, methods of cooking in camp, the conservancy of drinking-water supplies, the means of disposal of excreta, refuse, and so forth. Major F. E. A. Webb of Cambridge acted as registrar of the general hospital, and Captain W. A. Woodside, R.A.M.C., of Ipswich, who is the adjutant of the East Anglian Division, Territorial Force, was present in camp throughout the entire training. Inspections were carried out by Colonel Sir James R. A. Clark and Colonel C. E. Elliston, principal medical officer of the East Anglian Division.

THE NAVAL MEDICAL SUPPLEMENTAL FUND.

At the quarterly meeting of the directors of the Naval Medical Supplemental Fund, held on July 12th, Inspector-General W. H. Lloyd, R.N., in the chair, the sum of £40 was distributed among the several applicants.

WE regret to announce the death of Dr. J. Hougham Bell at his residence at Ventnor, Isle of Wight, in his 65th year. Dr. Bell, who for many years was surgeon to the Royal National Hospital for Consumption and Diseases of the Chest, Ventnor, received his medical education at King's College, London, of which he was an Associate and Warneford scholar, at the University of Edinburgh, and in Paris. He became a Member of the Royal College of Surgeons of England in 1866, and in the following year took the degree of Doctor of Medicine at the University of Edinburgh. At one time he held the post of assistant medical superintendent at St. Andrew's Hospital for Mental Diseases, Northampton, and was also a resident clinical assistant at the Bethlem Royal Hospital.

Correspondence.

"Audi alteram partem."

AN AMBULANCE SERVICE FOR LONDON.

To the Editor of THE LANCET.

SIR,—That no adequate organisation exists at the present time for dealing with cases of accident or sudden illness in the streets and public places of the metropolis outside the City of London is a sufficiently astonishing fact. For some years past, alike in Paris and in Berlin, in New York and Boston, as also in Liverpool and Manchester, arrangements have been made by the concerted action of the police, the telegraph and telephone, ambulances and hospitals, to give the sufferers from street accidents the advantage of the latest resources of surgical science, and to convey them with the least risk of life or limb to the receiving wards of hospitals or to their own homes. Since 1907 the City of London has also been well provided for in this respect. It has a motor-ambulance, well provided with surgical appliances for accidents, and accompanied by an attendant skilled in giving first aid, which can be summoned by telephone by any City policeman. Call-boxes to the number of 52 are fixed in the principal streets, of which each City constable has a key, and by means of telephone apparatus fixed in these he can also send special messages to the chief office in Old Jewry if necessary. Outside the City boundaries, however, where the control of street traffic is in the hands of the metropolitan police, the most haphazard system, or want of system, prevails.

Some ancient and out-of-date wheeled stretchers are provided at police-stations and elsewhere, but the metropolitan police constable, when called to a case of accident, has no means of obtaining these in a hurry when wanted, and usually trusts to a passing cab, cart, or van, rather than wait half an hour or so while a messenger can be despatched to, and return from, the nearest police-station. In consequence of the increase in motor vehicles of all sorts in London there has been a very considerable rise in the number and severity of street accidents in the metropolis during the last few years. In 1907 the number of persons known to the metropolitan police to have been killed or injured in street accidents was 17,055, an increase of 6515, or 62 per cent. over 1905. At the same time an increase in the gravity of the accidents is indicated by the fact that the number of fatal accidents increased from 155 to 283, or 80 per cent. in the three years 1905–07.

Dealing with this subject in 1904, the chairman of the Ambulance Committee of the London County Council stated that nearly 70 per cent. of the street casualties at present conveyed to hospitals by some vehicle or other are taken in cabs and carts, and not in ambulances of any kind, and on this basis it has been calculated that from 8000 to 10,000 severe accidents were taken to London hospitals or elsewhere annually in cabs, carts, or other unsuitable conveyances. It must be remembered that these figures mainly represent persons constituting a large mass of the inhabitants—artisans and labourers—who are the most liable, by reason of their occupations, to sudden accidents; those, in fact, who are least able to provide for emergencies of that kind, and who, along with their families and dependents, suffer the more when thus overtaken, and especially when, from lack of proper provision at the time of the accident, their recovery and wage-earning power are unnecessarily delayed. On the other hand, it must not be entirely forgotten that the well-to-do citizen of Greater London might in like manner be suddenly struck down and rendered unconscious in the street, and thus have cause to remember with gratitude the preservation of his life or limb by the timely arrival of a well-equipped ambulance at the moment when the bystanders were wondering who he was and where he came from.

Representations on the subject having been made to the London County Council in 1904 by a body of medical men, they thereupon appointed an Ambulance Sub-Committee with Sir William Collins as chairman, and in 1906 applied to Parliament for powers to enable them to establish and maintain, or contribute to the establishment and maintenance of, an ambulance service for street accidents in London, but it appears that the ambulance clauses of their Bill (General

Powers, London County Council) were struck out in the House of Lords owing to the opposition of the Home Office. Lord Camperdown, the chairman of the committee, explained that the committee had been satisfied by the medical evidence brought forward of the desirability of establishing a good ambulance service, but the Home Office was opposed to the scheme of the London County Council, and Lord Beauchamp, representing the Home Office, stated that the Secretary of State was about to summon a conference of the three bodies concerned—the London County Council, the Metropolitan Police, and the Home Office.

The Home Office having thus prevented the London County Council, the only body which had ever applied to Parliament for the purpose, from obtaining the necessary powers for establishing an ambulance service, and finding that it had not thereby got rid of the subject altogether, the Home Secretary, Mr. Gladstone, proceeded, on Dec. 7th, 1906, to appoint a Departmental Committee, consisting of Sir Kenelm Digby (chairman), Lord Stamford, and Sir William Collins, "to inquire as to the provision made for dealing with cases of accidents and sudden illness occurring in streets and public places within the metropolis, and to report whether any, and if so what, improvements in ambulance provision are necessary or desirable, and how they could best be effected with due regard to efficiency and economy."

The Departmental Committee thus appointed spent two years and three months in taking evidence and considering its report. It obtained, we are told, some valuable information in a series of tables furnished by the Commissioner of Metropolitan Police, giving the working of the present system of dealing with cases of accident and sudden illness in the streets, including figures as to the number of cases, the mode of conveyance, the distance of the place where the casualty occurred from the nearest hospital and nearest wheel-litter, and so on.

Whilst the Departmental Committee of the Home Office was thus leisurely pursuing its way the City of London police authorities had already taken action. About the same time that the London County Council had been considering the matter the attention of the City Police Committee had also been called to it. Not being, fortunately for their freedom of action, under the control of the Home Office, nor under any necessity to appeal to Parliament, they had obtained authority from the City authorities to carry out what was seen to be a very great improvement in police administration, and in May, 1907, while the talkee-talkee stage in the Departmental Committee had yet nearly two years to run the City police authorities had established an electro-motor ambulance, summonable by telephone street calls, and had thus exhibited the practical and successful working of a rapid ambulance service in the very heart of the metropolis. This service was commenced provisionally on May 13th, 1907, with one electro-motor ambulance stationed in a temporary building adjacent to St. Bartholomew's Hospital. Eventually the service is to be worked from two stations—one a new building to be rented from St. Bartholomew's, and the other a new building adjoining the Bishopsgate police station. Two, or possibly three, motor ambulances will be used. Each ambulance is to be fully equipped with all appliances likely to be required for first-aid treatment. A system of 52 electric street call-boxes has been organised, by means of which any police constable can summon the ambulance. Each constable carries a call-box key. On the occurrence of an accident the constable who sees it or is called to the spot, if he finds that the case is one apparently requiring removal to hospital, opens the nearest box and pulls a handle, which gives a call at the head office. Communication can also be made at the call-box with the head office by telephone. The one ambulance already in existence serves the needs of the western half of the City, taking cases to St. Bartholomew's Hospital. It is contemplated that the second ambulance will serve the eastern half, working in connexion with the London Hospital. Captain Nott-Bower, the police commissioner for the City, estimates the total annual cost of the three motor ambulances intended to be provided at £3000 and the prime cost of each ambulance at about £600. Captain Nott-Bower says that it has been found after six months' working that the average time taken after the occurrence of an accident for the ambulance to arrive on the scene is under four minutes, and the average time before the patient is delivered in the accident receiving ward of the hospital is only nine and a half minutes, including the time taken in rendering first-aid on the spot; more than half the time previously taken in conveying an injured person to the hospital has thus been saved. When the Departmental Committee came to report upon the means actually in use by the Metropolitan Police for dealing with street cases of accident and sudden illness, they had to confess that it had been abundantly shown that the present system is gravely defective, and results in much preventable detriment by reason of the transport by unsuitable means of persons who have been injured or taken ill in the streets or other public places, and that the real evil arises from the great use which is made of ordinary vehicles such as cabs or vans in even serious cases which require the transport of the patient by the best possible means. At present practically all the cases are transported either by a wheeled litter, a stretcher, or in some ordinary vehicle, such as a cab, van, or tramcar, or are carried to the hospital.

Dealing with the question of police arrangements for summoning the wheeled litter (which the committee are far from regarding as an ideal means of removal), they have to report that at present no special provision is made (as in the City) for summoning it. It is either at the nearest police station or in its place elsewhere in the streets, and a messenger, another constable or a bystander, has to be sent for it—there being no telephone or telegraphic system of signalling available.

Thus far, as we have seen, the Departmental Committee are fully agreed that the present system is gravely defective, and urgently requires a remedy. It is when they come to consider what the remedy should be that differences manifest themselves, and here we get a glimpse of the possible reasons which led the Home Secretary to appoint this committee, when he could himself have easily obtained most of the essential facts they have so laboriously gathered through his subordinates at the Home Office and at Scotland Yard. Two of the committee, Sir Kenelm Digby and the late Lord Stamford, were of opinion that in the present circumstances prevailing in the metropolis the most efficient and economical system would be found in an extension of the non-infectious service of rapid ambulances which has been instituted by the Metropolitan Asylums Board. So far as relates to "street cases," they think this service should be worked in close coöperation with the Metropolitan Police. We do not recommend, they say, any alterations in, or interference with, the existing and contemplated system of rapid ambulances in the City of London.

We recommend, therefore, they continue, that the Metropolitan Asylums Board should be authorised by Act of Parliament to apply their funds to the establishment of a service of non-infectious ambulances for the transport of street cases, and to enter into agreements and generally coöperate with the Metropolitan Police for this purpose. Sir William Collins, the third member of the committee, dissents altogether from this view. He says he fails to appreciate the grounds of policy, administrative efficiency, or economy which would justify the imposition of this duty, for which they have never asked, upon the Metropolitan Asylums Board.

In the City the police authorities, of course, undertake the whole of the ambulance work, and Sir William Collins admits that there is much to be said for the Metropolitan Police undertaking the duty outside the City. If they were, he says, a municipal force as in the City and provinces, there can be little doubt that the duty would fall to them. (Here it must be recalled that the Progressive Party on the London County Council, of which Sir William Collins was one of the shining lights, long ago laid claim to have the control of the Metropolitan Police handed over to them.) But if the police are to be set aside, then he thinks the duty should be entrusted to the London County Council, who have sought powers from Parliament and have evolved a scheme for the purpose, rather than to the Metropolitan Asylums Board who have not. One of the medical witnesses having suggested to the committee that there might be a considerable surplus available from the Metropolitan Police Fund for the expenses of an ambulance service, a memorandum was put in by the Receiver for the Metropolitan Police, which is printed in the appendix to the report, and which shows, not a surplus, but a large deficit in the Police Fund annually. Here we have apparently the whole case against the employment of the police in a nutshell. It would cost too much!

If, now, we try to piece together the various facts we have obtained from the Blue-book containing the report of the

Departmental Committee and the accompanying Memorandum of Sir William Collins, we shall find that this is how the matter now stands. In 1906 the Home Office, the London County Council, and the City Police authorities had all become aware that a properly organised ambulance service was badly needed in London. The City Police thereupon set to work to organise such a system, and since May, 1907, have been working one so satisfactorily that the Departmental Committee of the Home Office has no suggestion to make for its improvement. The London County Council having in 1906 a Bill before Parliament for granting them additional general powers, included clauses enabling them to establish an ambulance service, which in consequence of the opposition of the Home Office were dropped out. Next, the Departmental Committee was appointed, and after two years and three months reported that the case for reform of the existing system (or want of system) had been fully made out, but two out of the three committeemen desired to throw the onus of providing an ambulance service on the Metropolitan Asylums Board, which had never asked for it, and apparently did not want it. As to the Metropolitan Police undertaking the duty, it was alleged they had no funds for the purpose, that they could not out of an annual income of over £2,360,000 provide for the purchase and upkeep of motor ambulances, and that though on occasion they had exceeded their income by £28,000, yet if the cost of providing rapid ambulances were to be thrown on the Police Fund it would become necessary to modify or repeal the statutory limit of 9*d.* in the £ imposed on the police rate by 31 & 32 Vict. cap. 67. Apparently it was thought by the Departmental Committee that the House of Commons would be unwilling to sanction the addition of even a farthing in the £ to the rate (which would have been amply sufficient), and on this ground alone, for none other is mentioned in the report, the majority of the committee decided, in the teeth of the opposition of their colleague, to recommend that the onus of providing an ambulance service for Greater London should be thrown on the Metropolitan Asylums Board.

Since March 1st, 1909, when the Departmental Committee presented its report, nothing whatever has been done by the Home Office to remedy the defects which its committee reported, but Sir William Collins before the Parliamentary session closed got a short Act passed enabling the London County Council, if it chose, to take action in the matter. It remains, therefore, with the Home Secretary recently appointed, and the London County Council recently elected, to say how long the discreditable state of affairs described in the report shall continue, and how much longer the thousands of unfortunate Londoners who annually meet with serious accidents in the streets will have to be carted to hospitals, or conveyed to their own homes, by means of obsolete wheeled litters, a passing growler, or a greengrocer's van.

I am, Sir, yours faithfully,

H. NELSON HARDY, F.R.C.S. Edin.

Croydon, July 8th, 1910.

MEASLES AND THE POST-OFFICE AUTHORITIES.

To the Editor of THE LANCET.

SIR,—Your correspondent, Mr. W. G. Groves, maintains that the infection of measles is frequently carried indirectly, and Dr. R. A. Fryer opposes the new practice of allowing children over seven, protected by a previous attack, to attend school while living in an infected house. This practice was commenced in London, on Dr. J. Kerr's recommendation, after an inquiry into 2700 cases of measles notified in Woolwich in the years 1901–06. The results of the inquiry, which mainly confirmed Dr. Kerr's previous conclusions, were described in papers by Dr. C. J. Thomas and myself, read at the London International Congress on School Hygiene. We came to the following conclusions, among others:—1. Probably every human individual is susceptible to measles until protected by a previous attack. 3. It is impossible to prevent the frequent introduction of measles into schools. 4. Once introduced into a class measles will spread with a rapidity proportional to the number of non-protected children attending, if the class continues to assemble. 12. Though preventive measures have largely failed to reduce the prevalence of measles, education of parents by leaflets, and instruction given by health visitors and others, has the effect of greatly reducing the mortality of this disease. 13. The great majority of children only have one attack of measles, and the infection is unlikely to be carried by a third person. 14. When two-thirds of a class are protected by a previous attack measles is not likely to spread, even if introduced, and measles contacts in the class who have had measles themselves need not be excluded from school. 15. In view of the above conclusions, which have for the most part been arrived at independently by other observers, it is desirable that the medical officers and authorities of schools should revise their regulations as to measles, with a view to avoiding unnecessary interference with education.

Dr. Thomas found that the majority of children in elementary schools over seven years of age had already had measles, and it could therefore usually be safely inferred that children from infected homes, even if they carried a few germs about them, would not convey the infection to classes of children in the boys' and girls' departments, where the children are nearly all over seven. For practical preventive measures one must consider, not possibilities, but probabilities, and the conveyance of measles by a third person can hardly be described as probable. Steps which interfere seriously with education ought to be well grounded, and those who advocate them should be able to show that the gain to health is clear and decided and not merely problematical.

Personally, I am of opinion that there is a very large amount of interference with education for the prevention of infectious disease which is unjustifiable and which causes much unnecessary expense to the parents of children in secondary schools. This is especially the case as regards non-fatal diseases, such as mumps and chicken-pox. The above remarks do not apply to children under seven whose school education is of secondary importance and who may justifiably be excluded from school if there is the least prospect of benefit to their health.

I am, Sir, yours faithfully,

Woolwich, July 9th, 1910. SIDNEY DAVIES.

AN IMPROVEMENT UPON THE SOUR MILK TREATMENT.

To the Editor of THE LANCET.

SIR,—I suppose that there are few of us who have not at some time during the past few years tried to a greater or less extent treating some of our chronic dyspeptics by means of soured milk. Although our experiences and consequently our opinions respecting the treatment have probably varied, there must be few who have not seen benefit result in some cases.

Now, however fond Bulgarians and others in Eastern Europe and Western Asia may become of their sour milk, it is certainly a fact that it is at first distasteful to most Western palates, and though it is usually tolerated on further acquaintance not many people get to like it, and in a great many, if not in the majority of, instances it is discontinued on account of dislike before its full benefit has been reached. In order to circumvent this fact and to extend the benefits of soured milk treatment to many who were either unable or unwilling, or both, to tolerate the distastefulness of the prepared milk, many attempts have been made to administer its active principle in either a tasteless or a palatable form. As bacteriology figures so largely nowadays in medical science, it was perhaps natural that the organism which appears to be the chief active agent in the souring process used in the Balkans should be the first thing credited with the benefits of soured milk. Therefore tablets by many makers, all claiming to contain the one and only necessary organism in pure culture and in an active condition, have been made.

To be fair to the medical designers and the original makers of these it is necessary to state that they were produced for the purpose of being used, according to careful instructions, for the home production of soured milk, and I believe I am right in saying that most of them, when used solely for this purpose, have given every satisfaction. Very soon, though, the tablets themselves began to be taken instead of soured milk, some milk being sometimes afterwards drunk, with the idea that the souring process would take place as efficiently inside the body as out of it, and so the bacilli swallowed would soon be multiplied a thousand-fold and would therefore accomplish what was

required of them; the prevalent idea still being that what was wanted was an overpowering number of living bacilli in the large intestine. With the same end in view, cultures of the bacilli have been incorporated into sweetmeats of various forms and into milk cheeses.

According to my own experience, and also that of all other medical men with whom I have spoken on the subject, treatment by means of what may be called "dry preparations"—i.e., tablets, sweetmeats, &c.—has been uniformly disappointing, while the cheese form of administration, though slightly better than the last, has not given results in any way comparable to those obtained by the administration of properly prepared soured milk. Moreover, the different grades of soured milk appear to be beneficial in direct proportion to their degree of sourness. Having constantly observed this to be the case, I came to the conclusion, from clinical observation, that the active principle of the Metchnikoff milk—i.e., the beneficial agent within the human body—was not the living bacillus but the lactic acid which it had produced. My view of the beneficial effect being, not a war between the bacillus of Massol and the bacillus coli communis, as was at first asserted, but the inhibition of any exuberant growth of bacillus coli by the lactic acid.

To test the soundness of my opinion I had made for my own use and that of some of my patients a syrup of pure lactic acid and sugar in such proportion that when diluted into a palatable beverage with either plain or aerated water it should become a solution of lactic acid of as nearly as possible 1 per cent. I found that this preparation gave all the good results obtainable from soured milk, with the additional advantage that it was palatable and readily taken, having a clean and pleasant taste; that it tended to increase rather than to diminish appetite; that it was found to have remarkable thirst-quenching and thirst-preventing properties; that there was no risk of introducing in it undesirable bacteria as has happened with the milk; and that although in no sense purgative it was found to be distinctly inimical to constipation. To make it more palatable I asked a mineral water manufacturer to bottle some for me, aerated and slightly flavoured, and he has made a very palatable beverage containing as before about 1 per cent. of pure lactic acid.

It is claimed that it is possible to produce in good milk 2·5 per cent. of lactic acid, but I think few of the milks usually made approach this strength, and if they did, I do not believe that many people would be induced to take them. My standard of 1 per cent. was, I admit, arrived at by testing the palatability of solutions of different strengths, and represents merely the quantity of acid which is pleasant to take.

In view of the amount that has been written within the last few years concerning coli and the coli group, it is scarcely necessary to enter into further explanations than to state that the claim that cultures of the bacillus of Massol have themselves the power of inhibiting the growth of organisms of the coli group is not borne out by experiments *in vitro*, where indeed the reverse appears to be the case. On reference to the literature of lactic acid, I find that it has been used and is recommended for the treatment of infantile diarrhœa with green stools, and also of chronic catarrh of the bladder with ammoniacal decomposition of the urine, both of which conditions are well known to be caused principally and usually, if not wholly and invariably, by B. coli and its near relations. In view of the enormous power for mischief now known to be possessed by B. coli and the coli group of organisms, which be it remembered includes B. typhi, and in view of the extremely limited benefit and general disappointment resulting from the administration of ordinary antiseptic substances in the hope of their being effective in relieving intestinal disorders due to excessive bacterial action, the utility of a harmless and not unpleasant agent which appears to have just the desired action would seem to be a very wide one.

To carry this matter further, it is my intention to publish as soon as possible the result of experiments showing the inhibitive action of lactic acid on B. coli and other organisms of the coli group, but I thought that as summer is upon us it would be a pity to withhold the conclusions arrived at by prolonged clinical observation until these were completed.

I am, Sir, yours faithfully,

WM. SALISBURY-SHARPE, M.D. Durh., F.R.C.S. Irel., L.R.C.P. Lond., M.R.C.S. Eng., D.P.H. R.C.P.S. Lond.

July 11th, 1910.

THE WORLD MISSIONARY CONFERENCE AND THE ABUSE OF OPIUM.

To the Editor of THE LANCET.

SIR,—Your editorial of July 9th under the above heading is calculated to create an impression that the fair city of Edinburgh is engaged in an illicit or immoral export traffic of supplying to China pills containing morphine, and "nominally designed to break the habit of opium smoking." You refer to evidence of all this adduced by the medical missionaries as being "simply appalling," but you give no details of information in support of a charge of so sweeping a character, and we would therefore ask your kind permission to make a few observations on the subject.

It is true that Dr. D. D. Main of Hangchow made a speech at Edinburgh recently which, as reported in the press, conveyed at first sight an impression somewhat akin to that formed by perusal of your own article. It is evident, however, that you cannot have followed the subsequent developments as reported in the *Edinburgh Evening Dispatch*, which give a very different complexion to the incident. Briefly, the outcome of it all is—

That Dr. Main regards the newspaper reports as grossly misrepresentative of what he actually stated. That in his speech he made no charge against the two firms in Edinburgh who are manufacturers of morphine of participating in or being sympathetic with any irregular purposes for which morphine may be or is subsequently employed.

That probably the smuggling, if it existed at all, was done by foreign countries, and that the reference to bicarbonate of sodium was with a view to suggesting that the morphine was smuggled not *as* but *in* kegs of that cheap and popular commodity.

We feel sure you will make the necessary correction in your next issue in order to remove what might be regarded as a damaging reflection on those engaged in the manufacture of morphine, and who conduct their business on perfectly honourable lines.—I am, Sir, yours truly,

For T. and H. SMITH, Ltd.,
ALEXANDER J. DEY, Director.

Blandfield Chemical Works, Wheatfield-road, Edinburgh, July 12th, 1910.

*** We have received a letter also from Messrs. J. F. Macfarlan and Co., the well-known manufacturing chemists of Edinburgh, calling attention to the fact that our editorial remarks would be read as an unqualified endorsement of Dr. Duncan Main's allegations, which were reported to have been made at a meeting of anti-opium, temperance, and other organisations, and not at the World Missionary Conference. Messrs. J. F. Macfarlan and Co. enclose copies of the *Edinburgh Evening Dispatch* which show the situation, on Dr. Main's acknowledgment, to be as described above by Mr. Alexander J. Dey. We much regret to have given currency to imputations which have no support.—ED. L.

A PRELIMINARY NOTE ON THE TREATMENT OF RODENT ULCER BY SOLID CARBON DIOXIDE.

To the Editor of THE LANCET.

SIR,—Dr. R. Morton's letter, which appears in THE LANCET of July 9th under the above title, rightly emphasises the economic importance of a resort to refrigeration of the morbid tissues in rodent ulcer, but when he speaks of this means of physical or molecular action superseding those by radium or the X rays I am unable to agree with him.

It is true that in his experience, as well as in that of others, the action and reaction can both be made to begin and end in the space of a few days. But is the histological texture and cosmetic result as good as that after the treatment by radium or the X rays? The therapeutic action of thermic and of the molecular agents is widely different. Whereas in the former *both the normal and abnormal cells* that inevitably come under the influence of refrigeration to a certain depth are all disrupted past molecular restitution of their proteidogenous matter, in the latter case *abnormal cells alone* are primarily influenced in such a manner that the minute motions of their molecular constituents become past molecular restitution, those in normal cells remaining uninfluenced for a much longer period. The processes of repair in the former case involve the regeneration of the epidermic tissues over the whole site of the reaction, the majority of whose cells are an imperfect replica of the original normal ones; in the latter case regeneration in the same sense is not required, the elimination of the

abnormal cells permitting of a coming together of the original cells there present.

In the third paragraph of his letter Dr. Morton states: "The facts serve to corroborate *my theory* (italics are mine) that the action should be sufficient," &c. I have been searching in vain for his theory, in this as well as in his previous contribution, and therefore beg to suggest briefly a theory in the hope of elucidating the therapeutical and biological effects he has touched upon.—I am, Sir, yours faithfully,

H. D. MCCULLOCH.

New Cavendish-street, W., July 12th, 1910.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Manchester's Water-supply.

WHEN the third great water-pipe from Thirlmere is not yet completed it seems almost premature to think that the lakes of Cumberland and Westmorland may have to yield further supplies to meet the needs of the Manchester district. But the population grows apace and requires far more water in proportion to numbers than sufficed for their grandfathers. This, of course, is all to the good, provided that waste can be checked, but it makes the problem of the water-supply of the large towns increasingly difficult. The population now served is said to be about 1,200,000. Some time in the "seventies," after severe and prolonged opposition, the corporation secured the Thirlmere watershed of 11,000 acres for the people of Manchester for all time. A start was made with the work towards the close of 1886, and eight years afterwards the first instalment of 10,000,000 gallons daily came to the district. The second line of pipes, bringing another 10,000,000 gallons, was completed in 1904, and the third pipe should be completed in 1912. Two other lines of pipes will be required to bring the 50,000,000 gallons which Sir John Harwood, the then chairman of the waterworks committee, said could be drawn daily from Thirlmere. This, in addition to the supply drawn from the Woodhead line of reservoirs, seems an ample supply for some years to come. But the fact that during the past 15 years the average daily consumption of water has increased from nearly 29,000,000 gallons to over 40,000,000 gallons makes it necessary to ask what will be required in 20 or 30 years. Thought is therefore already directed towards possible sources for the future needs of the district, and Haweswater and Ullswater have both been suggested. Indeed, before Thirlmere was decided on, the late Mr. J. F. Bateman, the engineer, suggested these two lakes as affording an ample supply for both Liverpool and Manchester. However, the late Mr. John Grove, a former mayor of Manchester, and the real originator of the Thirlmere scheme, strongly opposed any joint scheme. It is said that it would not be difficnlt to connect Haweswater with Thirlmere by conduit.

Banquet to Mr. T. C. Horsfall.

The Manchester and Salford Sanitary Association, though ill-supported by the general public, has always had a small band of earnest people, both lay and medical, who have worked steadily for many years in improving the health conditions of the people. The object of the association appeals strongly to the medical profession, who have long recognised the value of the self-denying philanthropic work of Mr. Horsfall in many directions, but especially as one of the staunchest lay supporters of the association. On the occasion of his seventieth birthday he was entertained at a banquet attended by a large number of Manchester's most public-spirited inhabitants, the chairman being Mr. Charles Behrens, the Lord Mayor.

The Building By-laws of Bolton.

Building by-laws are sometimes fairly open to criticism, as Dr. J. H. Thompson of Bolton showed at a meeting of the corporation a week ago. He spoke of the position of the council in dealing with consumption, and said that with the present by-laws, which were a standing disgrace, they were as helpless as children. In houses that are being built to-day he said the sleeping rooms "were not a particle better than the cellars of ancient times." It is to be feared that he rather advocated a counsel of perfection when he said that "in the interests of humanity it was high time they ceased to consider whether houses paid or not, and to say that dwellings should not be built to foster and generate disease." Of course no such dwellings should be built, but the cost of building has greatly increased, so that private people, most of whom want some modest interest for their money, are deterred from building, while if municipal authorities build it is almost always at a loss which falls on the ratepayers. To distribute the inevitable loss among the public in this way seems, however, the only solution of one of the most important economic problems of the day.

Degree Day at the University.

The midsummer Degree Day at the University of Manchester always appeals to local patriotism, and this year, though there was no special medical interest, it was an attractive function. In the absence of the Duke of Devonshire, the Vice-Chancellor, Sir Alfred Hopkinson, presided, and many distinguished men, among whom was Dr. Hicks, the recently-appointed Bishop of Lincoln, received honorary degrees. Of those conferred on ladies, one of the most interesting was that of the M.A. degree conferred on Miss Dendy, who has for 13 years been a member of the Manchester education authority. She was the founder of the National Society for the Permanent Care of the Feeble-minded, a society which may become of untold value in saving the country from the perpetuation of a degencrate and mentally weak population. Through her instrumentality four schools in Manchester have been established for these "mental waifs and strays," as Professor Conway called them, and at the age of 16 they are transferred to the farm-house at Sandlebridge, near Chilford, where they are said to be bright and happy and to be usefully employed. Yon have more than once had the pleasure of publishing work by Miss Dendy in your columns.

July 12th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

University of Liverpool: Address to the Crown; Graduation Ceremony.

ON July 8th a deputation from the University, consisting of the Chancellor, the Pro-Chancellor, the Vice-Chancellor, and Professor Herdman (the senior member of the Senate), attended at St. James's Palace and presented a loyal address to His Majesty the King on his accession to the throne. The King graciously accepted the address. As visitor His Majesty will be officially connected with the University, an honour which is much valued. In the address allusion was made to the regret of the University that it was now impossible to add His Majesty's name to the list of honorary graduates, and in this way to make him a member of the University.—The graduation ceremony held at St. George's Hall on Saturday, July 9th, attracted a large concourse. Members of the University and leading citizens constituted the interested audience. The ceremony was shorn of much of its impressiveness owing to the absence of several distinguished persons who were to have received honorary degrees, this special function having been unavoidably postponed owing to the death of his late Majesty King Edward VII. The Vice-Chancellor, who presided, was able to give a very encouraging account of progress, and the usual appeal for further funds was made, this year especially on behalf of the Students' Union building fund, for which a further £8000 was asked. The Vice-Chancellor said that this was the end of a very eventful session, the chief matter for regret being the number of good men who had left the University. Their places will be filled or have been filled by the appointment of other good men, but many will miss the old faces, and to some the place can never be quite the same without such old friends as the late Dr. Campbell Brown, and Professor Strong and Professor MacCunn. They unfortunately had to postpone the conferment of honorary degrees, but he hoped that a date would be found possible in November. The ceremony of conferring degrees was then proceeded with, which included recipients from the various faculties.

Complimentary Banquet and Presentation to Dr. William Alexander.

On the occasion of his resignation as honorary surgeon from the Royal Southern Hospital, after 22 years' service, Dr. William Alexander was, on July 8th, entertained at a complimentary dinner which was given by his friends and

colleagues at the Adelphi Hotel, Liverpool. The principal event of the evening was the presentation to Dr. Alexander of his portrait painted in oils by Mr. Frank T. Copnall. Among those present were Sir James Barr, Mr. G. P. Newbolt, Dr. J. Lloyd Roberts, Mr. Robert Jones, Mr. F. T. Paul, Mr. T. H. Bickerton, Dr. W. Carter, Dr. Nathan Raw, Dr. W. Permewan, Dr. F. H. Barendt, Dr. C. J. Macalister, Dr. Hugh Clark, Dr. J. E. McDougall, Dr. J. E. Nevins, and Dr. W. Paterson. Letters of regret were received from several of Dr. Alexander's medical colleagues who were unable to be present. Mr. William Adamson, chairman of the hospital, presided. The toast of "The Royal Southern Hospital" having been proposed by Sir Edward Russell and responded to by the chairman, Mr. Robert Jones proposed the health of Dr. Alexander. By the resignation of Dr. Alexander he said the hospital had lost a most devoted servant, the colleagues of Dr. Alexander a genial and kindly friend, and the public a sympathetic friend who was always a tower of strength in dire affliction. For more than 20 years Dr. Alexander, with wonderful sacrifice and with constant loyalty to his colleagues, had done brilliant work with great cheerfulness. He was the most friendly of men, with whom they had never had even the semblance of a quarrel. Dr. Alexander was not merely a brilliant operator but a philosophic surgeon. There was not a single half-inch of the human body that he had not traversed, and in many regions he had been absolutely a pioneer. Mr. E. G. Buckley, deputy chairman of the Board of Economy of the Southern Hospital, seconded the proposal, which was supported by Dr. Carter. The chairman, in presenting the portrait, said that Dr. Alexander had given devoted attention day and night to the patients under his charge, and during the 22 years of his association with the hospital he had performed about 14,000 major operations. While the portrait was being unveiled those present joined in singing "Auld Lang Syne," and the drinking of the toast was received with further musical honours. Dr. Alexander, in acknowledging the gift, said that when he began his work at the hospital there were only a few diseases that could be cured by operation; when he left there was scarcely a region of the body where surgery was not effective, and operations beyond the wildest dream of surgeons in 1888 were performed safely, quickly, and pleasantly in 1910. He was sorry to sever his connexion with the committee of the Royal Southern Hospital, who, under the leadership of their president, Mr. William Adamson, had built the first modern operating theatre in Liverpool, and the second in England. Their X ray department led the way, and their tropical ward was unique among the hospitals of Liverpool. His professional colleagues were gentlemen with whom he was very proud to be associated. In conclusion, Dr. Alexander paid a warm tribute to the services of the matrons and the nursing staff, who, he said, were the main props of the surgical system of the hospital.

July 12th.

WALES.

(FROM OUR OWN CORRESPONDENTS.)

Public Health Laboratories in South Wales.

IN the year 1899, acting on the advice of the county medical officer of health, Dr. William Williams, the Glamorgan county council established a public health laboratory in Cardiff, and shortly afterwards the corporation of Cardiff undertook to bear a portion of the cost of the enterprise, which has since been under the control of a joint committee of these two bodies, the medical officers of health of the city of Cardiff and Dr. Williams acting as directors, Dr. H. A. Schölberg being bacteriologist, and Mr. J. H. Sugden, M.Sc., F.I.C., assistant bacteriologist and chemist. Systematic work is carried on in the examination of public water-supplies, of samples of food, milk, meat, &c., and of specimens sent by medical men in the town of Cardiff and the county of Glamorgan. It is to be regretted that in his last annual report Dr. Williams had to deplore that more use was not made of the institution by the practitioners of the county. During 1909 there were examined 349 samples of water and 145 samples of sewage, and 906 specimens were submitted to bacteriological examination, of which number 320 were for suspected diphtheria and 250 for the suspected presence of tubercle bacilli. Some three years ago the medical practitioners in Swansea urged upon the corporation of that town the desirability of providing a similar laboratory for Swansea, and although they were not successful in convincing the corporation of the necessity for such an institution, the question has not been allowed to drop, and a proposal has now been made that there should be a laboratory at the Swansea Hospital under the joint control of the hospital board of management and the corporation, who should bear the cost in equal proportions. Deputations from the Swansea Division of the British Medical Association have recently urged these two bodies to coöperate on the lines indicated, and suggested that the medical officer of health, Dr. D. J. Morgan, should act as honorary bacteriologist, assisted by a bacteriologist at a salary of £350 per annum. The working expenses they estimated at £150 yearly in addition. Dr. T. D. Griffiths pointed out that much time was now lost in sending specimens to Cardiff or to London, and Mr. W. F. Brook referred to the usefulness of a local laboratory in the investigation of certain industrial diseases incident to the district, such as plumbism, nickel poisoning, and diseases connected with the manufacture of patent fuel, which is carried on extensively in the neighbourhood of Swansea.

First Aid in Colliery Districts.

Contrary to what might be expected it is only in quite recent years that classes for instruction in first aid have been at all popular in the colliery districts of South Wales. During the first 10 years after the formation of county councils such classes were formed under the auspices of the technical instruction committee of the Glamorgan council, but very little enthusiasm was shown in the subject either by the colliers themselves or by the colliery owners. During the past few years a great alteration has taken place, and now the keenest interest is shown in every form of ambulance work. In the Rhondda valleys this is almost entirely due to the presentation five years ago by Sir Charles Warren of a shield, which is held for 12 months by the team which acquits itself best in an annual competition. There are now in the Rhondda valleys some 3000 men who hold the certificate of the St. John Ambulance Association. There are, however, accidents peculiar to colliery districts for which special provision has to be made. In this connexion the colliery owners of South Wales have not been inactive, and already two rescue stations have been established, one at Crumlin and the other at Aberaman, where suitable apparatus for artificial breathing has been installed and where men are trained in its use. A third station for the Rhondda valleys is to be erected at Porth, at the junction of the two Rhondda valleys, for the use of the collieries in those valleys. The cost, which is to be borne by the colliery proprietors, will be about £5000. It is intended that there shall also be a station at Swansea for the western colliery district and one at Tondu for the Garw, Ogmore, and Llynvi valleys. It would thus appear that in South Wales there will be little need for the compulsory powers contained in the Government Bill introduced into the House of Commons on June 26th by Mr. Masterman, Parliamentary Under Secretary for the Home Office. That Bill seeks to make it compulsory upon colliery owners when required by the Home Secretary to provide efficient rescue apparatus for collieries and to train rescue brigades.

Infantile Mortality in Cardiff.

In his annual report for 1909 the medical officer of health of Cardiff, Dr. E. Walford, is able to report a further decline in the rate of infantile mortality. For the whole town the rate was 103 per 1000 births, compared with 124 per 1000 in 1908, and with an average rate of 139 per 1000 in the 10 years 1899–1908. More than one-third of the total deaths of young children occurred amongst those under one month old, and of these 65 per cent. took place during the first week of life and were for the most part attributed to premature birth, congenital defects, atrophy and debility, and to convulsions, a group of conditions due in all probability to ante-natal causes, depending upon the state of health of the mother during pregnancy. When commenting upon the increasing number of deaths of young children who come into the world prematurely with little chance of survival, Dr. Walford thinks it probable that the increase is more apparent than real, owing to the greater accuracy of certification and registration. The adoption and enforcement of the Midwives Act, 1902, and of the Notification of Births Act, 1907, has led, he considers, to the certification of the deaths of a large number of infants who lived but a very short time, and which under former conditions would have been classed amongst the

unregistered births. The number of births notified to the medical officer of health during 1909 was 97 per cent. of those which were ultimately registered. As many as 90 per cent. of the notifications were from midwives. The satisfactory saving of infant life in Cardiff is no doubt in large measure due to the employment of two health visitors, who for several years have been actively engaged in giving advice to mothers relating to the feeding and rearing of their children. That there is still plenty of scope for the labours of these officials is evident from the fact that in the south ward the infantile mortality rate in 1909 was equal to 154 per 1000 births, while in the Adamstown ward it was as high as 160 per 1000.

July 12th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Chair of Midwifery at Anderson's College, Glasgow.

AT a meeting of the governors of Anderson's College Medical School, Glasgow, held last week, Dr. John M. Munro Kerr, obstetric physician to the Glasgow Maternity Hospital, gynæcologist to the Western Infirmary, and formerly assistant to the professor of midwifery, University of Glasgow, was appointed to the chair of Midwifery and Gynæcology at the school in room of the late Professor John Edgar.

Glasgow Dental Hospital.

The recently issued annual report of the Dental Hospital in Glasgow indicates that that institution is doing a good work and gradually extending its sphere of influence. There can be no doubt that many of the less well-educated classes are awaking to the advantages of attending to the teeth before the process of decay has rendered conservative measures impossible. The number of patients treated in the hospital last year was 14,362, being an increase of 1003 on the record of the previous year. Last year the proportion of conservative operations reached its highest mark, being a little over 76 per cent. of the whole, and this year that proportion has been maintained. The hospital was opened in 1885, and since that time there have been gratuitously treated 162,603 cases of various forms of dental disease. The number of students at present on the roll as receiving practical training in dentistry is 48. During the past year the directors have expended £1200 in extending the buildings of the hospital.

Important Compensation Case.

In Paisley sheriff court last week the sheriff gave his judgment in an important and, from the medical point of view, rather interesting compensation case. The action was raised by a widow for compensation for the death of her husband, Samuel Dunnigan. While at his work he was struck by a stone falling on him from above. He continued to work throughout that day and for three days afterwards, when he returned to his home in Elderslie feeling unwell. The medical man ordered him to be sent to the cottage hospital, where he remained for two days and then insisted on being taken home. The day after he returned home he died from pneumonia. The sheriff found the defenders liable in compensation and also in expenses. In a note he added that the history of the accident, the sequence of the man's symptoms, the post-mortem finding of pneumonic engorgement of the lung at the right base, all corresponded with the theoretical construction of a case of contusional pneumonia, and admitted of no other satisfactory explanation. The pre-existing lung disease discovered at the necropsy—viz., the abscess at the left apex and the old pleuritic adhesions—doubtless rendered it easier for pneumonia to supervene upon the injury, and the man's folly in leaving the hospital probably accelerated his death, but these circumstances could not disestablish the conclusion that but for the accident he would not have died how and when he did die.

Forfarshire Medical Association.

The fifty-second annual meeting of the members of this association was held on July 1st, in Montrose, Dr. H. J. Hoile (Montrose), vice-president, presiding. The following were appointed as office-bearers for the year:—President, Dr. J. K. Tulloch (Dundee); vice-presidents, Professor J. A. C. Kynoch (Dundee) and Dr. A. E. Kidd (Carnoustie); members of council, Dr. W. E. Foggie, Dr. W. S. Malcolm, Dr. G. F. Whyte, Professor D. MacEwan, Dr. C. McVicar, and Dr. A. MacGillivray; treasurer, Mr. L. T. Price; general secretary, Dr. G. W. Miller; reporting secretary, Dr. C. Kerr; local secretaries, Dr. T. B. Adam (Brechin), Dr. Hoile (Montrose), Dr. D. Laing (Arbroath), and Dr. J. D. L. Macalister (Forfar). The members afterwards dined at the Star Hotel.

July 12th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

A Housing Scheme in Dublin.

A FEW weeks ago the chief engineering inspector of the Local Government Board held an inquiry into the merits of a proposal by the corporation to build houses for the working classes in the "Cook-street area." It appears that under Mr. Clancy's Act of 1909 the corporation in dealing with the problem could proceed in one of two ways. Part I. enables the corporation upon the certificate of its medical officer of health to compulsorily acquire, subject to arbitration as to price, sites and buildings thereon, such districts as constitute "unhealthy area." Part II. casts upon the corporation the "duty" of inspecting districts to ascertain "whether any dwelling-house therein is so dangerous or injurious to public health as to be unfit for human habitation," and ordering the removal or rebuilding of such premises. In the present instance the corporation is proceeding under Part I., the expense to be incurred being therefore very great. In a report in 1909, however, the medical officer of health, in speaking of Cook-street district, said not only of the buildings to be removed but of the surrounding property, in the midst of which the corporation proposes to provide new dwellings, that "all the houses, courts, and laneways are unfit for human habitation." It appears, therefore, that whereas the corporation has the power of compelling the slum-owners either to clear the ground or rebuild the tenements, it has decided to buy out the rights of the owners at a price to be fixed by arbitration. Naturally, this unnecessary expense has roused opposition from the ratepayers, and there is danger of the whole scheme miscarrying.

King's Professorship of the Practice of Medicine.

The Royal College of Physicians met on July 8th to elect a King's Professor of the Practice of Medicine in room of Dr. J. Magee Finny, who did not seek re-election. It is the duty of the King's professors to give clinical teaching in Sir Patrick Dun's Hospital, and systematic lectures in the School of Physic in Trinity College, and their election rests with the Fellows of the Royal College of Physicians. The election resulted in the appointment of Dr. James Craig, who has been for several years physician to the Meath Hospital. Dr. Craig's appointment vacates the office of registrar of the College, which he has held for 13 years. It is stated also that he does not intend again to be a candidate for the general secretaryship of the Royal Academy of Medicine, which he has held for six years. There are already many candidates in the field for both posts.

Public Health Administration in Belfast.

It is unfortunate that the public health administration of Belfast should be constantly under discussion, but the board of guardians and the public health committee, both of which have to do with the health of the city, are now disputing. Recently a deputation from the guardians waited upon the public health committee in reference to a letter from the Local Government Board regarding small-pox and also in reference to the present abnormal outbreak of measles, and the guardians' representatives were, according to their statements made in the public press, treated badly. It is said the chairman of the public health committee (who has been quite recently appointed in Dr. J. King Kerr's place) refused to let the guardians know the opinion of the dispensary medical officers as to whether measles should be made notifiable or not. Further, when the guardians asked for the figures showing the death-rate outside as compared with that within the union workhouse hospital, they were met with a refusal. At the board of guardians' meeting on June 28th, at which these statements were made, it was pointed out that during the outbreak of measles at present still raging 376 cases were admitted into the Belfast union workhouse fever hospital, 262 were discharged, 41 died, and 73 were still remaining. The mortality was 10·9 per cent.; and it was claimed that these were the lowest

returns of any similar epidemic in Belfast, and that the death-rate in the city outside the union hospital was nearly double this. It seems that the dispensary medical officers, who constitute the 14 local medical officers of health in their respective districts, sent a resolution which they had unanimously passed recommending that measles should, from a public health point of view, be managed exactly in the same way as scarlet fever or small-pox—that is, as regards isolation, disinfection, and hospital treatment. On July 1st the chairman of the public health committee, at the monthly meeting of the corporation of Belfast, admitted this, but his reply was that in his opinion the resolution of the dispensary medical officers "was rather a tall order." It is known that Dr. C. J. Clibborn, the Local Government Board medical inspector, expressed himself strongly in favour of the view of the dispensary medical officers on the occasion when the guardians' deputation waited on the public health committee. He dissented from the view, which was, it is said, actually put forward, that the best way to treat measles was in accordance with the popular notion that children were bound to take it, so that it was wiser not to bother about the matter, but to let them have it and end the epidemic, the questions of mortality or of sequelæ in measles being apparently of no moment. The chairman of the public health committee said on July 1st that it was impossible to estimate the percentage of deaths of measles occurring outside the union hospital, because the public health committee had no data on which to base its calculations, and that it was not possible under present conditions to get at these figures. This was an inconvenient admission. After the severe way in which the report of the Belfast Health Commission commented on the total absence of vital statistics in the city, recommending, even if fresh legislation should be necessary, that steps should be taken "without loss of time" to remedy this defect, it is awkward to allow that, more than two years after the Belfast Health Commission has reported, nothing has been done. The chairman of the public health committee said that it would be a mistake to make measles notifiable until they had in operation the machinery to cope with it. This is sound, but it is the duty of the public health committee to see that this machinery is got ready. We do not want to have again in Belfast public opinion forcing reforms in public health on the public health committee instead of the latter leading in such vital matters. As a result of the action of the Belfast board of guardians, it was announced in the papers of July 9th that a special meeting of the public health committee is to be held to take into consideration the representations of the board of guardians as to hospital accommodation in the city for the treatment of infectious diseases. The report of Dr. A. G. Robb (physician to the municipal infectious diseases hospital) as to the additional hospital accommodation required at Purdysburn Fever Hospital, will also be considered, as will the report to be submitted by the medical officer of health on the notification of measles. This report has been ordered by the health committee with a view of reporting to the city council of Belfast on the entire question. During the week ending July 2nd 25 deaths from measles occurred in Belfast, while in the whole of the other urban districts of Ireland there was only one death from this zymotic.

Belfast Asylum.

At a meeting of the Belfast Asylum Committee held on July 11th notice of a motion was given that the time had arrived when steps should be taken to dispose of the old asylum property at Grosvenor-road with a view to the transfer of all the patients from the institution to Purdysburn Asylum. There can be no question that it would be a much wiser plan to have all the patients removed to the central asylum at Purdysburn in the country, and the matter will be fully discussed in all its bearings at the next meeting. By selling the old asylum grounds the corporation may raise all the money required for the transference and housing of the patients at Purdysburn.

The Queen's University of Belfast.

The first public graduation ceremony is to be held in the Ulster Hall, Belfast, on July 26th, when the Chancellor, the Earl of Shaftesbury, will preside. The various medical examinations are proceeding at present.

Cowan Heron Hospital, Dromore.

At the tenth annual meeting of this cottage hospital, held on July 8th, it was reported that Mr. W. C. Heron, D.L., who founded it, had during the year handed to the trustees £3000, for which he was heartily thanked. 56 cases were treated during the past year, of which 19 were surgical and 37 medical. The income was £430 5*s.* and the expenditure £338 12*s.* 10*d.*, leaving a balance of £91 12*s.* 4*d.* to be carried forward. The medical staff were thanked for their gratuitous services.

July 12th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Sale of Quinine in Tunis.

THE Director of Finances in the Government of Tunis has recently made an order which will give increased facilities for the public sale of quinine at a moderate price. From July 1st all the retail tobacconists in that country are under an obligation to sell chlorhydrate of quinine to the public in boxes containing 20 *dragées* of 20 centigrammes each, to be supplied by the central warehouse to which they ordinarily have recourse. Pharmaceutical chemists making application to that effect will receive supplies of these *dragées* from the monopoly department, and will sell them to the public on terms corresponding with those appointed for the retail tobacconists.

Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis.

At a meeting of the Société Médicale des Hôpitaux held on June 17th, M. Kuss, physician to the sanatorium at Angicourt, showed three patients who had been treated by the intentional formation of pneumothorax. One of them had suffered from chronic pleurisy with suppuration; under the influence of intrapleural injections of nitrogen the lesions improved and the effusion diminished. The other two patients had not suffered from pleurisy, but had received intrapleural injections of nitrogen on account of pulmonary disease. These injections had to be repeated somewhat frequently owing to the rapid absorption of the nitrogen. The condition of the patients had improved. In describing the method of making these injections M. Kuss said that they presented some difficulties on account of which it was desirable that the operator should have the assistance of radioscopy.

The Treatment of Cobra-bite.

The cobra is the most formidable of poisonous serpents, for its bite is considered to mean certain death, the action of its poison being terribly rapid. The method of preparing an antivenomous serum was discovered some time ago, and it subsequently occurred to M. Dastre, a professor at the Sorbonne, that in a case of cobra-bite means might be found for retarding the action of the poison until the serum could be administered and sufficient time allowed for it to produce an effect. Speaking on the subject at a meeting of the Academy of Sciences, held on July 4th, he said that the deadly influence of cobra poison was exerted on both the respiratory and the circulatory systems, a physiological fact which led him to presume that in a case of cobra-bite artificial respiration might prolong the interval of resistance offered by the victim's organism to the action of the poison. Further investigation showed that in rabbits a dose of poison which ordinarily proved fatal in 25 minutes required nine hours for the fatal effect when the animal had been treated by artificial respiration. He therefore recommended that artificial respiration should be employed immediately after a person had been bitten, and that antivenomous serum should be injected as soon as possible. The serum required an hour or two for the production of its effect, and the artificial respiration ought to be continued without interruption during the whole time.

Fatal Accident to a Medical Man.

After spending the evening of July 4th at a music-hall in the Champs Élysées, Dr. Duchastelet was preparing to return home in his electric coupé, and was in the act of lighting the lamps when the vehicle suddenly started off and threw him violently against a carriage which was standing at a distance of a metre in front. The unfortunate man was terribly crushed, while the two vehicles, the one pushing the other, still went forward and overturned a passing cab. The bystanders having come to his assistance, he was removed to the Hôpital Beaujon where he died

on his arrival. Dr. Duchastelet, who was 52 years of age, had been a pupil of Professor Guyon, and in his practice he devoted special attention to diseases of the genito-urinary organs. A man of genial disposition, he was very popular in literary and artistic circles. He was an intimate friend of the great painter Meissonier, who, on his death, left him the horse which had served as a model in several representations of battles. Dr. Duchastelet was also a devoted friend of François Coppée, was constantly with him during the closing period of his life, and on his death succeeded to all his property.

Treatment of Hæmophilia by Animal Serum.

At a meeting of the Surgical Society held on June 22nd M. Broca said that the use of injections of animal serum for the arrest of hæmorrhage was permissible only in cases of genuine hæmophilia diagnosed either by the clinical history or by examination of the blood. Most of the failures which had been encountered arose from attempts to employ this method in the case of patients suffering from hæmorrhage due not to hæmophilia but to some other cause. The coagulation of the blood was always retarded in hæmophilia, and this retardation was antagonised by the injections of serum. In four patients whose progress had been followed for several years preventive injections of serum given every three months had proved very beneficial, and coagulation of their blood now occurred in 20 or 30 minutes instead of, as formerly, in periods varying from 3 to 12 hours.

The Organisation of the Vaccination Service in Paris.

The Paris Municipal Council, as the result of a report of the Prefect of the Seine, is organising a vaccination service. The public will be able to get vaccinated and revaccinated by the medical men of their choice, and the certificates of the medical men, certifying that vaccination or re-vaccination has been performed with success, will be registered. The vaccination and revaccination will be performed gratuitously at regular hours, the place of operation being selected in different districts. The administration of the Assistance Publique will receive payment for the use made of its premises. The selected medical man will receive a fixed fee of 15 francs for each attendance and 30 centimes for each vaccination. The vaccine will be furnished by the public authorities. In the maternity institutions vaccination of infants will be regulated by the Assistance Publique through medical men and midwives, who will receive a fee of 15 centimes for each operation, while medical inspectors of the schools of the city will superintend revaccinations of the children in their eleventh year.

July 12th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Alcoholism and Pornography.

THE "Third Italy," as it is called, by way of distinction from the "first" or pagan, and the "second" or mediæval, Italy, is confronted with two social problems of vast proportions and bewildering complexity—to wit, "how to antagonise and ultimately to control the tendency to alcoholism and sexual vice." The former of these (alcoholism) was practically unknown to the first or pagan Italy; the latter is in no wise less real, if not more obtrusive, than under the later Republic and subsequent Empire. Both are now "burning questions" before the legislature. Both, under the Budget of the Minister of the Interior, have just been engaging Parliament in earnest and prolonged discussion. Alcoholism, by the admission of all parties in the State, has, extensively and intensively, become a national scourge, *pari passu* with the increase of population and of industrial activity. Take any main street in the chief cities—the Corso of Rome, for example, or the Toledo of Naples—and note the frequency with which the ominous rubric "American Bar" occurs on either side, thronged all through the day and well into the night by customers for whom "straight drinks" have, within the last decade or so, become an attraction, not to say "craving." Up to the "eighties" of last century the Italian, even of the great industrial centres, rarely drank to excess even the thin wines of his native country. Intoxication and the crime engendered by it were exceptional occurrences. Now there is an all too manifest change for the worse. Drunkenness has become common enough to lose much of the disgrace attaching to it, and, particularly among the youth—corresponding to the "prentice" class of seventeenth century London—it is the provoking cause of the hooliganism which has made the lower quarters or the less frequented thoroughfares of Milan, or Florence, or Rome, or Naples quite unsafe for the respectable wayfarer. The recent introduction of the "day of rest," far from conducing to healthy recreation or to the encouragement of refined amusement, has, on the testimony of such authorities as Professor Angelo Celli, given a fresh impetus to dissipation, followed by the opening of "osterie" (public-houses) at hours when they used to be closed and by the thronging of the streets with

"Arm-linked youths meandering home,"

coming into collision with others in similar condition or with the well-conducted citizen, male and female. Take any journal of any of the great cities referred to and note the frequency with which the "teppista" (the Italian equivalent for hooligan or *apache*) contributes to the "cronaca nera" or police report during the week, and you will form some notion of the crime, encouraged or intensified under the incentive of strong drink, of the turbulence imparted by it into the thoroughfare, and of the misery which darkens the domestic circle. This sad innovation in Italian centres, discussed and deplored in Parliament, has inspired the Prime Minister, Signor Luzzatti, who also presides at the Home Office, to start an "inchiesta" (inquiry) through the prefects of the kingdom as to the spread of alcoholism, the crime, the disease (mental as well as physical) engendered by it, the means by which "artificial thirst" is created and gratified, and the steps to be taken for the control of the liquor traffic. The circular before me, with its five heads indicating the direction in which the prefects are to report to the Home Office on the prevalence, the causes, and the control of the evil, is a measure adopted not a day too soon if Italy is not to lapse still further on the down grade (physical and mental) on which she has lately been descending.

Not less deplorable is the sexual vice with which Signor Luzzatti is endeavouring to grapple—vice all too familiar to pagan antiquity (*teste* a Juvenal or a Martial), but not less gross, physically and mentally, in what is proudly called "La Terza Italia" (the Third Italy), the Italy of to-day. Again the Italian Premier has addressed to the local authorities, municipal and communal, urban and provincial, throughout the kingdom an energetic circular drawing their attention to the incentives, the provocatives to "venery," conveyed in the pornographic "literature," printed and illustrated, exhibited at every kiosk, at every railway-stall, at every newsvendors', aye, and even in the shop windows of booksellers who pose as respectable. To check or suppress the supply of that "literature" will tax, indeed, all the ingenuity of Italian officialdom, purveyed as it mostly is from abroad—Paris alone (as came out at the Anti-Pornographic Congress held there two months ago) contributing to it by the ton and contriving to have it so conveyed, under fictitious labels, from one port to another, as to make detection supremely difficult. Last year there were confiscated on the premises of one photographer in the French capital 60,000 kilogrammes of obscene pictures; in the establishment of another the impounded postcards, photographs, fignres in gypsum or papier-maché of the most lascivious character required several wagons for their removal; while one vendor of "pornography," condemned to a term of imprisonment for his misdeeds, had been so enriched by his *métier* as to have a superb automobile in waiting for him at the jail doorway to take him home on the day of his release! Here, indeed, is a problem of the "sparingly soluble" kind! Fine art, literature, scenic representation, all are nowadays infected with an animalism, a sensuous fleshliness, at their worst, no doubt, in Latin countries, but gradually spreading from these into what used to pride itself as the more austere civilisation of the North—witness the recent revelations in the Prussian capital of Sapphism and homosexualism, and the trials at which the high-placed offenders in this direction had to be examined with closed doors! Not till this "sensuous wave" (as it has been called) has subsided and a purer spirit is in the ascendant can we expect, particularly in the more backward populations of the South, a cessation of the call for lust-provoking literature. Education may do much, in regions where an appeal to the merely animal instincts meets an all too ready response; example, on the part of the accepted leaders of society,

may also contribute powerfully to the rehabilitation, moral and intellectual, of the less favoured; the professions, medical, even more than clerical or forensic, by indicating the degeneration induced by the merely "animal" cult, will also have their salutary influence. But all these are, at the best, but gradual in their coöperation and effective working, and the evils in question—alcoholic excess playing into the hands of sexual indulgence—brook no delay in the antagonising agencies. While, therefore, the regulation of the liquor traffic and the stamping-out of lascivious publications, on the lines imposed by the Italian Premier, must proceed apace, let us hope that the ground thus cleared may be utilised by the educational reformer, in the largest sense, for the steady formation of a purer taste, a more refined mental atmosphere under which the grosser animalism can only wither and die.

July 6th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Remarkable Feats by a "Stone Swallower."

IT seldom happens that an opportunity presents itself for the scientific examination of those abnormal persons who are in the habit of swallowing stones, glass, iron nails, and similar "foreign bodies," but at a recent meeting of the Gesellschaft für Innere Medicin in Vienna Professor Schlesinger showed a man who performed feats of this kind in music halls. In the presence of the professional audience he swallowed fragments of glass measuring 1 inch by 1½ inches, nails of different sizes up to 3 inches in length, stones of all shapes up to the size of about a walnut; he afterwards also swallowed a long snake and a lizard! During the act of swallowing he made no movements of deglutition, but he seemed to drop the articles down his œsophagus as one would drop them into a bag, bending his head well back just as is done in œsophagoscopy or bronchoscopy. His œsophagus was abnormally wide and it sometimes became quite flaccid, as he had the faculty of easily and voluntarily relaxing the normal tonicity of the muscular tube. Constant repetition of these performances had caused a hypæsthetic condition of the upper alimentary organs, so that he could swallow hot liquids of a temperature up to 80° C. Examination of the œsophagus showed that it had a pale red, glossy, tough mucous lining (loss of epithelium?) of a leathery consistence; the muscular contractions, which could be produced at will, extended along the whole tube, beginning at the upper opening, and presenting a peristaltic character. During rest the walls of the œsophagus were in a state of apposition, but they readily separated for a distance of an inch. The man had also acquired a certain degree of immunity against poison. He could swallow the heads of two packets of phosphorus matches with impunity, and was unaffected by strychnine given in twice the quantity fatal to an ordinary individual. Most of the foreign bodies which he had swallowed passed through the intestines and were generally evacuated within 24 hours, but in some cases he was able to bring them up and to expel them from his mouth by a sort of ruminating process. His general condition was satisfactory, his appetite was good, and he always masticated his food very carefully.

The Wassermann Reaction in the Dead Body.

At a recent meeting of the Gesellschaft Deutscher Aerzte Dr. Luksch described the results of observations made by him on 330 dead bodies, of which 309 were capable of supplying reliable data as to the presence or absence of the Wassermann reaction. He found that 46 per cent. of these 309 bodies gave a positive Wassermann reaction, but he did not from this fact infer that that proportion of the deceased had succumbed to the effects of syphilitic disease. He believed that the occurrence of the Wassermann reaction shortly before or after death did not prove anything, because, in his opinion, serious disease produced changes in the blood serum which might cause it to yield the reaction in question; this might take place a long time before the close of life. During the course of sepsis, uræmia, or pneumonia, such changes were observed very often, even if the patient recovered completely. He therefore considered that a positive Wassermann reaction was not pathognomonic of syphilis, because under certain conditions both during life and after death it might occur in persons who were certainly free from syphilis. For this reason a pathologist was not entitled to diagnose syphilitic changes if the Wassermann reaction was present in the cadaver, and in cases of serious illness a phyician must be careful not to rely too much upon the reaction.

The Temperance Movement in Austrian Health Resorts.

The Austrian Anti-Alcohol Society has recently made endeavours, by the holding of public meetings and otherwise, to establish local branches in various important health resorts of the Empire, such as Baden, Teplitz, and Meidling, where every year thousands of gouty and arthritic patients seek relief, and where, owing to the non-existence of any temperance restaurant, the patients formerly had to consume alcohol in some form or other at dinner, according to the custom of the country. Recently, however, in consequence of the action of the Anti-Alcohol Society, establishments conducted on temperance lines have been opened in all these places and are favourably regarded by the local medical men. The financial success of these undertakings has proved that, for the present at least, the patients at the health resorts are not insensible to the advantages of a non-alcoholic *régime*. The Anti-Alcohol Society, knowing that there are many medical visitors to these health resorts at this time of the year, has asked several leading physicians to deliver appropriate lectures on the subject of temperance.

The Question of Remuneration for Attendance on the Families of Medical Practitioners.

There is no general agreement of opinion in this country with regard to the propriety of a practitioner asking or accepting payment for professional services rendered to the family of another medical man. Negotiations, however, have been undertaken with a view to arriving at some definite conclusion on the subject, and it is found that the old custom of "no fee" is meeting with decided opposition on the part of nearly all well-to-do practitioners. The prevailing idea seems to be that only such attendance as is given to a medical man himself shall be considered a personal favour, and that attendance on members of his family ought to be paid for at a discount of 50 per cent. on the usual charges. This suggestion was discussed at a recent meeting of the Aerztevereins Verband (Union of the Medical Councils), and it was decided that the acceptance of fees from practitioners by practitioners shall not be considered unethical. Another suggestion which received support from a minority of the meeting was to the effect that no medical man shall be required to pay for attendance on his family, but that if he prefers to do so the fee shall be handed over by himself either to the fund for the widows and orphans of medical men or to some other benevolent organisation instituted for the benefit of the medical profession. The local medical societies are now asked to decide this important question.

July 9th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

The Proposed National Health Department Charged with being a Medical Trust.

THE opposition to the Bill before Congress creating a Department of Health, the chief officer of which is to be a Secretary of Health and a member of the Cabinet, has taken a new and more popular form. The public opposition in this country to the so-called "Trusts" in business has become so intense and widespread that it amounts to a "craze." This frenzy is now appealed to by the opponents of the Bill, and the agitators have organised the "National League for Medical Freedom" as the central body through which they are to concentrate opposition to the measure. Every nondescript medical organisation—osteopathic, eclectic, "Christian Scientist"—is urged to petition Congress to defeat the "Medical Trust." The manufacturers of patent or proprietary medicines have joined the opposition, and are arousing the druggists to action throughout the country. The popular appeal through the newspapers has the startling headline, "Do you want the Doctors' Trust to be able to force its opinions on you?" Public meetings are being held in the larger cities at which most inflammatory speeches are made against the American Medical Association, "The Committee of One Hundred," and especially against the "Allopaths." What is to be the outcome of this popular uprising cannot be foreseen, but apparently it will defeat the measure in the present Congress.

The New York Post-graduate Medical School: A New Hospital Building.

This institution, the first of its kind in this country, has recently received a large endowment and is about to build a new hospital at an expense of $6,000,000, thus increasing its capacity to 400 beds, and greatly improving its facilities for teaching. The building will be 12 storeys in height and will include a tower with rooms for 50 private patients and a pavilion on the roof for open-air treatment. A loggia on three floors open to the street front and to the rear is planned where beds can be kept permanently with free exposure to the outdoor air. Three long balconies to the eastward are proposed, and the entire top of the main building, seven storeys high, with the exception of the space taken up by the tower, will be occupied by a roof garden. There will be eight small operating rooms and a number of well-equipped laboratories for research work. In all of its appointments for post-graduate instruction the new structure will aim at having no equal in this country.

The Affairs of the American Medical Association.

At the recent meeting of the American Medical Association it appeared that the total membership is 33,935. During the past year 289 members have died, 1937 have resigned, 625 have been dropped as not eligible, 406 have been dropped for non-payment of dues, and 95 have been reported as "not found." Since May 1st, 1909, there have been added 3593 names to the membership list. On May 1st, 1910, the membership list showed 34,176. The property of the association in the hands of the trustees, Jan. 1st, 1910, was $162,348.72.

The Mutual Relations of Life Insurance and the Medical Press.

At the annual banquet of the American Medical Editors' Association at St. Louis, on June 6th, Mr. Frederick L. Hoffman, statistician of the Prudential Insurance Company of America, spoke on the subject of the Mutual Relations of Life Insurance and the Medical Press. He said that the medical press "almost alone supplies the medical and other officers of insurance companies at the earliest possible date, and in the most convenient and economical manner and at least expense, with accurate information always interesting and often extremely useful for the safe conduct of the medical branch of the business of insurance," and drew attention to the fact that as long ago as 1873 the *New York Medical Record* made an effort to maintain a special department of insurance medicine, and that many of the most valuable contributions to the subject had never been reprinted in text-book form and were, therefore, only available through the periodical medical press. The speaker emphasised the value of the medical press to insurance companies by numerous illustrations derived from actual practice.

The Rockefeller Institute for Medical Research.

The board of directors of this institute announces the following promotions and appointments for the year 1910–11. Laboratory staff: — Member: Jacques Loeb, experimental biology. Associates: W. A. Jacobs, biological chemistry; D. R. Joseph, physiology and pharmacology; Peyton Rous, pathology; B. T. Terry, protozoology; and D. D. Van Slyke, biological chemistry. Assistants: M. T. Burrows, experimental surgery; P. F. Clark, bacteriology; I. S. Kleiner, physiology and pharmacology; and Hardolph Wasteneys, experimental biology. Fellows: F. J. Birchard, biological chemistry; and F. B. La Forge, biological chemistry. Scholar: J. Bronfenbrenner, pathology. Hospital staff:—Resident physician: G. Canby Robinson. Internes: George Draper, H. K. Marks, F. W. Peabody, and H. F. Swift. Mr. Jerome D. Greene has been appointed general manager.

July 6th.

LONDON SCHOOL OF TROPICAL MEDICINE.—A course of lectures to nurses on tropical diseases will commence at the London School of Tropical Medicine, Royal Albert Docks, E., on Oct. 15th next. The course will consist of ten lectures and the fee, including examination, will be £2 2*s*. The lecturers are Dr. A. Duncan, Mr. J. Cantlie, Dr. F. M. Sandwith, Dr. C. W. Daniels, and Dr. R. T. Leiper. A similar course of lectures will be held in February, 1911.

Medical News.

UNIVERSITY OF OXFORD.—At examinations held recently the following candidates were approved:—

FIRST B.M. EXAMINATION.

Organic Chemistry.—W. H. Bleadon, Brasenose; B. A. Bull, Jesus; J. J. Conybeare, New College; J. M. Guilfoyle, Brasenose; C. W. Littlejohn, New College; T. E. Micklem, New College; H. M. Oddy, Christ Church; K. R. Pilcher, University; H. A. B. Whitelocke, Christ Church; and C. D. Wood, Queen's.

Anatomy and Physiology.—T. B. Batchelor, University; F. W. Brown, Wadham; E. W. Carrington, Keble; C. Dean, Trinity; H. T. Evans, Jesus; R. A. Fawcus, Oriel; W. J. Hart, Queen's; R. St. A. Heathcote, New College; S. Hibbert, University; E. W. N. Hobhouse, New College; W. R. Reynell, Balliol; E. Scott, St. John's; A. H. Southam, Christ Church; A. B. Thompson, New College; W. W. Waller, New College; C. W. Wheeler-Bennett, Christ Church; and Syer B. White, Keble.

SECOND EXAMINATION FOR B.M., B.CH.

Medicine, Surgery, and Midwifery.—M. B. Baines, Exeter; C. N. Binney, Corpus; R. F. Bridges, University; G. N. Hunt, Christ Church; G. E. Neligan, Exeter; A. F. Sladden, Jesus; B. A. W. Stone, Brasenose; and A. E. Taylor, Trinity.

Pathology.—C. F. Beevor, Magdalen; A. R. Chavasse, Hertford; A. W. Donaldson, Hertford; H. J. B. Fry, Magdalen; T. B. Heaton, Christ Church; N. S. Lucas, New College; E. O'Connor, Lincoln; W. J. Oliver, Oriel; H. W. Scott-Wilson, Queen's; C. J. G. Taylor, University; G. H. Varley, St. John's; W. E. Waller, University; R. C. Wingfield, Trinity; and J. A. Wood, University.

Forensic Medicine and Hygiene.—F. A. Aldridge, Magdalen; C. F. Beevor, Magdalen; A. W. Donaldson, Hertford; C. Newcomb, St. John's; E. P. Poulton, Balliol; A. S. Roe, Balliol; B. A. W. Stone, Brasenose; and A. E. Taylor, Trinity.

Materia Medica.—A. W. Cooke, Worcester.

DIPLOMA IN PUBLIC HEALTH.

Part II.—C. V. Asreppa, J. B. Mama, and W. F. J. Whitley.

Parts I. and II.—F. Griffith and J. F. Windsor.

Part I.—G. Finch, Rachel E. W. Mackenzie, and J. E. Spenser.

—The Professor of Anatomy has reported to the Vice-Chancellor that he has awarded the Welsh Prize, 1910, for proficiency in anatomical drawing to Charles Milwyn Burrell, scholar of University College.—The Board of Management has elected the following to the Theodore Williams Scholarships, 1910: Arthur Hughes Southam, B.A., Christ Church, to the Scholarship in Anatomy; and Reginald St. Alban Heathcote, scholar of New College, to the Scholarship in Physiology.—Edward Stainer, M.A., B.M., B.Ch., Magdalen College, has been allowed to supplicate for the degree of Doctor of Medicine, for a thesis on "The Hereditary Transmission of Defects in Man," and Stephanus Gottfried Kriegler, Hertford College, has been allowed to supplicate for the degree of Bachelor of Science for a thesis on "The Action of Various Aniline Dyes on Certain Micro-organisms."

UNIVERSITY OF CAMBRIDGE.—At examinations for medical and surgical degrees, held Easter term, the following candidates were successful:—

FIRST EXAMINATION.

Part I., Chemistry.—P. H. Allen, Pembroke; B. S. Bland, Emmanuel; H. R. Buttery, B.A., Christ's; H. F. Edmonds, Emmanuel; C. C. Goodall and C. Grantham-Hill, Caius; A. H. Little, Corpus Christi; R. A. Mansell, Emmanuel; E. W. Mason, St. John's; B. Mountain, M.A., Sidney Sussex; G. B. Sellwood and E. W. L. Sharp, Emmanuel; H. W. Spicer, Jesus; and G. S. Trower, King's.

Part II., Physics.—P. H. Allen, Pembroke; H. R. Buttery, B.A., Christ's; W. H. Edgar, Trinity Hall; C. H. Gow and L. H. James, Emmanuel; A. H. Little, Corpus Christi; R. A. Mansell, Emmanuel; R. H. Marten, Caius; B. Mountain, M.A., Sidney Sussex; H. W. Spicer, Jesus; and H. N. Stafford, Caius.

Part III., Elementary Biology.—A. C. Ainsley, Caius; P. H. Allen, Pembroke; A. B. Bratton, Caius; A. O. Courtis, Pembroke; H. F. Edmonds, Emmanuel; H. Gardiner-Hill, Pembroke; C. C. Goodall and C. Grantham-Hill, Caius; J. B. Hunter, St. John's; L. H. James, Emmanuel; W. Lambert, Corpus Christi; J. B. Leather, Caius; A. H. Little, Corpus Christi; R. A. Mansell, Emmanuel; R. H. Marten, Caius; K. Masson, King's; B. Mountain, M.A., and A. V. O'Keeffe, Sidney Sussex; W. Raffle, St. John's; J. C. Russell, Caius; and E. W. L. Sharp, Emmanuel.

SECOND EXAMINATION.

Human Anatomy and Physiology.—M. Avent, Caius; W. F. Bensted Smith, B.A., Pembroke; W. G. Bigger, Queen's; J. Brewer, Emmanuel; R. St. L. Brockman and G. d'R. Carr, Caius; L. B. Clarke, B.A., Emmanuel; K. B. Dickson, B.A., Trinity; A. T. Edwards, St. John's; A. N. Garrod, B.A., Emmanuel; H. H. M. Gould, Clare; A. R. Jennings, B.A., Jesus; J. D. Jones, B.A., H. Selwyn; F. G. Leschcr, Caius; H. A. Lucas, B.A., Trinity; G. R. D. McGeagh, B.A., H. G. Oliver, and D. S. Page, Caius; V. C. Pennell and W. A. Pocock, Pembroke; R. N. Porritt, Caius; A. N. Rushworth, Trinity; A. P. Saint, Downing; L. E. S. Sharp, Trinity; A. G. Shera and G. D. Sherwood, B.A., Emmanuel; L. R. Shore, St. John's; A. C. S. Smith, Trinity; P. Stocks, King's; H. Walker, B.A., Jesus; H. F. W. Warden, B.A., Pembroke; and H. G. Wiltshiro and E. Wordley, B.A., Emmanuel.

THIRD EXAMINATION.

Part I., Pharmacology and General Pathology.—H. W. Barber, B.A., and F. S. Bedale, B.A., Clare; A. C. Clifford, B.A., Emmanuel; A. E. Cullen, B.A., St. John's; J. W. Dew, B.A., Clare; S. Dixon, M.A., Trinity; J. V. Fiddian, Emmanuel; N. Garrard, B.A., Pembroke; J. R. Griffith, M.A., Christ's; J. R. Heath, B.A., Trinity; D. W. John, B.A., Clare; H. Lee, B.A., St. John's; D. N. Macleod, Caius; A. J. McNair, B.A., and Q. Madge, B.A., Emmanuel; W. C. D. Maile, B.A., Pembroke; J. R. Marrack, B.A., St. John's; T. H. Oliver, B.A., and J. H. Pendered, B.A., Caius; D. V. Pickering, B.A., Emmanuel; L. C. Rivett, B.A., and F. A. Roper, B.A., Trinity; F. G. Rose, B.A., St. John's; L. M. Routh, Caius; F. D. Saner, B.A., Christ's; H. J. S. Shields, B.A., Jesus; G. A. Smythe, B.A., Emmanuel; C. Strickland, B.A., Caius; A. L. Sutcliffe, B.A., Sidney Sussex; C. H. S. Taylor, B.A. Caius; M. H. Watney, B.A., Trinity; and A. M. Zamora, Christ's.

Part II., Surgery, Midwifery, and Medicine.—The following have now satisfied the examiners in all three sections:—H. L. Attwater, B.A., and T. R. H. Blake, B.A., Pembroke; L. S. T. Burrell, M.A., Trinity; N. L. Clarke, B.A., Christ's; C. N. Coad, B.A., and A. E. Cullen, B.A., St. John's; M. E. Dellschaft, B.A., Jesus; G. W. Dryland, B.A., Caius; W. H. F. Eales, B.A., Emmanuel; D. Embleton, B.A., Christ's; J. T. Fox, B.A., Sidney Sussex; S. Gordon, B.A., Pembroke; R. H. P. Hick, B.A., Christ's; R. F. Higgin, B.A., Caius; J. S. Jobson, B.A., Sidney Sussex; K. T. Khong, B.A., and G. C. Lim, B.A., St. John's; C. G. H. Moore, B.A., Caius; E. E. Paget-Tomlinson, B.A., Trinity Hall; W. M. Penny, B.A., Jesus; L. Powell, King's; F. E. W. Rogers, B.A., Emmanuel; L. M. Routh and H. C. Snell, M.A., Caius; E. R. Stone, B.A., Emmanuel; R. J. Vernon, B.A., and C. St. A. Vivian, B.A., Caius; W. E. Wallis, B.A., Clare; T. A. Weston, B.A., St. John's; M. H. Whiting, B.A., Downing; N. S. Williams, B.A., Clare; and H. B. Wilson, B.A., Pembroke.

SOCIETY OF APOTHECARIES OF LONDON.—At the Primary Examination held recently the following candidates were successful:—

PART I.

Biology.—A. U. L. Bennet, Royal Free Hospital; and C. Gilroy-Jones, St. Mary's Hospital.

Chemistry.—C. Gilroy-Jones, St. Mary's Hospital.

Materia Medica and Pharmacy.—P. McGinnis, Glasgow; and J. G. Reidy, Edinburgh.

PART II.

Anatomy.—P. R. Cross, St. Mary's Hospital; G. E. Cuttle, Manchester; R. Fowle, London Hospital; T. H. W. Idris, University College Hospital; J. A. Prendergast, Leeds; and H. G. Steel, St. Mary's Hospital.

Physiology.—H. H. Fairfax, Charing Cross Hospital; T. H. W. Idris, University College Hospital; J. E. Kitchen, Manchester; J. A. Prendergast, Leeds; and H. G. Steel, St. Mary's Hospital.

UNIVERSITY OF BIRMINGHAM: FACULTY OF MEDICINE.—The following is the list of successful candidates at the examinations held in June:—

I. *Degrees of Bachelor of Medicine and Bachelor of Surgery.*—John Lichtenstein Ritchie, Cranston Walker, and Harold Arthur Whitcombe.

II. *Fourth Examination for the Degrees of M.B., Ch.B. (Forensic Medicine and Toxicology and Hygiene and Public Health).*—Class I.: Oscar Madeley Holden (Queen's Scholarship). Class II.: James Henry Bampton, Robert Baxendell Coleman, Christopher Charles Cole Court, Evan Davies, Charles Crawford Jones, Ronald Douglas Nelson, Percy Alfred Newton, Charles Ernest Salt, and Arthur Christopher Tibbits.

III. *Third Examination for the Degrees of M.B., Ch.B. (Pathology and Bacteriology and Materia Medica and Pharmacy).*—Class I.: George Ernest Elkington (Queen's Scholarship). Class II.: Eric Francis Buckler, Horace Clarence Nickson, Percival Thomas Priestley, Herbert Sheasby, and Alan Ayscough Wilkinson. Completed the examination: Christopher Charles Cole Court. Passed in part of the examination: George Herbert Alabaster (Pathology and Bacteriology), Ralph Alexander Broderick (Materia Medica and Pharmacy), David John Evans (Pathology and Bacteriology), and Ronald Joseph Tennant Thornhill (Pathology and Bacteriology).

IV. *Second Examination for the Degrees of M.B., Ch.B. (Anatomy and Physiology).*—Class II.: Elizabeth Labrey Ashby, John Lewis Anderton Grout, and James Henry Ritchie.

V. *First Examination for the Degrees of M.B., Ch.B. (Physics, Chemistry, and Biology).*—Class II.: Reginald George Abrahams, John Edward Foley, Henry Gauntlett Langdale-Smith, Malati Madgavkar, Oscar Parkes, Leslie Douglas Roberts, and Cecil George Teall. Completed the examination: Koch Harry Gill (external), Kenneth Bernard Pinson, Cyril Alban Raison, and Clement Massey Stubbs. Passed in part of the examination: John Clifford Brown (Physics, Chemistry), Eric Shirley Jones (Physics, Chemistry), Arthur David Millington (Physics, Biology), Alfred Sydney Roberts (Physics, Chemistry), Herbert Smith (Physics, Biology), and Bernard Wood-White (Physics, Chemistry).

VI. *Diploma in Public Health.*—Part II. (to complete Examination): Harold Salter Gettings and Philip James Mason.

VII. *Third Examination for the Diploma in Dental Surgery (Anatomy and Physiology and Dental Anatomy and Dental Histology).*—Edgar George Jones (Anatomy and Physiology).

VIII. *Second Examination for the Diploma in Dental Surgery (Dental Metallurgy and Mechanical Dentistry).*—John Jessop.

IX. *First Examination for the Diploma in Dental Surgery (Chemistry and Physics).*—Percy Ashton (Physics), and Harold Gordon Stewart Thornton (Physics).

A DISCUSSION ON THE MEDICAL ASPECTS OF THE POOR-LAW.—A number of medical men have arranged a meeting to be addressed by Mr. and Mrs. Sidney Webb on Wednesday, July 27th, at 4.30 P.M., at the Caxton Hall, Westminster. Invitations will be issued to all those attending the annual meeting of the British Medical Association. Dr. Herbert Manley will take the chair and will be supported by Dr. Christopher Addison, M.P., Dr. Dudley Buxton, and others. Discussion and questions will be welcomed. The speeches will be preceded by a reception at 4 P.M.

THE EDINBURGH UNIVERSITY CLUB OF LONDON.—A dinner of this club will take place at the Criterion Restaurant on Friday next, July 22nd, at 7.30, when the Right Hon. Sir Robert Finlay, G.C.M.G., K.C., M.P., will be in the chair. Colonel the Hon. Frederick Gordon, D.S.O., Colonel G. W. Greig, M.P., the Editor of THE LANCET, the Editor of the *British Medical Journal*, the President of the Royal College of Physicians of London, the President of the Edinburgh University Club of Birmingham, and the President of the Edinburgh University Club of Manchester have accepted the invitation of the council to be present on that occasion.

NORTH DEVON INFIRMARY, BARNSTAPLE.—A meeting of the governors of the North Devon Infirmary was held on July 1st under the presidency of the Mayor. It was stated that owing to the serious financial position of the charity one of the wards had been closed, and the committee was of opinion that patients were kept too long in the infirmary, having regard to the sum paid by the subscribers for the recommending letters. The committee felt that something more drastic than closing a ward must be done if the charity was to pay its way. After some discussion it was decided that no in-patient shall remain in the institution longer than 14 days unless the special sanction of the house committee (acting on the advice of the medical officer of the case) be obtained. If a patient remains longer than two weeks an out-patient "recommend" will be required for each four days of his stay.

LITERARY INTELLIGENCE.—Messrs. J. and A. Churchill are about to publish the following four books in new editions:—"Serum Therapy, Bacterial Therapeutics, and Vaccines," by R. Tanner Hewlett, professor of general pathology in King's College, London; "The Microscopical Examination of Foods and Drugs in the Entire, Crushed, and Powdered States," by H. G. Greenish, professor of pharmaceutics at the Pharmaceutical Society of Great Britain; "A Manual of Dental Metallurgy," by Ernest A. Smith, late demonstrator in metallurgy, Royal School of Mines; and "Hernia, its Cause and Treatment," by R. W. Murray, surgeon to the David Lewis Northern Hospital, Liverpool.—Under the title "Medical Examination of Schools and Scholars" Messrs. P. S. King and Son of Westminster are about to issue a work directed to the needs of school doctors, school managers, and all interested in the welfare of the school child. The volume, which contains 32 essays by writers of authority in Great Britain, America, and the Continent, is edited by Dr. T. N. Kelynack. Sir Lauder Brunton, Bart., has written the introduction.

THE EIGHTH INTERNATIONAL PHYSIOLOGICAL CONGRESS, VIENNA.—Some particulars concerning this Congress will be found in THE LANCET of March 19th last, p. 829. It will be held in Vienna from Sept. 27th to 30th next, but there will be an informal meeting in the Volkshalle (public hall) of the town hall (Rathaus) on Monday, Sept. 26th, at 8 P.M. The opening meeting takes place on the following day at 10 A.M. at the House of the Imperial and Royal Society of Physicians (Haus der k.k. Gesellschaft der Aerzte), when a lecture will be delivered by Dr. Charles Richet, entitled "L'humorisme ancien et l'humorisme moderne." At 8 P.M. there will be a reception by the Lord Mayor of Vienna, Dr. J. Neumayer, in the town hall. There will be meetings and demonstrations on Sept. 28th and 29th, and on the 30th Professor Ebner R. von Rofenstein will deliver a memorial speech in celebration of the hundredth anniversary of the birth of Th. Schwann. In connexion with the Congress excursions will be made to various interesting places, and visitors to the Congress are also invited to attend the unveiling of the Gregor-Mendel statue which will take place in Brünn on Oct. 1st. Particulars with regard to reserving lodgings should be made to Professor Dr. Armin von Tschermak, Linke Bahngasse, 11, Wien, III. A ladies' committee has been constituted under the presidency of Frau Dina Baronin Buschmann and Frau Mathilde Heller

nd will provide for the entertainment of the ladies. Subscriptions should be sent to Herrn Assistenten F. Hauser, Physiologisches Institut, Währingerstrasse, 13, Wien, IX. The amount is 24 kronen, 25 francs, or 20 marks.

BRUSSELS MEDICAL GRADUATES' ASSOCIATION.—A dinner of this association will be held at the Garden Club, Japan-British Exhibition, on Tuesday, July 19th, at 7.45. Tickets 7*s.* 6*d.* (not including wine). The annual meeting and banquet will be held at the Brussels Exhibition on Saturday, August 6th, at 7.30. Tickets 10 francs (not including wine). A seventeen day excursion return ticket via Dover and Ostend to Brussels by any train, including saloon on steamer, costs £2 8*s.* 4*d.* The agents are Messrs. Dean and Dawson, 84B, Piccadilly, W. The headquarters in Brussels during the meeting will be Wiltshire's Hotel, Boulevarde de Waterloo, where a book will be kept for the registration of members on their arrival. A party will leave London on Friday, August 5th, for Brussels. For further information application may be made to Dr. Arthur Haydon, honorary secretary of the Brussels Medical Graduates' Association, 13, Henrietta-street, Cavendish-square, W.

THE LOCAL GOVERNMENT BOARD AND CERTIFICATED DISPENSERS OF THE SOCIETY OF APOTHECARIES.—A question having recently been raised as to the eligibility of persons holding the assistants' or dispensers' certificate of the Society of Apothecaries to hold the office of dispenser under the Metropolitan Asylums Board under the existing regulations, the matter has been referred to the Local Government Board, which after consideration has informed the society that while the Board is of opinion that on a strict interpretation of the existing regulation a person holding the society's certificate would not be qualified, yet, as the qualification has been elsewhere recognised by the Local Government Board, it thinks it desirable that the regulations on the subject should be uniform, and accordingly proposes to issue an Order amending the existing Order so as to provide for the inclusion of the holders of the assistants' qualification among the classes of persons eligible for the office of dispensership under the Metropolitan Asylums Board. This recognition of their status by the Local Government Board has given general satisfaction to the large and increasing body of dispensers who hold the society's certificate.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Public Health in Scotland.

THE annual report of the Local Government Board for Scotland for 1909 has been published as a Parliamentary Blue-book. Questions affecting public health are alluded to in it at considerable length.

Sale of Margarine Bill.

Mr. KILBRIDE has introduced into the House of Commons a Bill "to make further provision to protect the public against the fraudulent sale of margarine, and to prevent margarine being made or sold in such a form as to facilitate its substitution for butter." It has been read a first time, and is backed by Captain DONELAN, Mr. COURTHORPE, Mr. CHARLES DUNCAN, Sir MARK STEWART, and Mr. HAZLETON.

Teaching of Hygiene in Schools.

Dr. ADDISON has given notice that at an early date in the House of Commons he will present a Bill to require that in public elementary schools instruction shall be given in hygiene, and, to girls, in the care and feeding of infants.

Indecent Advertisements.

Earl BEAUCHAMP, in speaking in the House of Lords on the Indecent Advertisements (Amendment) Bill, asked its promoters to put themselves into communication with the Home Office, with a view to consultation on a larger Bill which it was hoped to introduce. It appeared from the discussion that under the present law there are no adequate or summary means of suppressing entirely the publication in newspapers of advertisements relating to diseases of the generative organs and to drugs for preventing conception. The Bill, which aims at the suppression of these advertisements, has been read a second time, but the Government has intimated that its drafting will require careful scrutiny.

HOUSE OF COMMONS.

THURSDAY, JULY 7TH.

Bleached Flour.

Mr. LONSDALE asked the First Lord of the Admiralty whether he was aware that, as the result of bleaching flour with nitrogen peroxide, poisonous and deleterious ingredients were introduced; and whether, in the interests of the health of the men in the Navy, he would direct that flour bleached by this process should not be supplied for Navy purposes.—Mr. MCKENNA replied: The matter is receiving the attention of the Admiralty and the action taken will depend upon the result of the inquiries which are being instituted by the Local Government Board on the subject.

Mr. LONSDALE addressed a similar question with relation to flour used in the Army to the Secretary of State for War.—Mr. HALDANE answered: I have not received any reports of the flour supplied to the Army being treated in the manner referred to. The specification governing supply under contract requires that the flour shall be the produce of good, sound, sweet, and dry wheat without any adulteration whatever.

The Irish Prisons Board.

Mr. SCANLAN asked the Chief Secretary to the Lord Lieutenant of Ireland whether, in regard to the vacancy pending on the General Prisons Board (Ireland), in making the appointment to fill the same, recognition would be given to the desirability of filling the post by a medical man specially qualified in mental diseases, in view of the advantage experienced by the English Prisons Board from such expert knowledge.—Mr. BIRRELL wrote in reply: When the question of appointing a new medical member to the Prisons Board comes to be considered due weight will be given to the possession of a knowledge of mental diseases.

MONDAY, JULY 11TH.

The Certifying Surgeon for Govan.

Mr. WATT asked the Secretary of State for the Home Department whether it was proposed to divide the office of medical inspector of factories for the Govan Division of Lanarkshire, at present vacant by the death of the previous holder; and, if so, would he say into what districts the territory would be divided.—Mr. CHURCHILL replied: It is proposed to divide the district by adding Govan, which lies south of the river, to the district of the certifying surgeon of South Glasgow, which almost surrounds Govan on its other sides; and by adding the portion which lies north of the river (that is, Partick and part of the civil parish of Renfrew) to the adjoining district of the certifying surgeon for north-west Glasgow. The change is made in the interests of efficiency and convenience of administration.

Royal Military Infirmary, Dublin.

Mr. NANNETTI asked the Secretary of State for War whether the Royal Military Infirmary at Infirmary-road, Phœnix Park, Dublin, was about to be closed.—Mr. HALDANE answered: The building will cease to be used as a military hospital when the new hospital at Arbour Hill has been completed, but the building may be required for other military purposes.

TUESDAY, JULY 12TH.

Free Hospital Telephones in Glasgow.

Mr. WATT asked the Postmaster-General whether he was aware that the National Telephone Company had for years granted the free use of a telephone to each of the Glasgow infirmaries; whether the corporation of Glasgow, when owners of a telephone service, granted a similar privilege to these institutions; whether his department now proposed to charge rates which would be exceedingly onerous on the infirmaries; and whether, in view of the fact that the managers had difficulty in providing the funds for the carrying on of this philanthropic work, he would refrain from insisting on this charge until at least 1912, when the whole telephone system would be altered.—Mr. SAMUEL replied: I am aware that free telephone exchange lines were provided for certain hospitals by the corporation of Glasgow. The service was continued by the Post Office when the corporation telephone system was purchased in 1906. The arrangement gives rise to some legal difficulties, but in view of all the circumstances I have decided that it need not be disturbed for the present.

Medical Inspection of School Children in Ross-shire.

Mr. WEIR asked the Lord Advocate whether, having regard to the proposals relative to the medical inspection of school children, he was yet in a position to say how many medical inspectors would be appointed for the island of Lewis and Ross-shire respectively.—Mr. URE wrote in reply: The scheme for the medical inspection of school children which has been formulated by the Secondary Education Committee for Ross-shire and which has received the department's approval, provides for the present for the following staff: The medical officer of health of the county, a subordinate medical officer for the mainland section of the county, and a second subordinate medical officer for the Island of Lewis.

WEDNESDAY, JULY 13TH.

Unqualified Medical and Dental Practitioners.

Mr. MARSHALL HALL asked the Secretary of State for the Home Department whether, having regard to the report of the Coroners' Committee upon the use of anæsthetics and the decision of the Court of Appeal in Bellerby *v.* Heyworth, he would consider the advisability of at once introducing legislation to protect the interests of the public at the hands of unqualified medical and dental practitioners.—Mr. CHURCHILL replied: The recommendations of the Coroners' Committee are now under consideration, and I hope, when time permits, to propose legislation with regard to them. As regards the question of unqualified practitioners, I understand that in reply to a circular issued at the instance of the Local Government Boards of England, Scotland, and Ireland a large body of information has been collected from medical officers of health which will, it is hoped, be published at no distant date as a Parliamentary paper. When this information is available the Government will be in a better position to consider what action is desirable.

BOOKS, ETC., RECEIVED.

BRAUMÜLLER, WILHELM, Wien und Leipzig.
Handbuch der Aerztlichen Sachverständigen-Tätigkeit. Herausgegeben von professor Dr. Paul Dittrich, Prag. Siebenter Band, Erster Teil. Vergiftungen. Klinischer Teil. Zweite Hälfte. Die Organischen Gifte, Therapie, Semiotische Übersicht. Von Dr. Franz Erben. Price M.34, or K.40.80.

FISCHER, GUSTAV, Jena.
Funktionelle Behandlung der Skoliose. Nebst einem Beitrag zur Kenntnis einiger Orthogenetisch-degenerativer Krankheitcn. Von Dr. Rudolf Klapp. Zweite umgearbeitete Auflage. Price, paper, M.4.50; bound, M.5.50.

Handbuch der Vergleichenden Physiologie. Herausgegeben von Hans Winterstein in Rostock. Sechste Lieferung. Band II. Physiologie des Stoffwechsels. Physiologie der Zeugung. Erste Hälfte. Price M.5.

Operative Chirurgie der Harnwege: Normale Anatomie und chirurgische pathologische Anatomie. Von J. Albarran. Ins Deutsche übertragen von Dr. Emil Grunert. Erste Lieferung. Price M.8.

Beiträge zur Pathologie des Stoffwechsels bei Psychosen. Dritter Teil: Funktionelle Psychosen. Von Dr. Max Kauffmann. Price M.7.

HIRSCHWALD, AUGUST, Berlin.

Atlas der Bösartigen Geschwülste. Von Prof. Dr. D. v. Hansemann, Geh. Medizinalrat. Price M.9.

Zur Transformation des Knochenkallus. Experimentelle Untersuchungen und ihre klinische Bedeutung. Von Dr. M. Zondek, Berlin. Price M.1.20.

Die Zuckerkrankheit und ihre Behandlung. Von Professor Dr. Carl von Noorden. Fünfte vermehrte und veränderte Auflage. Price M.10,

KABITZSCH, CURT (A. STUBER'S VERLAG), Würzburg.

Nahrungsmittel-Tabelle zur Aufstellung und Berechnung von Diätverordnungen. Für Krankenhaus und Praxis. Von Dr. Hermann Schall und Dr. August Heisler. Zweite, bedeutend vermehrte Auflage. Price M.2.50.

KARGER, S., Berlin.

Über sogennante angeborene und über frühzeitig erworbene Rachitis. Von Dr E. Wieland. Price M.7.

Leitfaden der Experimentellen Psychopathologie. Vorlesungen gehalten an der Universität Leipzig. Von Privatdozent Dr. Adalbert Gregor. Price, paper, M.5.60; bound, M.6.80.

Kritische Glossen eines Klinikers zur Radiologie des Magens. Von Prof. Dr. B. Stiller in Budapest. Price M.1.20.

Kurzgefasstes Lehrbuch der Kinderheilkunde für Aerzte and Studierende. Von Dr. Carl Seitz. Dritte, vermehrte nnd völlig umgearbeitete Auflage. Price, paper, M.13; bound M.14.60.

Jahrbuch für Kinderheilkunde und physische Erziehung. Unter Redaktion von O. Heubner und Th. Escherich. 71, der dritten Folge 21 Band. Heft 5. Ausgegeben am 1 Mai, 1910. Price not stated.

KLINKHARDT, Dr. WERNER, VERLAG VON, Leipzig.

Jahresbericht über die Fortschritte der inneren Medizin im In- und Auslande. Redaktion: Dr. Schreiber in Magdeburg und Dr. Rigler in Leipzig. Bericht über das Jahr 1908. III. Band. Price M.21.60.

Leitfäden der praktischeu Medizin. Herausgegeben von Professor Dr. Ph. Bockenheimer, Berlin. Band I. Zahnärztliche Chirurgie. Von Prof. Dr. med. Fritz Williger. Price, paper, M. 4; bound, M.4.60.

MALOINE, A., Paris.

Un Nouveau Traitement du Tabes (Ataxie Locomotrice). Par le Docteur Helan Jaworski. Price Fr.3.50.

Les Appareils plâtrés. Par le Docteur Jean Privat. Préface du Dr. Calot. Price Fr.6.

Le Cancer. Par le Docteur Joseph Thomas. Préface du Professeur Albert Robin. Deuxième édition, revue et augmentée. Price not stated.

MARHOLD, CARL, Verlagsbuchhandlung, Halle a.S.

Anwendungsformen und Wirkungsweise der Hydrotherapie bei den Verdauungs- und Stoffwechselkrankheiten. Von Ernst Tobias. (Sammlung Albu. II. Band. Heft 5.) Price M.1.40

MASSON ET CIE, Paris.

Manuel des Maladies du Foie et des Voies Biliaires. Sous la direction de MM. G. M. Debove, Ch. Achard, et J. Castaigne. Par J. Castaigne et M. Chiray. Price Fr.20.

SPRINGER, JULIUS, Berlin.

Die Praxis der Hydrotherapie und verwandter Heilmethoden. Ein Lehrbuch für Aerzte und Studierende. Von Dr. A. Laqueur. Price, paper. M.8; bound, M.9.

STABILIMENTO TIPOGRAFICO VIRZI, Palermo.

Annali della Clinica delle Malattie Mentali e Nervose della R. Universita di Palermo. Diretta dal Prof. Dr. Rosolino Colella. Volume III. 1909. Price not stated.

URBAN UND SCHWARZENBERG, Berlin und Wien.

Chirurgische Operationslehre für Studierende und Aerzte. Von Prof. Dr. Friedrich Pels-Leusden. Price, paper, M.18; bound, M.20.

VEIT UND COMP., VERLAG VON, Leipzig.

Das Elektrokardiogramm des gesunden und kranken Menschen. Von Prof. Dr. Friedrich Kraus und Prof. Dr. Georg Nicolai. Price M.12.

VOGEL, F. C. W., Leipzig.

Archiv für Experimentelle Pathologie und Pharmakologie. Redigirt von Dr. B. Naunyn und Dr. O. Schmiedeberg. 62 Band. 6 Heft. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CLEMINSON, F. J., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at University College Hospital.

DAVIES, TREVOR B., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Obstetric Assistant to University College Hospital.

DAY, H. B., M.D., B.S. Lond., M.R.C.P. Lond., has been appointed Professor of Clinical Medicine at the Egyptian Government School of Medicine and Physician to the Kasr-el-Ainy Hospital, Cairo.

HUMPHRYS, C. B., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Clevedon District of the county of Somerset.

JOHNSTON, W. A., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Eskdale District of the county of Cumberland.

JOLL, CECIL A., M.B., B.S. Lond., F.R.C.S. Eng., L.R.C.P. Lond., L.D.S. Eng., has been appointed House Surgeon at the Leicester Infirmary.

MAMOURIAN, MARCUS, M.B., Ch.B. Edin., has been appointed Honorary Assistant Surgeon to the District Infirmary and Children's Hospital, Ashton-under-Lyne.

SCROGGIE, F. H., M.B., Ch.B. St. And., has been appointed Resident Medical Officer at King's Cross Hospital, Dundee.

SIMPSON, MARIE, M.B., M.S. Lond, has been appointed Resident House Surgeon at the Victoria Hospital, Worksop.

STEADMAN, F. ST. J., M.R.C.S., L.R.C.P. Lond., L.D.S., has been appointed Honorary Dental Surgeon to the Belgrave Hospital for Children.

THOMAS, E. FAIRFIELD, M.D. Brux., L.R.C.P. Lond., M.R.C.S., D.P.H. has been appointed Medical Officer to the new Tuberculosis Dispensary at Cardiff.

WILSON, THOMAS, M.D. Lond., Ch.M. Birm., F.R.C.S. Eng., has been appointed Lecturer in Midwifery and Diseases of Women in the University of Birmingham.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BLACKBURN, COUNTY FEVER HOSPITAL.—Resident Medical Officer and Assistant Medical Officer of Health, unmarried. Salary £100 per annum, with board and lodging.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar.

BRISTOL UNIVERSITY.—Demonstrator of Dental Histology.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CANCER HOSPITAL, Fulham-road, London, S.W.—Surgeon.

CAPETOWN, SOMERSET HOSPITAL.—Assistant Medical Officer. Salary £200 per annum, with rations and quarters.

CLAPHAM MATERNITY HOSPITAL, London.—Female Junior Resident Medical Officer for six months.

CROYDON GENERAL HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with board, laundry, and residence.

DOUGLAS, NOBLE'S ISLE OF MAN HOSPITAL AND DISPENSARY.—Resident House Surgeon, unmarried. Salary £90 per annum, with board and washing.

DOVER, ROYAL VICTORIA HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and washing.

EAST BENGAL, BAPTIST MISSIONARY SOCIETY MISSION HOSPITAL.—Locum Tenens, unmarried. Salary £150 per annum, house accommodation, &c.

ENNISKILLEN, FERMANAGH COUNTY HOSPITAL.—House Surgeon. Salary £72 per annum.

FRIMLEY, BROMPTON HOSPITAL SANATORIUM.—Assistant Resident Medical Officer. Salary £150 per annum, with board and residence.

GLASGOW SCHOOL BOARD.—Assistant Medical Officer (female). Salary £250 per annum.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with rooms, board, and washing.

HEMEL HEMPSTEAD, HERTS, WEST HERTS HOSPITAL.—House Surgeon. Salary £100 per annum, with rooms, board, and washing.

HÔPITAL FRANÇAIS, 172, Shaftesbury-avenue, W.C.—Second Resident Medical Officer, unmarried. Salary £50 per annum, with board and laundry.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton. Dental Surgeon. Salary 50 guineas per annum. Also House Physician for six months. Salary 30 guineas.

HUNTINGDON COUNTY HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

KING'S COLLEGE HOSPITAL.—Assistant Pathologist. Salary £200 per annum.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH.—Assistant Clinical Pathologist.

LEEDS UNION.—Assistant Medical Officer (female). Salary £100 per annum, with board, washing, apartments, &c.

LINCOLN GENERAL DISPENSARY.—Resident Junior Medical Officer, unmarried. Salary £175 per annum, with apartments, &c.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Resident Medical Officer. Salary £120 per annum, with board, residence, and washing. Also Assistant House Surgeon for six months. Salary rate of 100 guineas per annum.

MANCHESTER CHILDREN'S HOSPITAL, Gartside-street, Manchester.—Assistant Medical Officer for six months. Salary £100 per annum.

MANCHESTER EAR HOSPITAL.—Assistant Anæsthetist.

MANCHESTER ROYAL INFIRMARY.—House Surgeon for six months. Salary £100 per annum, with board and residence.

METROPOLITAN ASYLUMS BOARD, London.—Assistant Bacteriologist. Salary £300 per annum.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Also Assistant House Physician. Salary in each case £100 per annum with board, lodging, and washing.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—Honorary Dental Surgeon.

PARISH OF ST. GILES INFIRMARY, Brunswick-square, Camberwell.—Assistant Medical Officer. Salary £120 per annum, with apartments, board, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and washing.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

SALISBURY GENERAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and lodging. Also Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and lodging.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Assistant Medical Registrar for six months.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with board, residence, and laundry.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing. Also Casualty Officer. Salary £60 per annum.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

SOUTHWARK UNION, London.—Medical Officer for the Nos. 1 and 2 bined District. Salary at rate of £130 per annum.

STAMFORD, RUTLAND, AND GENERAL INFIRMARY AND FEVER HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

SURREY COUNTY COUNCIL.—Assistant Medical Officer. Salary £250 per annum.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, &c.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL—House Physician.

WIVELISCOMBE DISPENSARY.—Medical Officer. Salary £50 per annum, with house, &c.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Tewkesbury, in the counties of Gloucester and Worcester; and at Youlgreave, in the county of Derby.

Births, Marriages, and Deaths.

BIRTHS.

GIBBS.—On July 9th, at Bear-street, Barnstaple, North Devon, the wife of Stanley Rider Gibbs, M.R.C.S., L.R.C.P., of a son.

MURIEL.—On July 10th, at Scotch-street, Whitehaven, the wife of G. Bertram Muriel, B.A., M.B., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., of a son.

WATSON.—On July 7th, at the Central Nursing Home, Aberdeen, the wife of Cecil F. Watson, M.R.C.S., L.R.C.P., Zunguru, Northern Nigeria, of a son.

MARRIAGES.

LUCAS—WILLCOCKS.—On July 13th, 1910, at All Saints' Church, Paston, Northants, by the Rev. F. W. Robinson, M.A. Oxon., Geoffrey Lucas, B.A. Cantab., L.S.A. Lond., of Nordrach-on-Dee, Banchory, N.B., youngest son of Arthur Lucas of Croft Moor, Bournemouth, to Catherine, eldest daughter of Mr. and Mrs. G. C. Willcocks of Wynberg, New Farm, Brisbane.

RAMSBOTHAM—BARTLETT.—On July 7th, at St. Mary's Church, Westerham, Henry Robert Ramsbotham, M.B., B.Ch. Oxon., to Ethel Madeline, youngest daughter of the late Rev. Henry Charles Bartlett and of Mrs. Bartlett, Farley Croft, Westerham.

SWEETING—STOKER.—On July 12th, at St. Andrew's, Ashley-gardens, S.W., by the Rev. T. H. Cardwell, Rector of St. Anne's, Soho, assisted by the Rev. and Hon. J. Stafford Northcote, Vicar of the parish, Neelie, younger daughter of Dr. R. Deane Sweeting of Ivernagardens, Kensington, to Noël Thornley, only child of Bram Stoker, Esq., of Durham-place, Chelsea.

WOODYATT—LARDER.—On July 2nd, at St. Laurence, Upminster, William Jeffery Woodyatt, M.B., Ch.B., to Phyllis Mary, elder daughter of Herbert Larder, M.R.C.S.

DEATHS.

BELL.—On July 8th, at Madeira Hall, Ventnor, Isle of Wight, John Hougham Bell, M.D., aged 64 years.

HEARNDEN.—On July 6th, suddenly, at The Shrubbery, Mulgrave-road, Sutton, Surrey, William Frank Hearnden, M.R.C.S.E., L.S.A., in his 54th year.

KERSHAW.—On July 11th, at Grosvenor-street, Chorlton-on-Medlock, Manchester, Joseph Kershaw, M.R.C.S., L.S.A., in his 80th year.

ROUS.—On July 12th, 1910, at Westgate-on-Sea, John Bart Rous, M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond.

SPENCER.—At the American Hospital, City of Mexico, Walter Spencer, M.D. Brux., L.R.C.P. Edin., M.R.C.S. Eng., L.S.A., late of Sydney, Australia.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SEVILLE AND ALGECIRAS.

Mr. Arthur Keyser, British Consul at Seville, reports that in the summer of 1909 there was an outbreak of typhus fever in that city and many of the richer people left. Visitors were few and much loss was caused to hotels and tradespeople. The epidemic, however, was never really serious and soon died away; but until the proper drainage of the town is undertaken in earnest and remodelled on modern lines Seville cannot be safely recommended as a health resort, although its climate during nine months in the year is one of the best in the world. The limited supply of water is a very serious matter, especially in the great heat of the summer months.

In his annual report on Algeciras Mr. Vice-Consul W. James Smith states that a casino is being built which will be completed by the end of this year. It will meet a much-felt want in this winter resort, as visitors, who praise the climate and the scenery, all complain of the absence of amusements. With good roads, good lighting, an abundant supply of pure spring water, and a casino, Algeciras now promises to become a winter health and pleasure centre of considerable importance—in fact, the San Sebastian of the South; and visitors will be attracted from the North of Spain, the United Kingdom, and France, the climate being far milder than that of the Riviera. More hotels, however, are wanted; at present there is only one that is really suitable for persons in search of health and pleasure. The bridge over the River Palmones is to be completed at once, so that there will be an excellent road between Algeciras and San Roque, from which town the road to Malaga is also in course of construction.

THE TREATMENT OF RUPTURE OF THE CALF MUSCLES.

To the Editor of THE LANCET.

SIR,—I have read with interest in THE LANCET of July 9th "A Note on the Treatment of Rupture of the Calf Muscles" by Dr. L. A. Hawkes. I venture to think, however, that what he has really suffered from has been a rupture of the plantaris muscle, a not uncommon accident, and one which is most apt to occur in those at middle or advanced life who, having allowed themselves to get more or less out of training, suddenly take a spurt of exercise (e.g.) by indulging in a game of, say, lawn tennis. The symptoms are exactly as those described by Dr. Hawkes—namely, a sharp pain in the calf, as if it had been sharply struck with a stone or stick.

As regards treatment, it is certainly advisable, and in the majority of cases absolutely necessary, that the patient should lie up. The leg should be elevated and may with advantage be massaged daily. The pain—which is usually severe at first—may be treated with hot fomentations, and wet dressings of lead and opium lotion will be found very soothing. A back splint or the application of a plaster-of-Paris case is, in my opinion, unnecessary and not calculated to add to the patient's comfort—rather the reverse. In the convalescent stage, when the patient is getting about, a Martin's rubber bandage may be worn with advantage for a short period.

As regards antiphlogistine, its application may divert and amuse the patient, and to those gifted with a lively imagination it may seem to do good, but my personal experience is that it is utterly useless. In conclusion, I congratulate Dr. Hawkes in having got over his accident without having to lie up; but I must agree with his professional friends that it was unwise not to do so, and surely he would not advocate his own method of treatment to be followed by others?

I am, Sir, yours faithfully,

Edinburgh, July 10th, 1910. B. R. CRAIG CHRISTIE, M.D. Edin.

To the Editor of THE LANCET.

SIR,—My experience in just such a rupture of the calf muscles as Dr. Hawkes described in THE LANCET of July 9th, p. 100, confirms his views. Stepping from higher to lower ground on the golf course I felt exactly the pain that is described by Dr. Hawkes, and the symptoms which followed were similar. I am glad to say that my medical man allowed me after a few hours to go about the house and, supported by a bandage, to attend to my business. The limb was regularly massaged for a fortnight, and, although a certain amount of pain and difficulty in walking were present for three weeks, complete cure was established by that time. I am, Sir, yours faithfully,

July 12th, 1910. M.D.

CONCERNING APPENDICITIS.

CONTROVERSY as to the etiology, immediate or remote, of this disease has evoked another suggestion as to its "cause"—this time from Italy, where a woman who had undergone operation for appendicitis was found to have ingested a considerable number of "scheggi" (minute fragments) of enamel as employed in glazing saucepans. These utensils, of German manufacture, are now in universal use all over Europe, including the British Isles, and owe their popularity to their

lightness and cheapness, their enamel being no thinner, indeed, than glass, but quite as brittle and equally sharp-edged when broken. If a saucepan falls or collides roughly with another article the enamel breaks, or resolves itself into chips, which get easily mixed with the food cooked in it. This is bad enough when edibles are boiled, but when they are stewed (after being braised with fried butter below the meat) the enamel gets easily detached, mingles with the food, and (as in the case of the Italian patient referred to) may find its way into the cæcum, causing irritation and the sequelæ for which she had to undergo operation. In cookery books, British as well as continental, the recipe, "to be cooked in an enamelled pan," is of universal occurrence, the enamel after a few days' use getting broken or chipped, and so swallowed with the food cooked in it. One Italian authority urges all housewives to "keep a vigilant look-out on the state of their saucepans, and if any one is at all damaged, to consign it at once to the dustman." Certainly nowhere more than in Italy has appendicitis increased, ever since (to quote the Italian authority again) "the good porcelain-lined English saucepans (which are not to be had now) have been replaced by the pretty, clean-looking, cheap German ones, with their extremely brittle enamel so easily resolving itself into chips and becoming a constant and effective source of intestinal irritation."

WORKMEN'S COMPENSATION ACT: THE LOCUM-TENENT QUESTION.

To the Editor of THE LANCET.

SIR,—Noticing an inquiry from Dr. Stanley Yeoman in your last issue as to the premium to be paid for the insurance of a locum-tenent, may I inform him and others, to whom, no doubt, the point is an important one, that 10*s.* is a very excessive premium. Having in the course of my business to engage over 800 locum-tenents per annum (most of whom I insure for principals) I have made special arrangements with an insurance company of undoubted repute and stability to cover all risks under the Workmen's Compensation Act, as regards the locum-tenents, for an annual premium of 3*s.*, and this covers any reasonable number of temporary engagements during one year. The premium for a permanent assistant is only 7*s.* 6*d.* irrespective of the salary paid.

I am, Sir, yours faithfully,

London, W.C., July 11th, 1910. PERCIVAL TURNER.

WANTED, A STANDARD FOR TEA.

To the Editor of THE LANCET.

SIR,—Dr. J. C. McWalter in THE LANCET of July 9th apparently values tea according to its caffeine content. Caffeine is his standard. In that case his want is already supplied. Practically speaking, all tea contains the same amount of caffeine, say a minimum of 3·5 per cent., and a maximum of 4·0 per cent. There are rarely any great variations from these figures. Dr. McWalter will bear in mind that, although he may rely upon this statement, tannin is chemically opposed to caffeine. Perhaps as caffeine is a fairly constant figure and tannin is a variable one, the standard which he asks for might with greater scientific reason be based upon a minimum of the latter constituent.

I am, Sir, yours faithfully,

July 9th, 1910. SIMPLES.

M.B., C.M.—The rates are actually higher than some which have been submitted to us, and there is, unfortunately, no uniformity in such matters. If our correspondent will send us a copy of his contract we will consider the matter closely.

Mr. C. Smith.—We cannot find that any cases of similar mischief have been attributed to the eating of banauas, and it seems doubtful whether our correspondent's injury was due to this cause.

Mr. E. H. Worth.—We have no particular information upon the subject, but our correspondent will find a letter bearing upon his question in another column.

F.R.C.S., offering 5 guineas annually, is asked to send his name in confidence.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

CONGRESSES are now getting so numerous that we have thought that a diary like the one printed below might be of service to our readers. With that idea we shall repeat it occasionally, with any necessary additions or subtractions. The following Congresses, Conferences, and Exhibitions are announced for 1910:—

July 18th–23rd (Birkenhead).—Royal Institute of Public Health.
,, 26th–29th (London).—British Medical Association.
,, 26th–29th (Cambridge).—Pharmaceutical Congress.
August 1st–7th (Brussels and Liège).—Congress of French-speaking Psychiatrists and Neurologists.
,, 2nd–7th (Paris).—Third International Congress on School Hygiene.
,, 4th–10th (Brussels).—International Congress of Legal Medicine.
,, 21st–26th (Brussels).—International Home Education Congress.
August 31st (Sheffield).—British Association for the Advancement of Science.
Sept. 10th–14th (Brussels).—Second International Congress on Occupational Diseases.
,, 13th–15th (Brussels).—International Congress on Radiology and Electricity.
,, 22nd–27th (Toulouse).—Sixth French Congress of Gynæcology, Obstetrics, and Pædiatrics.
,, 22nd–28th (St. Petersburg).—Fifth International Congress of Obstetrics and Gynæcology.
,, 27th–30th (Vienna).—Eighth International Physiological Cougress.
Oct. 1st–5th (Paris).—Second International Conference for the Study of Cancer.
,, 3rd–7th (London).—Sixth London Medical Exhibition.
,, 3rd–7th (Berlin).—International Congress on the Care of the Insane.
,, 4th–8th (Brussels).—Second International Congress of Alimentary Hygiene.
,, 13th–15th (Paris).—Eleventh French Congress of Medicine.
,, 16th–22nd (Barcelona).—First International Spanish Congress of Tuberculosis.

In 1911:—
May–October (Dresden).—International Hygiene Exhibition.
August or September (Berlin).—Third International Laryngo-Rhinological Congress.
September (Brussels).—Exhibition of Fractures.
October (Cologne).—International Congress of Criminal Anthropology.

In 1912:—
September (Washington, D.C.).—Fifteenth International Congress of Hygiene and Demography.

In 1913 the only fixture so far is in London, where the Seventeenth International Congress of Medicine will take place.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. W. Fox: Clinique (Skin). 5.15 P.M., Lecture:—Dr. J. L. Bunch: Skin Rashes and their Treatment.
TUESDAY.—4 P.M., Dr. C. Riviere: Clinique (Medical). 5.15 P.M. Lecture:—Dr. T. D. Lister: Prognosis in Phthisis Pulmonalis.
WEDNESDAY.—4 P.M., Mr. T. Walker: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. A. Lane: Intestinal Stasis.
THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Museum Demonstration. 5.15 P.M., Dr. R. A. Gibbons: Sterility, its Etiology and Treatment.
FRIDAY.—4 P.M., Dr. G. S. Hett: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. Pathological Demonstration:—Dr. Bernstein 2 P.M., Medical and Surgical Clinics. X Rays. Operations 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Edwards: Rectal Surgery.
TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations 11.30 A.M., Demonstrations in Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Elliot: The Acute Abdomen with Special Reference to Diagnosis.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M. Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M. Medical and Surgical Clinics. X Rays. Operations. Mr. B Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Practica Medicine.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Opera tions. Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M. Medical and Surgical Clinics. X Rays. Operations. Dr. Davis Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr Davis: Operations of the Throat, Nose, and Ear. Mr. B Harman: Diseases of the Eye. 2 P.M., Medical and Surgica Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince o Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howel Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham) Nose, Throat, and Ear (Mr. H. W. Carson).
TUESDAY.—Cliuic: 10 A.M., Medical Out-patient (Dr. A. G. Auld 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds) Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patien (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. F Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks 3 P.M., X Rays (Dr. A. H. Pirie).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgica (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel
FRIDAY.—2.30 P.M., Operatious. Clinics:—Medical Out-patient (D A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patien (Dr. R. M. Leslie).

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

MONDAY.—5.15 P.M., Dr. A. Voelcker: Diseases of the Chest in Children, illustrated by cases, specimens, skiagrams, and drawings. (Lecture III.). (Post-graduate Course.)

TUESDAY.—5 P.M., Mr. H. G. T. Fairbank: Deformities, illustrated by cases, specimens, skiagrams, and sketches. (Lecture III.). (Post-graduate Course).

WEDNESDAY.—5.15 P.M., Dr. A. Voelcker: Diseases of the Chest in Children, illustrated by cases, specimens, skiagrams, and drawings. (Lecture IV.). (Post-Graduate Course.)

THURSDAY.—4 P.M., Lecture:—Dr. Thursfield: Meningococcal Meningitis.—5 P.M., Mr. H. G. T. Fairbank: Deformities, illustrated by cases, specimens, skiagrams, and sketches. (Lecture II.). (Post-graduate Course).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (20th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (21st).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (23rd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1910 are now ready. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 13th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
July 7	29·97	N.	0·02	85	61	54	53	57	Cloudy
,, 8	30·01	N.	0·08	89	63	53	54	56	Cloudy
,, 9	30·03	N.E.	...	80	60	54	53	55	Overcast
,, 10	30·00	N.E.	...	67	58	53	54	56	Overcast
,, 11	30·03	N.E.	...	119	68	52	54	57	Overcast
,, 12	30·09	N.E.	...	120	71	54	54	56	Fine
,, 13	30·17	E.	...	109	70	55	54	56	Overcast

Communications, Letters, &c., have been received from—

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The Bolingbroke Lecture

ENTITLED,

AN EXERCISE ON HEART DISEASE.

Delivered before the South-West London Medical Society on June 8th, 1910,

BY NORMAN MOORE, M.D. CANTAB., F.R.C.P. LOND.,

PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

GENTLEMEN,—"The heart of animals," says Harvey in his dedication, "is the foundation of life, the chief part of all, the sun of the Microcosm, whence all movement is derived, whence all force and strength are diffused." He wrote in 1628 and clearly understood the importance of the heart to the life of a man, yet a knowledge of diseases of the heart has only come to be a part of the general attainments of our profession for less than a century.

HISTORICAL SUMMARY.

Of the Four Hundred and Twelve Aphorisms of Hippocrates, short statements of striking facts in symptomatology, prognosis, and treatment, only one alludes to the heart. It is the eighteenth in the Sixth Book, and says no more than that wounds of the bladder, brain, heart, diaphragm, small intestine, stomach, or liver are fatal. There is a treatise on the heart, *περὶ καρδίης*, among the Hippocratic writings which notices that it is a muscle and a few other points in its anatomy, but if all the passages of Hippocrates which mention the heart are examined the reader is easily satisfied that they contain very little information. Ancient Greek medicine, so like modern medicine in its method of clinical observation, had attained no knowledge of diseases of the heart. Galen, and the Arabian physicians who carried on his observations and hypotheses into the Middle Ages, noticed the characters of the pulse and meditated upon them, but knew nothing of diseases of the heart. Even after Harvey had demonstrated the circulation of the blood, ignorance still prevailed in this part of medicine. The elaborate commentaries of Van Swieten on the Aphorisms of Boerhaave contain all that was known in medicine in the middle of the eighteenth century. This, as regards the heart, was no more than a very imperfect acquaintance with pericarditis, with rupture of the heart, with hypertrophy and dilatation. There were some isolated observations like that of James Douglas, who, in 1715, certainly heard a systolic murmur due to aortic valvular disease which he actually saw after the patient's death, but it was the introduction of minute examination of the chest by Laennec which led to the diffusion of clinical knowledge of heart disease. That knowledge has now become part of the attainments of every practitioner. Great additions have been made in recent years, among which one admirable piece of work deserves special mention: the large collection of original observations, of conclusions drawn from them, and of judicious reflections upon symptoms and treatment contained in Dr. James Mackenzie's "Diseases of the Heart," published in 1908. Much yet remains to be learned, and I have therefore ventured to address you this evening on a variety of cases which I have lately had under my care, of a kind of which you must all have seen many in practice and of which a never-ending series appears in the medical wards of every hospital.

A remark of Horace in the "Ars Poetica," in which he contrasts those poems which give a transient gratification with those which are read again and again with fresh enjoyment: "Haec placuit semel, haec decies repetita placebit," was often misused by the mediæval medical writers, who said "Decies repetita placebit" to justify reiteration of the dicta of their predecessors, but it may fairly be applied to the repeated consideration of cases of disease, for such is their variety that to repeat observations ten times is never a vain repetition. If I describe what may not be entirely new to you I hope it may yet be interesting.

SIGNIFICANCE OF NORMAL HEART SOUNDS IN DIAGNOSIS.

I may begin with an example of the significance, in relation to differential diagnosis, of the presence of normal heart sounds.

A poor girl, aged 14½ years, was admitted to one of my wards at St. Bartholomew's Hospital a few weeks ago, who was said to be suffering from rheumatic fever. She seemed in great pain and fearful of being touched, and her temperature was 103° F. Before looking at her joints I listened to her heart and found that its sounds were normal. When her legs were uncovered it was obvious that her left thigh as well as the knee-joint was swollen, and very slight pressure on the middle of the shaft was painful. I concluded that she had acute necrosis and not rheumatic fever. As soon as possible an operation was performed, pus was let out, and bone stripped of periosteum discovered. I mention the case because I want to lay stress on the statement that any case of rheumatic fever with severe joint pain and a temperature of 103°, that is, any well-marked case, will always have a cardiac murmur—in other words, will always yield definite evidence of the presence of endocarditis.

I have known other cases of acute necrosis admitted to medical wards as rheumatic fever as a result of an examination the thoroughness of which was abated by a humane desire to cause as little pain as possible, so that it may be worth while to mention, what your experience will, I am sure, confirm, that in a case of rheumatic fever, if you distract the attention of the often nervous child, no sign of pain will be elicited by pressure in the middle of the shaft of a long bone. In acute necrosis the pain is, of course, intense in that situation. If the pain in the joints be severe and the temperature high, an endocardial murmur will always be present if the patient has rheumatic fever, but if the case exhibit high temperature without joint pain, or with only slight joint pain, and be one of ulcerative endocarditis it may be some days before a distinct murmur is heard. In such cases a barely noticeable obscurity of the heart sounds may be present, so slight that, till the symptoms develop, one is apt to doubt whether it is of importance.

In every case of rheumatic pericarditis an endocardial murmur will sooner or later be heard. If, therefore, pericarditis long persists without any murmur being heard some other cause than rheumatic fever must be looked for.

A boy, aged 15 years, was admitted under my care at St. Bartholomew's Hospital. A well-marked friction sound was audible over his cardiac area from the left base to the apex of the heart. A year before he had had a sudden attack of pain over the heart which lasted three days. Two months back he had severe pain over the heart. A week before admission he fainted while at work, had pain over the heart, and some dyspnœa. There was no history of joint pains. His temperature for ten days after admission was from 100° to 103° F., and after that had occasional rises to 99° or 99·5°, a chart somewhat higher for the first ten days but otherwise not unlike that often observed in rheumatic fever. He had signs of pleurisy over the lowest part of the left lung behind and a complexion somewhat dusky. Dulness on the left front extended just beyond the left border of the sternum and up to the clavicle, and no breathing sounds were to be heard between the cardiac region and the clavicle. A loud friction going with the movements of the heart was to be heard, but no friction synchronous with respiration. A skiagram appeared to represent a pericardial effusion extending to the left clavicle and one inch beyond the right edge of the sternum. His dyspnœa increased, and with a view of relieving it I had a needle inserted where there was dulness at the base of the left lung behind. No fluid came out but some air was let in, for the next day there was Skodaic resonance below the left clavicle, though no breathing sounds were to be heard over the resonance. This seemed to demonstrate that the previous dulness up to the clavicle was due entirely to pericardial effusion, and that the upper part at least of the left pleural sac contained no fluid and was free from adhesions. The Skodaic resonance was gradually replaced by dulness, such as had existed before the admission of air into the pleural sac. The pericardial friction sound grew less and less distinct and finally ceased, but no murmur could at any time be heard. A well-marked tuberculin reaction was obtained. Some faint breathing with a diminution of dulness became slowly perceptible at the left apex. The boy gained weight and the pleural dulness behind diminished.

This was a case of a tuberculous pericarditis, accompanied by a small area of tuberculous pleurisy. It is true that tuberculous pericarditis, except in cases of diffuse miliary tuberculosis, is rarely seen in the post-mortem room, but

having occurred recovery from it may take place as it does from tuberculous pleurisy and tuberculous peritonitis. The entire absence in this case of signs of endocarditis was accompanied by freedom from arthritis.

Conversely, the presence of a murmur in a patient known to have had before normal heart sounds will sometimes make it clear that a supposed injury is not the cause of a pain in knee or ankle, but that the patient has rheumatic fever.

A boy whom I saw in consultation had some rise of temperature and was in bed because of pain in one ankle, attributed by him to a possible blow in the hockey field, of which, however, the patient had no recollection. His heart, known by his medical attendant to have been normal a few months before, showed a well-marked systolic murmur at the apex. There was no bruise nor even redness on the ankle. The case was one of rheumatic fever.

ADHERENT PERICARDIUM.

To decide whether the pericardium is adherent to the heart or not is a matter of great importance in relation to prognosis. A child with an adherent pericardium will very rarely live to grow up. This is most likely due to the interference with the general nutrition as well as with the muscular movement of the heart wall. The pericarditis of rheumatic fever is always accompanied by endocarditis and often in addition by well-marked valvular disease, the result of past endocarditis. Often the fact that the patient, though young, and with every advantage of nutrition and care, does not ever begin to recover from the effects of valvular disease is evidence, inconclusive perhaps, yet the best to be obtained, that he has an adherent pericardium. His temperature chart shows no great rises, the increase in size of his heart seems sufficient to compensate for his valvular lesion. He perhaps seems a little better, but directly he is allowed to get up, even for a short time each day, his heart's action becomes irregular and embarrassed and he has to return to bed again for a long period. Perhaps no physical sign of pericarditis has been observed. There is perhaps with other endocardial physical signs a presystolic apex murmur accompanied by a thrill. The natural question is asked whether the embarrassment is due to extreme mitral stenosis? The fluctuations of the murmur seem to oppose this view, and so from week to week uncertainty remains as to why the patient makes no improvement, in spite of his youth, and in spite of the fact that he has no evidence of severe continuous endocarditis. Such a case generally proves in the end to have been an example of adherent pericardium.

A boy who died at the age of 16 years in St. Bartholomew's Hospital, and who had been under my care there from Nov. 5th, 1907, to March 10th, 1908, and from Jan. 29th to Dec. 31st, 1909, was an example of this kind. He had first been in the hospital in 1906 with rheumatic fever. In 1907 he had some purpura with well-marked aortic obstruction and regurgitation and also signs of mitral obstruction and regurgitation. Nevertheless, he managed to get employed upon a van—a form of work, I may remark incidentally, easy for a boy to follow and generally injurious to his future prospects, since it can be followed by him long enough to enable him to forget his school education without giving him any skilled knowledge in its place with which to earn his living in later life. This boy was no longer able to work at the end of January, 1909, owing to shortness of breath both on exertion and on lying down in bed. He had no pain in his joints and his temperature was normal. His heart was obviously hypertrophied; the apex was in the seventh intercostal space half an inch outside the left nipple line. At the second right interspace and down the sternum very loud systolic and diastolic murmurs were audible and the systolic murmur was audible in the right supraspinous fossa. At the apex there was a very loud systolic murmur audible in the axilla and at the angle of the scapula. A thrill was to be felt at the apex only, but I did not hear any presystolic murmur there. On March 1st a fine thrill was to be felt at the second right intercostal space. The acoustic characters of the basic murmur and the apical murmur were quite distinct, and the characters of the two thrills were equally distinct. On June 21st a distinct presystolic murmur became audible at the apex, and afterwards continued to be heard there. The pulse was sudden. The liver was somewhat enlarged and slightly tender; the spleen was not felt. There were a few purpuric spots on the legs and arms. A blood count on Feb. 2nd gave 3,980,000 red blood cells and 16,200 white blood cells, and a fortnight later there were 11,600 white cells. There was a trace of albumin in the urine. He had not œdema of the legs till July, after which some was present till the beginning of October. He was obliged always to be propped up in bed all day, but lay down a little at night, and sometimes had pain over the heart. On Oct. 11th he had a sudden attack of pain when lying down and sat up with a loud cry, and had extreme dyspnœa. Later that day he became cyanosed. He was bled nine ounces, given subcutaneous injections of strychnia and inhalations of oxygen, and at 4 A.M. he fell asleep. The next day he was better and on Oct. 25th he got up a little for nine days. Then he stayed in bed owing to pain in his right shoulder, but otherwise continued fairly well and had no œdema of his legs. On Nov. 24th he had pain over the liver which three leeches relieved. He was very often quite cheerful, but getting up made him too short of breath to be attempted again. He greatly enjoyed the Christmas festivities, but the excitement was too much for him, and on Dec. 31st his dyspnœa became urgent and steadily increased till his death late in the evening.

The temperature did not suggest a progressive endocarditis. It was normal or subnormal from April 23rd to May 24th, and from June 17th to Dec. 31st. On Feb. 2nd, 4th, 20th, 21st, and 22nd, March 10th, 15th, and 30th, April 3rd, 4th, 5th, 7th, 10th, 14th, and 17th, and May 14th and 15th there were rises which only once reached 100°, and generally not more than 99°. On May 25th the temperature was 102° and next day 101°. On the remaining intervening days it was normal or subnormal. Strychnia and salicylate of soda were the chief drugs used with occasional purgatives and sedatives.

Post mortem, there were found a universally adherent pericardium except for a few patches of hæmorrhage, thickened and adherent aortic valves, and thickened and adherent mitral flaps. There was acute mural endocarditis of the left auricle and of the upper part of the septum. The myocardium was pale. The heart weighed 28 ounces, the liver 60 ounces, and the spleen 11 ounces. There were no signs of congenital syphilis. Well-marked amyloid disease was present in the kidneys, spleen, and last five feet of the mucosa of the ileum. Here is his heart, the muscular wall of which shows well-marked staining due to the presence of amyloid disease.

If amyloid degeneration be due to bacterial toxins, as has recently been maintained, and in view of the fact that it has been produced in rabbits by repeatedly injecting them with staphylococci, the amyloid disease in this case may perhaps point to such an effect from the endocardial organisms. My pathological colleague, Dr. M. H. Gordon, has pointed out to me that of 430 cases of amyloid disease observed at Edinburgh up to 1887, 20 were cases of hypertrophy with valvular disease following rheumatism and with no history of suppuration or syphilis, and he suggests an immunisation against the endocarditis and therefore the valvular disease of rheumatic fever may yet be attained.

I began by mentioning this boy as an example of the way in which the presence of something retarding recovery over a long period may lead us to the diagnosis of an adherent pericardium. The slight rise of temperature which his case shows to be compatible with progressive endocarditis is another point worthy of remark, and finally the presence of amyloid disease in relation to the prolonged endocardial and pericardial changes of rheumatic fever deserves attention.

Another boy, aged 12 years, was admitted under my care at St. Bartholomew's Hospital on Dec. 28th, 1909, with a troublesome cough and some pleurisy of the left side. He had also a well-marked friction over the cardiac area. At the apex an endocardial thrill could be felt and a presystolic and systolic murmur were audible. The systolic murmur was audible at the angle of the left scapula. On Jan. 31st his apex was in the sixth space and left nipple line. After this the impulse increased, the pleural friction disappeared *first*, and then the pericardial.

The boy is no longer acutely ill, but the least exertion deranges the action of his heart, and his nutrition, though slightly improved, progresses very slowly, much more slowly than his valvular disease alone would account for. It is certain he had pericarditis, but had I not witnessed this I

might have inferred from his retarded recovery that an adherent pericardium was present.

BULGING OF THE CHEST WALL.

However great the effusion in pericarditis there is never bulging of the chest wall. Hypertrophy of the heart produces a bulging over it in children and young people, and sometimes, though rarely, a mediastinal new growth beginning in or involving the pericardium causes a projection of the chest wall. This could never be mistaken for a pericardial effusion, yet I may mention a case in connexion with pericardial bulging, but chiefly on account of its interest in other ways.

A woman, aged 51 years, who was admitted under my care at St. Bartholomew's Hospital on Feb. 9th this year, had a remarkable projection of the sternum just below the joint of the manubrium and extending into the cardiac region. It felt firm and had no pulsation. It looked rather like an old deformity than a recent growth, but it had only appeared about Christmas, 1909. The patient had some shortness of breath. There was a systolic murmur, loudest at the apex but heard all over the front. A rounded mass was to be felt between the umbilicus and the xiphisternum. Both this mass and the projection in the chest slowly increased till April 20th, when the patient left the hospital, dying two days later. The absence of pulsation made it certain the swelling was not an aneurysm. Its true nature was made certain by the condition of the urine. It contained the albumose originally noticed by Bence Jones in a case of new growth. On heating to 60°–70° a coagulum formed of which a large part, but not the whole, was redissolved at boiling point. I asked Dr. Priestley, the chemical pathologist at St. Bartholomew's, to report upon the total examination of the urine, and his report was as follows:—

Reaction, acid; specific gravity, 1012. Total amount in 24 hours, 1230 cubic centimetres. The specimen contains albumin and typical Bence Jones albumose. The latter is precipitated on standing. It coagulates on heating to about 60°, and on heating further the coagulum mostly dissolves, but not entirely. Similar behaviour with acetic acid and potassium ferrocyanide, nitric acid, salicylsulphonic acid. Albuminimeter (Aufrecht), 0·25 per cent. protein; total nitrogen, 0·6356 per cent.; creatin (as creatinin), 0·0124 per cent.; creatinin, 0·0566 per cent.; sodium chloride, 0·2925 per cent. Precipitation limits with ammonium sulphate in untreated urine 45–55 per cent. saturation; a coagulum forms on heating the acidified urine at 60–64° C.; another at 70–72° C.; a third at 80–82° C.

The patient lost but little weight till about three weeks before she left, when some loss of flesh became apparent. The Wassermann reaction in the spinal fluid was negative. This urine reaction, of course, made it certain that the projection extending from the sternum towards and into the cardiac region was a new growth, no doubt a sarcoma.

The interest of the way in which the nature of the swelling came to be certain has caused me to dwell longer upon this case than was perhaps necessary, in relation to it as an uncertain protuberance in the cardiac region.

POSITION OF THE APEX OF THE HEART.

The determination of the position of the apex of the heart is, of course, important, but it must be borne in mind that what seems the apex beat on the chest wall is not a constant anatomical point for all hearts, and is perhaps not always constant for the same heart. Remembering this, "the apex of the heart" is a convenient expression for clinical use and an aid to the approximate determination of the size of the heart. If the apex is in the sixth space and nipple line the heart may be of double the normal weight.

In a patient who was admitted under my care at St. Bartholomew's Hospital on Nov. 30th, 1909, in a state of very urgent dyspnœa with very irregular action of the heart, I felt what seemed to be the apex beat in the ninth intercostal space and anterior axillary line. It was so far out that I felt at first some doubt whether I was actually feeling the heart. The patient had come in a cab by himself from Sydenham. He had for three years been unable to go upstairs without getting out of breath. He had been in bed since early in August on account of dyspnœa and pain in the left side. He was said to have had rheumatic fever at the age of 18 years. There was a thrill at the right base and a systolic murmur there and all over the cardiac area. He said he felt better the day after admission, but died suddenly the next day.

Post mortem the enormous heart I show you was found. There was well-marked thickening of the aortic valves. His right lung had a large hæmorrhagic infarction. The liver was greatly engorged. The kidneys were indurated and weighed 25 ounces. The heart when full of blood weighed 78 ounces, and 51 ounces when emptied of blood, a difference showing how marked may be the difference between the size, as shown by percussion, of a distended heart and of the same heart not greatly distended.

NATURE OF ENDOCARDITIS.

In the present state of bacteriological knowledge it is often difficult to determine whether the endocarditis progressing in a patient is of the kind belonging to rheumatic fever or is a true ulcerative or malignant endocarditis. The presence of streptococci in the blood will sometimes indicate a malignant form of endocarditis, but often the blood culture yields an inconclusive result. Time seems at present a necessary aid to solving the problem of the presence or absence of malignant endocarditis; but we may expect that bacteriology will soon supply us with an earlier determination of the nature of such cases. Once the suspicion of malignant endocarditis has arisen nothing but an absolutely normal temperature of several weeks can set it aside.

A boy, aged 8 years, now in my wards, was admitted on Nov. 23rd, 1909, with valvular disease. He had a well-marked thrill at the apex and a presystolic murmur and a systolic murmur were audible there. The systolic murmur was plain at the angle of the left scapula. On Jan. 21st, 1910, I for the first time perceived a thrill at his second right intercostal space, accompanied by a systolic murmur and a diastolic murmur. These physical signs have remained unchanged. He has double mitral disease and double aortic disease. He at first looked very ill, then rather better, then very ill again, now pretty well. The first nine weeks he had in each week some rise of temperature, never up to 101° F., rarely to 100°, then came a week of normal temperature, then a rise at the end of the next week to 99°, then three days at 101·5°, then a normal week, then a week at 99°, and then occasional rises to 99°, with seven normal weeks, of which three came together. His temperature is now slightly raised. He has had no joint pains. I fear that he has a malignant endocarditis which will ultimately cause his death.

A girl, aged 8 years, was admitted under my care on April 18th, 1910. She had some pain and swelling of her left knee and ankle. Her heart acted irregularly and she had a presystolic murmur and a systolic murmur at the apex, the latter audible at the angle of the scapula. On April 25th she had signs of consolidation in the lower part of the right lung, due, I thought, to an infarct. Her temperature for a week had been 102° to 103° F. It fell to a daily maximum of 101° for three days, and then she died suddenly at 9.50 A.M. on April 27th. There was no post-mortem examination but she may be assumed to have had a malignant endocarditis. In that disease a prolonged high temperature is common, but a somewhat less temperature, or even a temperature barely above normal, is not to be taken as a proof of improvement.

The suddenness with which the true nature of these cases comes out is often startling.

A boy, aged 8 years, was admitted to one of my wards with well-marked aortic obstruction and regurgitation. I remarked to my clinical clerks that his valvular lesion was like that of a man past middle life and gave him little trouble, as such a lesion often does while the nutrition of the heart is maintained to an adult. There was a history that he had had a transient hemiplegia. No sign of it was present. It is uncommon in children who have well-developed aortic disease for the mitral valve to be absolutely healthy, and I was not, therefore, surprised that when he had had prolonged rest a second systolic murmur could be heard certainly due to mitral regurgitation. The boy every week had some slight rise of temperature, on two days reaching 100·5° F., and on three 100°, for the rest not more than 99·2° or 99°. His spleen was not to be felt. On admission he had some renal engorgement and his urine in 24 hours was only 3½ ounces, and he had some signs of cerebral irritation which passed off in a week. On Feb. 16th he could not use his right hand perfectly, but he was a left-handed boy. In a few days his condition became normal, allowing for his valvular lesion and his occasional slight rise of temperature.

On May 31st he suddenly had a fit, showed signs of right hemiplegia, became unconscious, and died in a few hours.

Post mortem well-marked aortic disease was discovered, with an infective spot below one aortic cusp. One group of cords of his mitral valve were thickened. His heart weighed 11 ounces. His myocardium seemed normal. In his brain in the left posterior parietal region was a large blood-stained cavity. In the frontal lobe on the same side there was a large hæmorrhage—a mass of clot as big as a Tangerine orange. The vessels at the base were normal. He died from the results of an infective endocarditis.

CHOREA AND RHEUMATISM.

My own belief, based on the observation of a large number of cases, is that endocarditis is an essential part of rheumatic fever, and I think it would be useful to regard every case of chorea as belonging to the same species of disease as rheumatic fever. It is well worth while to watch cases of chorea over long periods, taking the temperature constantly and listening to the heart often.

A girl, aged 12 years, was admitted to my ward on Nov. 23rd, 1909, with violent choreic movements, so that she had to be placed in a bed with raised sides. She had had chorea in 1904 and in 1906. She was of French descent and seemed of an emotional nature. She flung herself about in bed, rolling her eyes and shooting out her tongue when asked to show it. The muscles of her mouth were in constant play; in short, she was a severe case of chorea. Her heart showed a thrill at the apex and a presystolic and systolic murmur. She had double mitral disease. The apex beat was outside the nipple line in the fifth space. She had some rheumatic nodules about the shoulder blades. In March more nodules appeared. She was wasted on admission but gradually became better nourished. Her movements grew less. Her temperature was generally normal, but in some weeks a single rise to 99° F. took place. From April 13th to 29th her temperature rose every day, and on two days to 101·5°. On May 3rd it was clear that she had some obstruction of the pulmonary valves. At the second left intercostal space a finger's-breadth from the sternum a fine thrill was to be felt and a fresh systolic murmur, which seemed close to the end of the stethoscope, was to be heard there; this has persisted. This was a well-marked example of continuous endocarditis in chorea. It can generally be detected, and is, I believe, a part of every case of rheumatic chorea, which may, in fact, be regarded as merely a phase of rheumatic fever.

VALVULAR DISEASE: PROGNOSIS.

Though death in valvular disease is often said to occur either suddenly, of which the type is the falling down dead from aortic regurgitation, or gradually with dropsy, as in many of the cases of mitral disease which are to be seen in hospitals—there are in reality many variations in the way in which the fatal termination is reached. I am not thinking of their physiological explanation, but only of their clinical appearance. It is worth considering them, since we may thus learn something from them of the direction which treatment ought to take, and may be able to form an accurate prognosis.

Well-established disease of the aortic valves, whether associated with angina pectoris or not, is rightly regarded as the commonest of all causes of immediate death in patients apparently well; yet the more cases are examined the more clear does it become that a patient with well-marked aortic valvular disease may, by avoiding sudden strain upon his heart, whether physical or mental, live beyond fourscore. The avoidance of physical strain is easily followed: no hastening for trains, no riding of unruly horses, no lifting of weights, no taking down of heavy books from upper shelves. These are injunctions which a little practice makes part of the rule of life. To old men and women the avoidance of emotion is less difficult than to younger people, and in many of them an absence of excitement is the normal state. Being warned they thus easily keep out of the effects of joy, of grief, and of the competition of life. The same degree of disease of the aortic valves in the young, of course, renders them unfit for physically laborious lives, but often interferes surprisingly little with an even tenor of industry. Aortic valvular disease pure and simple is rarely found after rheumatic fever, and most of the young in whom after rheumatic fever the aortic valves are affected have also some mitral regurgitation. My experience is that this does not make the prognosis worse.

The differences between the aortic vavular disease of the old and the young are that in the old the myocardium is often affected, while in the young it may be perfectly healthy. The valvular condition in the old may change slowly or may be long stationary, while in the young further endocarditis may aggravate it and render the condition of the valves absolutely incompatible with long life.

A familiar example of this aggravation of the valvular difficulty is to be seen in the numerous patients who conclude their first attack, as it is called, of rheumatic fever with a permanent condition, mitral regurgitation, leading to hypertrophy of the left ventricle. Subsequent endocarditis in further rheumatic fever leads to adhesion of the mitral cusps and well-marked signs of mitral stenosis, which becomes the effective and distressing valvular lesion. Mitral stenosis alone is never accompanied by hypertrophy of the left ventricle, so that every case in which that hypertrophy is present, accompanied by a presystolic murmur and an apical thrill, is one of valvular disease aggravated by further endocarditis.

Of all the forms of valvular disease mitral obstruction is that for which the heart itself seems able to do least and in which medical treatment is least satisfactory. I am inclined from my own experience to the opinion that such cases might live longer and have less distress if they were bled periodically, and the engorgement of viscera thus constantly postponed. Our ancestors imagined they kept their health by periodic bleeding—a proof, at least, that it did not do them serious harm. When they were bled for cerebral hæmorrhage it did them no good. When they were bled for acute pneumonia the disease was rendered more often fatal or the convalescence was elongated, but I have not discovered any evidence to show that the bleeding of healthy men and women to which the theories of the eighteenth century and earlier periods led did any permanent harm. Such bleeding might do permanent good in the course of cases of mitral obstruction, as it certainly does in the extremity of such cases. Such patients are often greatly relieved by the alteration in the circulation due to pregnancy.

It is remarkable in mitral obstruction how once a certain degree of hepatic obstruction is reached neither rest nor bleeding nor drugs can long prevent the increase of visceral engorgement and of dropsy. Such patients often die in a moment as they lie propped up in bed, but in mitral obstruction sudden death sometimes takes place in patients who are walking about apparently well. Not long ago I saw a parlour-maid, aged 28 years, fall while she was waiting at table. I felt her pulse at once. It had stopped and she was dead. The death was exactly like that of a case of aortic valvular disease, but post mortem well-marked mitral stenosis was the only lesion present. The liver, spleen, and kidneys were engorged, but there was no dropsy. A certain number of such cases have been recorded, but they are rare.

Mitral regurgitation is the commonest form of valvular disease in the young. What ought to be said about its prognosis? I think this: That such complete compensation may take place that it need not interrupt even an active career in life. The most important point in treatment is to avoid further endocarditis and consequent further valvular injury. Unlimited rest and prolonged watchful protection against heart strain are to be insisted on. Any large experience in affections of the heart will, I think, lead to the conclusion that the cause of death in the majority of patients is not merely the condition of the valves and the endocardium, nor of the myocardium, but of the whole heart and the whole circulation.

CONCLUSION.

I hope that my observations have not been on subjects too well known to you to be interesting. Perhaps you may forgive me, as a physician to St. Bartholomew's Hospital, for liking to address you on the subject of the heart, for it was a physician to St. Bartholomew's, Dr. David Pitcairn, who first taught that the heart was affected in rheumatic fever. He was born in 1749, elected physician in 1780, and died in 1809. He is buried within St. Bartholomew's Hospital, and a fine portrait of him by Hoppner hangs in the Censors' Room at the Royal College of Physicians of London.

It was in the wards of St. Bartholomew's that a valvular

murmur was first heard, and it was in its post-mortem room that the condition of heart was discovered to which the murmur heard was due. The observer was Dr. James Douglas, a man of constant observation and great learning. He was the first to describe an amyloid spleen. The precise elucidation of these conditions did not come till long after his time, yet to have so nearly approached two great discoveries is a proof of the acuteness of his observation. His name is commemorated in the modern designation of parts of the peritoneum, which, as well as its general arrangement, he was the first to describe. He died in 1742.

The earliest writer on the heart at St. Bartholomew's was the greatest of all, and whatever is now known about this subject rests upon Harvey's discovery. Harvey was elected physician to St. Bartholomew's Hospital on Oct. 14th, 1609, and every subsequent physician to that ancient foundation may, I hope, be allowed to feel that he is

"Proud to be less, but of his god-like race."

ABSTRACT OF

The Morison Lectures

ON

EPILEPSY.

Delivered before the Royal College of Physicians of Edinburgh on Feb. 28th and March 2nd and 4th, 1910,

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LECTURE III.[1]

Delivered on March 4th.

TREATMENT OF EPILEPSY.

GENTLEMEN,—Since the introduction of the bromides by Sir Charles Locock[2] in 1857 most epileptics at some period in the course of their malady have probably been treated by these drugs. The universal prescribing of the bromides during the past half century, with more or less success in subduing the convulsions, has to a large extent deprived the patient of the advantages which may be obtained from the hygienic, dietetic, and disciplinary lines of treatment.

As the physical and mental development of epileptics varies as much as in conditions of health, it is obvious that lines of treatment suitable for the physically robust and mentally capable may be detrimental to the physically frail, and impossible in the dementia of the confirmed disease. We have, therefore, in every case of epilepsy to treat the individual and not solely the disease.

1. It is well known that epilepsy may undergo spontaneous cure even after the convulsions have lasted for a number of years.

2. There is a considerable percentage of epileptics in whom the disease is characterised by the infrequent occurrence of fits, and the absence of any obvious mental impairment. Those constitute a favourable type of epilepsy and may be treated medicinally and dietetically on the lines which will presently be laid down.

3. In a large number of cases the disease would seem to be excited in predisposed persons by reflex irritation of the peripheral organs. I would especially call attention to the value of a carefnl examination of (*a*) the nose for foreign bodies or adenoid growths in children, and nasal polypi in adults; and (*b*) of the eyes for errors of refraction (which are particularly freqnent in epileptics) and their correction by snitable glasses. (*c*) Caries of the teeth requires the necessary attention, as I have freqnently observed great improvement in the fits after the adjustment of suitable artificial means of mastication. (*d*) All disorders of the stomach and intestines—dyspepsia, constipation, and worms—should be carefully attended to; epileptics, being notoriously big eaters, require great care in the regulation of their meals and should be encouraged to fully masticate their food. (*e*) Local disease of the pelvic organs in women requires attention, but too much stress ought not to be placed upon those disorders even in predisposed persons, although their treatment by suitable remedies should be carried out.

4. There are many cases of epilepsy in the early stages of which treatment in an institution may be either impossible or inadvisable. Under those circumstances the patient ought to be placed under the care of a capable and properly trained nurse attendant. The satisfactory carrying out of that instruction will often eventuate in most gratifying results.

5. Epileptics suffer notoriously from lowered vitality and sluggish circulation in the extremities. For those warm baths, spinal douches, and massage are desirable. Use of the hot bath is most necessary, not only for the ordinary ablutionary purposes, but to promote skin excretion, which is regarded by some writers as being of a toxic nature. Under all circumstances a certain amount of daily exercise in the open air is necessary—walking, running, tennis, croquet, and football may all be indulged in freely. It is scarcely necessary to point out that such exercises as bicycling, rowing, swimming, and riding are to be avoided.

6. An out-of-door life is usually regarded as the most suitable for an epileptic, bnt this entirely depends upon the physical vigour of the patient; hence farming or market-gardening should only be recommended to those of a robust constitution, while for the frail epileptic drawing, modelling, book-keeping, and such semi-sedentary forms of work are quite suitable. On the other hand, there are many who are able to continue their professional work or business without difficulty and with advantage to themselves and their disease.

7. I do not think it right that those subject to even infrequent epileptic seizures should be sent to school along with normally healthy boys and girls. It is neither fair to the epileptic nor agreeable to his or her companions. In all cases private education is to be recommended. In cases with marked mental impairment special methods of teaching ought to be adopted.

8. If the disease develops during a period of mental strain preceding an examination complete abstinence from work should be temporarily enforced, but when the type of the disease has revealed itself education should be resumed on the lines already laid down.

9. The marriage of epileptics should be discouraged. There is a popular belief that if an epileptic girl is married the disease will thereby be cnred. I have met with isolated instances of this, but in the majority of cases pregnancy and the puerperium are especially prone to increase fits, or at the best to exert no change at all upon them.

The treatment of epilepsy should be considered according as the disease is of recent development or of old standing.

A. RECENT EPILEPSY.

There is no single specific remedy in the treatment of epilepsy, although the alkaline salts of bromine come nearest to this definition. But the influence of the bromides upon epileptic convulsions is variable and uncertain.

The Bromides.

In the first place, *bromide medication may arrest the seizures immediately*, or within a short period of their administration, temporarily or permanently. In this division most of the curable types of epilepsy are found, cases characterised by an absence of mental impairment and with fits recurring only at long intervals. If any given case is capable of arrest a satisfactory response will be apparent within a comparatively short period of commencement of the bromide treatment.

Secondly, the bromides may induce a *lessening in the severity and frequency of the seizures.* This is the common temporary result of bromide treatment and is what may be confidently expected in the majority of cases in the early stages of the disease. Sometimes the change is effected by the arrest of the major seizures, the minor continuing; or the bromide may change the time incidence of fits, from the waking to the sleeping hours, or *vice versâ.*

Thirdly, the bromides *may exert no influence at all upon the disease*, or may even augment the frequency or severity of the seizures.

These facts may be given in the form of a table showing the general results of treatment by the bromide salts in 366 cases of epilepsy.

Cases of arrest	86	or 23·5 per cent.
Cases showing improvement ...	105	,, 28·7 ,,
Confirmed cases	175	,, 47·8 ,,
Totals	366	,, 100·0 ,,

[1] Lectures I. and II. were published in THE LANCET of July 16th, 1910, p. 147.

[2] Locock: Medico-Chirurgical Transactions, 1857.

These figures are in general harmony with the observations of other writers on the subject; they demonstrate clearly how large a percentage of epileptics derive no benefit from bromide treatment. This is within the knowledge and personal experience of most physicians who have had to treat even small numbers of epileptic patients.

A further conclusion drawn from the study of these figures is that under the influence of the salts of bromine a considerable number of cases of epilepsy are temporarily "cured" or materially improved. Notwithstanding the unfavourable results of treatment in many cases it would be an error to say that bromides are useless in the treatment of epilepsy. If 50 per cent. of the cases derive benefit from the administration of these drugs, then all cases, especially of recent onset, should be given the benefit of the drug for a time.

Dosage.—Bromide treatment should be commenced at the earliest possible time after the onset of the fits, as there is a greater prospect of arrest or improvement during the first five than during the second five years of the disease, although arrest of the seizures may occur after a duration of 20 years. The administration of the bromides should be continued for a period, the duration of which is to be determined by the study of each case separately, but should not be less than two years.

The dose usually given is, I think, too large. If benefit does not follow a daily dose of from 45 to 75 grains of one or a combination of the bromide salts, some other remedy or method of treatment should be sought for and applied. The large doses sometimes prescribed—from 100 to 150 grains daily—although no doubt suppressing the seizures for a time, induce other and more serious phenomena—viz., those of bromism. Moreover, the bromides have an accumulative action. Laudenheimer [3] has shown that an epileptic taking 10 grammes (150 grains) of bromide salt daily for eight days only excreted 35 grammes during that period. He also showed that no results followed its administration until an equilibrium was established between the intake and the output. This occurs on saturation of the body and requires about 30 grains of bromide to be given daily for three or four weeks. It is also largely dependent upon the amount of sodium chloride taken in food.

Methods of administration of the bromides.—Most physicians have their own methods of prescribing the bromides in epilepsy. As already mentioned, large doses are neither necessary nor effectual in their results, but both the amount of the dose and the frequency and time of administration should be gauged by a study of individual cases. Under the dietetic treatment in epilepsy, reference will be made to the deletion of salt, in the form of sodium chloride, from the dietary. This is an important modification in the treatment of epilepsy, as much smaller doses of the bromides may be prescribed.

The potassium, sodium, strontium, and ammonium salts are the most usually administered. Each is of value, but the sodium salt is the most efficacious. If the bromides are prescribed in combination the dose should not exceed 60 grains in the 24 hours. The bromide of strontium is less useful, but may be given in smaller doses, or in combination with one of the other salts.

Combinations of the bromide salts, with other remedies, which may have some influence either upon the nervous or circulatory systems, have been from time to time recommended, and are found useful in some cases. A combination of the bromides and digitalis has been found very satisfactory in cases with low arterial tension, irregular action of the heart, or failing compensation with valvular disease. Chloral hydrate may be added with great advantage in cases of prolonged serial epilepsy, or of the status epilepticus. The bromides and the glycerophosphates form a valuable combination in weak or debilitated cases, more especially in young women with anæmia or neurasthenic symptoms. Bechterew recommends the conjunction of the bromides with adonis vernalis, and sometimes with codein. A combination of a bromide salt with borax has been of service where the bromides or borax separately have been of little use.

Bromide, picrotoxin, and the arseniate of antimony (Gélineau's formula).[4]—Of the combinations of the bromides with other remedies I have found Gélineau's formula the most useful and satisfactory. It is prescribed in the form of dragées, containing 1 gramme of the potassium bromide, ½ milligramme of picrotoxin, and ½ milligramme of the arseniate of antimony. It has been used extensively in France, but does not seem to have been adopted to any extent in Britain. I have been in the habit of prescribing it during the past two years in those cases of epilepsy in which the pure salts of bromine are either not well borne or have been proved to be ineffective. In large doses picrotoxin is a producer of convulsions leading to spasms of a tetanic character, with death in coma. In small doses it is theoretically supposed to lessen the tendency to cerebral vaso-constriction, which is believed to be a fundamental factor in the causation of epileptic fits.

I have used the dragées in all forms of epilepsy with considerable success. My experience is that they are: (1) A more successful remedy in most cases than a single bromide salt; (2) less likely to lead to troublesome symptoms—e.g., acne or bromism; and (3) more easy of administration, being especially convenient either in augmenting or diminishing the dose.

The method of prescribing them is simple: one dragée to be taken either during or immediately after a meal, thrice daily for a week, an additional dragée being added weekly until the patient is taking 4, 5, or 6 per diem. I have found 6 dragées a day usually sufficient to hold the fits in check, although according to Gélinean as many as 10 or 12 daily may be taken. My experience of the remedy has not been sufficiently long to say definitely whether it is better in all cases than bromide alone, but with two or three exceptions it has been of great service in diminishing or even arresting fits in cases in which the bromides alone have been of no use.

Treatment by Drugs other than the Bromides.

In the days before the introduction of the salts of bromine in the treatment of epilepsy many remedies were used, sometimes with marked success, as may be seen from the satisfactory results obtained by Herpin, Reynolds, and others. On account of the not infrequent failure of the bromides to arrest, or even to ameliorate, epileptic attacks, it will be found necessary to prescribe some other medicinal remedy, and a large number have been from time to time advocated and employed.

Perhaps the drug most frequently used as a substitute for, or as an adjuvant to, the bromides, more particularly in England, is *borax* (sodium biborate). Introduced by Gowers many years ago as an anti-spasmodic, it has met with considerable favour in cases where the bromides have been of little service. Unless in combination with a salt of bromide I have not found it of particular use. It may be given in doses of from 10 to 30 grains thrice daily, but is apt to induce troublesome gastro-intestinal symptoms. If continued over long periods it may lead to cutaneous eruptions of a psoriasis-like character.

Belladonna was the chief anti-epileptic remedy of the pre-bromide days, and is still used in some cases with marked benefit when the bromides or other remedies have proved unsuccessful. It formed the chief remedy of Tronsseau, Hufeland, Herpin, Reynolds, and others, and in the hands of the first named was mainly used in those cases complicated with nocturnal incontinence of urine. A combination of bromide and belladonna may be found useful in cases of otherwise intractable combined seizure types. It may be prescribed either in liquid form, as the tincture in doses of 5 or 10 minims, or in the form of a pill made of the extract or pulvis belladonnæ.

The *zinc salts* (oxide, valerianate, and lactate) are old established, and were occasionally successful remedies in the hands of the French physicians. Opium, as a remedy for epilepsy, dates from classical times. It is now only used in the opium bromide method recommended by Flechsig.[5] My experience of the treatment has not been such as to encourage further trial.

Strychnine has been recommended from time to time and used with considerable success by some physicians. In doses of 1-16th grain daily it may be continued over considerable periods. Its *modus operandi* is probably merely as a nerve tonic, although it may have some influence in strengthening the tone of the vaso-motor centres. Strychnine finds its most useful application in the treatment of nocturnal epilepsy, especially when there is reason to suppose that the blood pressure is materially lowered.

Monobromate of camphor, eosinate of sodium, chloretone,

[3] Laudenheimer: quoted by Binswanger, op. cit.
[4] Gélineau: Traité des Epilepsies, Paris, 1901.
[5] Flechsig: Neurologisches Centralblatt, 1893, p. 229.

and numerous other remedies have been tried, but without any special benefit. I have seen no particular advantage obtained by the use of bromipin, bromaline, bromocarpine.

The calcium salts.—Recent examinations into the coagulation of the blood in epileptics have led to the suggestion that the salts of calcium may be of use in arresting or diminishing epileptic seizures. As already shown, however, considerable discrepancy exists as to whether the blood in epilepsy coagulates more readily during a fit period. A more rapid coagulability during the four-and-twenty hours preceding a major seizure or serial attacks has been demonstrated (to my mind conclusively) by Dr. John Turner[6]; on the other hand, the observations of C. Besta[7] showed a diminished rate of coagulation—the fits apparently exerting no influence upon this.

Donath[8] prescribed chloride of calcium to a limited number of epileptics without materially affecting the number of the fits. I have myself prescribed the lactate of calcium in 10-grain doses in combination with bromide of potassium in a few cases with very satisfactory results, and Mr. A. R. Littlejohn[9] reports a case in which calcium lactate alone was prescribed with much benefit. It would therefore appear that the salts of calcium are worthy of further study in the treatment of epilepsy. It is not unlikely that the special type of the disease most suitable for treatment by these salts has yet to be defined.

Duration of Treatment.

The question as to how long bromide or any other form of medicinal treatment should be maintained is not one upon which any rigid statement can be made. Some authorities maintain that treatment should be continuous for a period of at least two years after the last seizure, but our experience at the Queen-square Hospital points to a much longer period as necessary. Epileptics attend there for many years after the arrest of the fits, as they find that stopping the bromide, even for a short time, conduces to a return of giddiness, or of "sensations" reminding them of their previous attacks. If nine years' freedom from fits is to be a gauge of a "cure" of epilepsy, then withdrawing the bromide under a period of five years in those in whom the fits are arrested would be injudicious. On the other hand, many persons in whom the disease has been arrested after a year or two of bromide treatment, remain free from attacks without the aid of any medicinal remedy.

The important practical point in this connexion is, that those patients who take bromide well, and in whom the fits are thereby kept in subjection, ought to persevere with the remedy and not to stop it. It is just when the fits have been satisfactorily controlled that further treatment is of most use. The withdrawal of medicinal treatment, therefore, in those in whom the fits have been arrested should be carried out gradually. Under no circumstances should bromides be withdrawn suddenly after their prolonged use.

Dietetic Treatment.

In all cases of recent epilepsy, whatever may be the medicinal treatment adopted, some modification of the diet from that of a person in normal health is desirable. In the treatment of this disease the primary object is to keep the dose of the bromide salts as small as possible, because owing to the protracted nature of the malady a prolonged course of bromide medication is advisable, even in those cases in which treatment is effective. Therefore, any dietetic modification which will permit of this being accomplished is of advantage.

As already pointed out in the first lecture, many causes have been assigned as the immediate excitant of epileptic seizures, but the only certain factor is the unstable condition and proneness to "discharge" of the cortical nerve cells in predisposed persons. In any attempt to formulate the principle which ought to guide the physician in considering the dietetic treatment there ought to be kept in mind the fact that nervous energy has its source chiefly in the albuminous and nitrogenised principles of food-stuffs.

It was an old speculation of Hughlings Jackson that the part played by salts and minerals should be investigated in their relation to the building up of structure and the development of function. As the chlorides and the bromides were strikingly homologous in their chemical and physical properties, he suggested that the efficacy of the bromide salts might be due to their replacing with greater energy the more common chloride salts. The practical application of this suggestion, however, was not carried out in the treatment of epilepsy until Toulouse and Richet[10] recommended a diet in which the total quantity of sodium chloride per diem was limited to one or two grammes. It was thought that by diminishing the quantity of the ingested chlorides, mainly in the form of sodium chloride or common salt, the bromides might be administered in smaller doses, and the risks of bromism thereby lessened.

Hoppe[11] has shown that one-third of the chlorine of the blood serum has to be replaced by an equivalent amount of bromine before any therapeutic result is obtained. When more than this is replaced bromide intoxication may occur. When less chloride is ingested, saturation takes place sooner. It has been shown that with a diet free from salt saturation takes place in from three to four days. This method of "salt starvation" in the treatment of epilepsy has been extensively tested with varying results. My own experience of the method has been such that when used in combination with a purin-free dietary very substantial benefit is derived, and relatively small doses of the bromides may be prescribed.

A "purin-free" diet is made up of those food-stuffs in which the "purin" or alloxur bodies are absent, or present only in such small quantities as to be negligible. Purin bodies exist in all forms of meat extract, in both the white and the red meats commonly used as food. They are present in large quantities in such substances as sweetbread, liver, and beefsteak. They are not present in milk, eggs, bread, butter, cheese, the farinacea, most fruits, some vegetables, and honey. They exist to only a moderate degree in most forms of fish, peas, beans, lentils, tea and coffee, and oatmeal.

I have used this diet, or a modification of it, containing, according to the needs of individual cases, a small portion of fish either once daily or three times a week, for several years in conjunction with the bromides or Gélineau's dragées. The results have been such that I am led to advise it in all cases of recent epilepsy. 1. In cases in which the bromides alone have been of little or no use the adoption of the purin-free saltless diet has at once led to material improvement. 2. By its aid the dose of the bromides has been largely reduced, as it is in cases refractory to relief by bromides that some physicians increase the salts to such an extent that bromism is brought about and maintained. 3. If properly supervised symptoms of bromism never appear. 4. If the patient show any signs of loss of weight the addition of cream or cod-liver oil is usually sufficient. If not sufficient it is advisable to permit fish, or even a little lamb or mutton.

B. CONFIRMED EPILEPSY.

In cases of confirmed epilepsy with mental deterioration the use of the bromides is of relatively little value. According to Féré, the bromides are only of use when the dose is so large as to produce toxic effects. Their continued administration in these cases does, however, produce a diminution in the number, and perhaps in the severity, of the seizures. With a view to test the efficiency or otherwise of a 30-grain dose of bromide salt administered every evening to a number of confirmed epileptics in an institution, the dose was stopped for a month and the total number of fits, with or without bromide, was compared. During this period the fits were increased in frequency by about one-third (278 to 402).

My experience of the treatment of confirmed epilepsy is that the administration of the bromides is of little real service. It was long ago pointed out by Esquirol that any change of treatment was temporarily beneficial. Bringing epileptics under the generally favourable hygienic surroundings of a hospital will often conduce to material temporary improvement, without the aid of any medicinal remedies.

As with medicinal treatment, so with dietetic modifications. I have not seen any material benefit obtained in cases of confirmed epilepsy by aid of the salt-free or purin-free diets. The majority of the cases feel better when on the purin-free diet. But there is no marked improvement in the frequency or severity of the seizures, except perhaps in those cases in which the fits occur in series.

These observations would bear out what has been constantly noted in the treatment of epilepsy—viz., that in the confirmed

[6] John Turner: Journal of Mental Science, October, 1908.
[7] Besta: Riforma Medica, 1906, No. 43.
[8] Donath: Epilepsia, 1909.
[9] Littlejohn: THE LANCET, 1909, vol. i., p. 1382.
[10] Toulouse and Richet: Académie des Sciences, 20. xi.
[11] Hoppe: Neurologisches Centralblatt, 1906, p. 993.

disease little if any benefit is derived from treatment. In other words, those cases in which the disease has become established upon an organic foundation require to be lodged preferably in an institution for epileptics, where they may be prescribed (1) regular and congenial employment, (2) a judicious alternation of work and play, and (3) a suitably arranged and simple mode of life, with avoidance of excitement and abstinence from alcoholic liquors.

ON FERRO-SILICON, WITH SPECIAL REFERENCE TO THE POISONOUS GASES LIABLE TO BE EVOLVED THEREFROM.[1]

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Dr. Arthur Newsholme, in some prefatory remarks in a recently published supplement to the Thirty-eighth Annual Report of the Local Government Board dealing with ferro-silicon,[2] briefly sums up the circumstances which led to a special investigation of this material in the following words :—

> The possibility of danger to life from the transport of ferro-silicon had already received attention in this country through a "Notice to Shipowners, Shipmasters, and Shippers" issued by the Board of Trade in September, 1907, but the magnitude of the risks involved in the treatment of this material and the need for more stringent regulations was strikingly demonstrated by the death of five Russian immigrants on board the s.s. *Ashton* in December, 1908, during this ship's voyage from Antwerp to Grimsby. Inquiries made on behalf of the Local Government Board into this occurrence brought to light a number of previous accidents in connexion with the transport of ferro-silicon, and after conference with the Home Office and the Board of Trade the full investigation of this subject was placed in the hands of Dr. Copeman.

For the purposes of this investigation Dr. S. M. Copeman visited in the first instance Sheffield, and later Rotherham, Hull, Grimsby, Liverpool, Manchester, and Wednesfield, and was assisted in his inquiries in Sheffield by Mr. R. S. Bennett, one of H.M. inspectors of factories. Dr. Copeman also visited various factories where ferro-silicon is made in the south-eastern district of France, whence the greater quantity of this material is exported to England. Ferro-silicon is also manufactured in some parts of Austria, Switzerland, and Italy, and in Norway and Sweden. Dr. Copeman inspected the various processes of manufacture, and collected a large number of samples of this material from the manufacturers and users, and I esteem myself fortunate in having been recommended by him to examine these samples chemically and "to assist in defining the nature and extent of the danger from ferro-silicon."

The report which Dr. Copeman recently presented on the whole matter covers 115 pages, and includes a report by Mr. Bennett on the physical structure and properties of ferro-silicon and my own investigations. This report is already becoming scarce owing to the great demand for it on the part of those specially interested, and I thought that a very brief *résumé* of the main facts set forth, and more particularly as regards the poisonous gases liable to be evolved from ferro-silicon, would also have a special interest for this society, as the subject is comparatively new from a toxicological point of view, and is essentially medico-legal in its aspects.

Nature and Uses of Ferro-silicon.

Few people are aware of the nature and uses of ferro-silicon, which has only been manufactured on a large scale during the last ten years and of which some 4000 tons are annually imported into England from France. Without entering into unnecessary details, I may say that ferro-silicon is a physico-chemical alloy of iron and silicon which is employed in the manufacture of steel. Silicon has a high calorific value and acts as a metallurgical fuel; hence, by causing molten steel to remain fluid for a long time it enables thin and intricate castings to be made, and by its reducing action it prevents the formation of blowholes in castings. The addition of silicon to steel imparts to it, among other valuable physical properties, a high tensile strength when present to the extent of rather less than 1 per cent., together with small proportions of carbon and manganese. Hence, silicon steels are used in motor-car construction. The proportion of silicon in ferro-silicon varies from 10 per cent. to 96 per cent. When the proportion of silicon is under 25 per cent. the alloy is known as low-grade, while when it is above 25 per cent. the alloy is called high-grade ferro-silicon. The low-grade variety can be made in blast furnaces, but the higher grades require the very high temperatures only obtainable by the electric furnace. Hence, while low-grade ferro-silicon is made in England, high-grade ferro-silicon is at present almost exclusively manufactured on the continent. Although the high-grade variety is more costly, certain technical advantages derived from its employment have caused it to largely displace the low-grade ferro-silicon.

Fatal and other Accidents due to Transport and Storage.

It has, however, been discovered, and the facts have only gradually come to light in connexion with what seems to me an appalling sacrifice of human life, that high-grade ferro-silicon is liable to evolve gases of a deadly poisonous nature when brought into contact with water, or even when exposed to the action of moist air. In the first portion of his report Dr. Copeman describes in detail the various accidents, fatal and otherwise, which are known to have occurred up to the present time in connexion with the storage and transport of ferro-silicon. A very brief reference to these will be of interest.

December, 1903.—The earliest record is that of an explosion of some iron drums containing ferro-silicon which had been brought to Liverpool by the s.s. *Veria*. A porter was seriously injured by the explosion. The late Dr. Dupré, F.R.S., and Captain Lloyd, R.A., investigated the matter and attributed the explosion to the presence of phosphoretted hydrogen. Mr. Watson Gray came to a similar conclusion and also found that acetylene and arseniuretted hydrogen were evolved by the material.

January, 1905.—On the s.s. *Vaderland* during a voyage from Antwerp to New York 50 of the steerage passengers lodged over a hold in which a cargo of ferro-silicon was stored were made seriously ill by the fumes given off by this substance and 11 died on board. The deaths were certified as due to "pneumonia"; a first official inquiry attributed them to unknown causes; later, a fuller inquiry revealed the true cause.

October, 1905.—Dr. J. F. Robertson of Althorpe was called to the Keadby Canal to see two children, aged 3 and 4 years, lying ill in a canal boat. One of the children was dead before he arrived, the other was in a state of collapse and died soon afterwards. The father and mother suffered from abdominal pain, sickness, and diarrhœa. A peculiar and pronounced smell was noticeable in the cabin. No poison was found in the food or viscera in the post-mortem examination, only some congestion of the lungs was observed. Five tons of ferro-silicon were on board. Death was attributed to the fumes from this material. The coroner communicated the facts to the Board of Trade.

March, 1906.—Two children died on board a Rhine boat (*Caroline*) of Mannheim. There was a cargo of 750 cwt. of high-grade ferro-silicon on board which was stored immediately under the cabin. Dr. Lehnkering of Duisberg investigated the matter and proved the evolution of phosphoretted hydrogen from the cargo. The parents of the children suffered from headache and giddiness, but kept as much as possible on deck. Dr. Lehnkering refers to other similar instances of poisoning and one death on Rhine boats.

February, 1907.—The *Olaf-Wyk* arrived at Antwerp on the evening of Feb. 12th, having left Gothenburg on the 9th with six passengers; four of the passengers died during the voyage; the captain, the stewardess, and some of the crew were also taken ill, but recovered. Fifteen tons of ferro-silicon were on board in the hold of the vessel immediately under the passenger cabins. Professor Cronquist of Stockholm and Messrs. Bruylants and Druyts of Antwerp investigated the matter and proved evolution of phosphoretted and arseniuretted hydrogen. The latter calculated from their experiments that the cargo was capable of evolving 2500 litres of phosphoretted hydrogen containing 5 per cent. of arseniuretted hydrogen. (0·025 per cent. PH_3 in air is a fatal proportion.)

May, 1908.—On the s.s. *Uleaborg* during a voyage from Stockholm to St. Petersburg nearly all the crew and second-class passengers were taken ill; two deaths occurred.

[1] A paper read before the Medico-Legal Society on June 21st, 1910.

[2] On the Nature, Uses, and Manufacture of Ferro-silicon, with Special Reference to Possible Danger arising from its Transport and Storage (Cd. 4958), 1909.

Forty-five tons of ferro-silicon were stored in the holds of the ship.

October, 1908.—The "captain" and his mate on board the canal boat *Harry* were taken ill and died from the effects of poisoning by fumes from 91 barrels of ferro-silicon during a voyage from Goole to Sheffield. The "captain's" wife, Mrs. B., was taken ill, but recovered. The ferro-silicon was described as "scrap iron." Ptomaine poisoning was suspected at first. Legal proceedings were taken by Mrs. B., who was awarded damages.

Other canal-boat cases.—On further inquiry at Sheffield several similar cases on canal boats were brought to light. In one instance two boys aged 14 and 16 years, and in another two children were found unconscious in their cabins; in the latter case a dog was found dead in the same cabin.

December, 1908.—Finally, the death of five Russian immigrants occurred on the s.s. *Ashton* during a 24 hours' voyage from Antwerp to Grimsby. This was widely reported in the press and will probably be fresh in the minds of members of this society. Dr. W. B. Simpson investigated the cause of death. Cholera and ptomaine poisoning were suspected, but the deaths were finally traced to the evolution of gases from a cargo of ferro-silicon by Professor W. R. Smith.

Illness among workmen.—Reference is also made to illness among workmen in steel works due to fumes from ferro-silicon.

As already noted, it was this last unfortunate incident on the s.s. *Ashton* which determined the investigation of the whole matter by the Local Government Board.

It will have been seen that in connexion with most of the inquiries relating to these numerous fatalities there was, in the first instance, considerable mystery as to the cause of death, and although several eminent scientific workers were engaged in some of the investigations it only gradually became clear that this product of technical industry, which was held in such high esteem by its manufacturers and users, was also, under certain circumstances, a dangerous and deadly instrument of destruction.

Notwithstanding these tragic events the material continued to be manufactured and used, a condition which necessarily obtains when a large outlay of capital is involved, but some echo of a growing uneasiness began to be reflected on the part of shippers who refused to take consignments of ferro-silicon, and among foreign manufacturers, who met to discuss the precautions necessary to be taken in view of the fatalities which had occurred. Matters had reached this stage when Dr. Copeman commenced his inquiry, which may well be described as a delicate and difficult one, inasmuch as the interests of the steel trade were at stake as well as those of the manufacturers, and there was a tendency among shippers to condemn the material wholesale. More minute inquiries have shown that this dangerous tendency to evolve poisonous gases was more especially referable to certain grades of ferro-silicon, notably to those averaging a content of between 40 per cent. and 60 per cent. silicon, and that some of these grades especially showed the curious physical property of spontaneous disintegration; the lumps of which they consisted were found to be liable to crumble during transport and in some instances to actually fall to powder, thus presenting a larger surface to the action of a moist atmosphere and hence becoming liable to evolve greater quantities of injurious gases.

Chemical Investigation of Ferro-silicon.

A careful examination of a large number of samples has fortunately demonstrated that this tendency to disintegration is confined more especially to the middle grades, while in the lower and higher grades it is absent, and the serious situation which had arisen seems now in a fair way to a successful solution. I propose to show you briefly some of the steps by which this desirable conclusion was reached.

In describing my own experiments I should like to say that without the mass of information and intimate acquaintance of the various conditions involved, which Dr. Copeman placed at my disposal, I could not, even in the six months over which my work extended, have arrived with equal certainty at the conclusions which I am glad to think "assisted in defining the nature and extent of the danger from ferro-silicon." (I had over 70 samples of this material submitted to me, representing all grades and most leading manufacturers.)

I will first point out the origin of the impurities which cause the evolution of these poisonous gases from certain grades of ferro-silicon. For this purpose I must refer briefly to the method of manufacture of the higher grades.

Manufacture.—A mixture of steel turnings obtained from gun foundries, together with quartz and coal from neighbouring mines, is put into an electric furnace of a capacity of about 1500 kilogrammes and heated to a temperature roughly computed at from 1800° to 2000° C. The quantities of quartz (which contains about 96 per cent. of silica or silicon dioxide, SiO_2) and anthracite coal (containing about 90 per cent. of carbon and 10 per cent. of ash) are always used in the proportion of one molecule of silica to two atoms of carbon, so that complete reduction of the former to silicon (Si) shall occur, according to the chemical equation:— $SiO_2 + 2C = Si + 2CO$. The proportion of iron taken varies, and depends on the grade of ferro-silicon required—that is, on the desired percentage of silicon in the alloy ultimately produced.

Impurities.—Certain impurities originally present in the coal, iron, and quartz used, or formed from them during the process of manufacture, are always present, and some of these, although amounting to a very small percentage of the finished product, are the ultimate cause of the serious mishaps which have arisen from the extended use of ferro-silicon.

Calcium phosphate [$Ca_3 (PO_4)_2$], one of the impurities present in coal and in quartz, which in itself is a perfectly harmless salt, insoluble in water and widely diffused in nature, is responsible for the production of a dangerous compound by reduction in the electric furnace, in the presence of carbon, to *calcium phosphide* (Ca_3P_2). This calcium phosphide remains in the ferro-silicon, and in contact with water or moist air is decomposed with evolution of *phosphoretted hydrogen* (PH_3), the intensely poisonous character of which has been referred to above. I examined three samples of quartz and three samples of coal or coke used by various manufacturers and found calcium phosphate in considerable quantity in all of them.

Arsenic, again, an element closely allied to phosphorus in its properties, is another impurity liable to be present in various combinations in coal and in iron, and this element also finds its way into the ferro-silicon apparently as *calcium arsenide*. Calcium arsenide is also decomposed by water or moist air, evolving *arseniuretted hydrogen* (AsH_3), a gas scarcely, if at all, less poisonous than phosphoretted hydrogen.

Acetylene (C_2H_2) was formerly found as an impurity evolved by ferro-silicon, but this was probably due to the fact that furnaces used for the manufacture of calcium carbide were also used for making ferro-silicon. This is no longer the case. Acetylene is not generally considered poisonous unless present in large proportions in air, its alleged poisonous properties being in all probability due to a small amount of phosphoretted hydrogen which it is likely to contain.

Siliciuretted hydrogen (SiH_4) has also been somewhat loosely suggested as an impurity liable to be evolved by ferro-silicon, but this gas is decomposed in contact with moist air into silica and hydrogen.

From my own experiments, as well as from a consideration of the chemical facts above referred to and of the mode of manufacture, it became finally evident that the poisonous emanations evolved from ferro-silicon by the action of water consist mainly of phosphoretted hydrogen—sometimes alone, but for the most part accompanied by varying proportions of arseniuretted hydrogen. These two gases are deadly poisons, and among the symptoms common to both, produced by their inhalation, are severe abdominal pains, nausea, vomiting, great weakness and prostration, gradual loss of consciousness, and death frequently within 24 hours. Phosphoretted hydrogen has been proved by recent experiments [3] to be fatal to animals when present in air in the small proportion of 0·025 per cent., and, so far as experience goes, arseniuretted hydrogen is scarcely less toxic.

Qualitative proof of phosphoretted hydrogen.—The first step in the examination of the samples was to prove by a qualitative test the presence or absence of phosphoretted hydrogen. I devised for this purpose a simple and rapid test based on Scherer's test for phosphorus in cases of poisoning by that element. Phosphoretted hydrogen, as is well known, blackens filter-paper which has been moistened with a solution of silver nitrate, but will not affect a test

[3] Jokote: Archiv für Hygiene, Band xlix., pp. 275-306, 1904.

paper moistened with a solution of lead acetate. Inasmuch as sulphuretted hydrogen blackens both of these test papers this gas must be absent when the test is applied. In only one sample out of the many which I tested did I find sulphuretted hydrogen evolved by the action of water alone on ferro-silicon. I took a conical Erlenmeyer flask of about 75 cubic centimetres capacity and fitted it with a cork, into which was inserted a short piece of glass rod, the free end of which was drawn out so as to form a double hook. On these hooks were hung the two test papers above referred to. About 1 gramme of the freshly powdered sample was placed in the bottom of the flask, half a cubic centimetre of water was added so as to moisten the powder, and the cork with its suspended test papers quickly replaced in the neck of the flask. Without entering into details the following table summarises the results of this preliminary test with 64 samples:—

Percentage of silicon in samples.	Effect produced on test-paper, moistened with silver nitrate solution, by gases evolved from 1 gramme of powdered ferro-silicon samples by the action of water at ordinary temperatures.		
	Number of samples producing—		
	(*a*) Faint or no colouration.	(*b*) Brown, orange, or gradual black.	(*c*) Immediate intense black.
10 to 35	16	None.	None.
42 ,, 52	1	4	28
60 ,, 75	None.	2	7
80 ,, 96	None.	2	4

Quantitative Determination of Poisonous Gases Evolved from Ferro-Silicon.

It is obvious from a consideration of the chemical work already published that the object of the various investigators has been in each case to show that, under the particular circumstances of a given fatality, sufficient amounts of phosphoretted (and arseniuretted) hydrogen were yielded by the action of moist air on the ferro-silicon cargoes to produce an atmosphere containing a toxic proportion of these gases.

To prove this point they took samples of the ferro-silicon, and having broken them up into small fragments they placed them in a tube, flask, or other convenient vessel, so that moist air could be passed over the lumps and be subsequently examined by qualitative or quantitative tests. Great ingenuity and skill have been displayed in such experiments, but the processes employed were for the most part capable of affording approximative results only and tended rather to underestimate than otherwise the phosphorus and arsenic present in gaseous combination.

The problem I had before me in examining a large number of samples of ferro-silicon from very various sources was, however, of an entirely different character, for it was obvious, in the first place, that it was essential not only to prove the presence or absence of phosphoretted and arseniuretted hydrogen, but to make the experiments in such a manner as to compare all the samples without prejudice to any particular manufacturer. In order to cope with this problem successfully it was clearly necessary to determine the *total poisonous impurities* in each of the typical samples examined. On this basis only was it possible to make a complete and entirely fair comparison. It further became necessary to devise some of the methods by which both the phosphoretted hydrogen and arseniuretted hydrogen could be accurately and separately determined, as especially in the case of the first-named gas no generally recognised methods have been suggested. I think, however, I have successfully overcome this difficulty.

Estimation of phosphoretted hydrogen.—After several attempts to oxidise the phosphoretted hydrogen by passage of the gas evolved from the samples into (1) nitric acid, (2) permanganic acid, (3) bromine water, &c., none of which methods proved satisfactory for various reasons, I finally made the following three series of experiments on a number of typical samples, approaching the estimation from three entirely different standpoints, with what, I think, may be considered a practically perfect agreement of results.

The following is a description of the methods employed:—In all cases immediately before making the estimations the sample was powdered and three quantities of 10 or 20 grammes were weighed at once and placed in three flasks of 100 cubic centimetres capacity, with 20 cubic centimetres of water, and the flasks corked. Identical samples were thus secured, and the following three estimations carried out without delay.

(*a*) *Estimation of silver precipitated from a decinormal solution of silver nitrate by the gas evolved from a known weight of the powdered sample by the action of water.* [3 Ag = PH_3]—One of the flasks containing the sample mixed with water, as above described, was next fitted with a cork through which a piece of thermometer tubing, bent twice at right angles, was passed, a pipette being attached to the free end of this delivery tube. The flask with cork and fitted tubes attached was then fixed over a sandbath, and the end of the pipette arranged to dip to the bottom of a conical vessel containing 10 cubic centimetres of decinormal silver nitrate solution. The sandbath was then heated and the temperature gradually raised till the water in the flask boiled. As the gas evolved bubbled through the silver nitrate solution, a black precipitate of silver phosphide was immediately produced. The heating was continued usually for about 10 to 15 minutes until no more gas was evolved, which was proved by disconnecting the pipette from the delivery tube and testing the issuing steam with a moist silver nitrate paper, when usually no discolouration occurred or the faintest brown tinge was produced. The pipette was then rinsed into the conical vessel and the silver solution filtered from the black precipitate, which was washed until the washings were free from silver. To the filtrate were then added 10 cubic centimetres of strong nitric acid and 5 cubic centimetres of saturated iron solution, and it was then titrated with decinormal ammonium thiocyanate according to the well-known method of Volhard. The residual unreduced silver was thus estimated. By this process, which has the special advantage not only of extreme accuracy but also of great rapidity, the weight of silver reduced by the gas evolved from a known weight of the sample is found.

From the relation $3Ag = PH_3$ the number of cubic centimetres of phosphoretted hydrogen corresponding to the weight of silver precipitated can be calculated. Absolutely identical results are obtained on repeating the estimations, provided that the material for experiment is taken from the same powdered example.

(*b*) *Estimation of gold precipitated from a solution of gold chloride by the gas evolved from a known weight of the powdered sample by the action of water.* [Au = PH_3]—Exactly the same apparatus was used as above described and the experiment carried out in the same manner, except that the gas evolved was led into 25 cubic centimetres of a 0·5 per cent. solution of gold chloride and the metallic gold so precipitated was collected on a filter and weighed.

(*c*) *Oxidation, and estimation as magnesium pyrophosphate, of phosphorus precipitated as silver phosphide in a solution of silver nitrate by the gas evolved from a known weight of the powdered sample by the action of water.* [$Mg_2P_2O_7 = 2PH_3$]—This experiment was carried out exactly as described under (*a*), but instead of filtering the silver solution, this solution, together with the suspended precipitate, was transferred to a dish, oxidised with nitric acid, the silver removed by means of sulphuretted hydrogen, and the phosphoric acid present estimated as magnesium pyrophosphate.

The results of all three experiments in this series were then compared, and were found, on the whole, to agree closely, although one or two of the silver estimations showed a rather higher result than was given by the gold and pyrophosphate methods. The following examples illustrate this agreement:—

Number of sample.	Volume of phosphoretted hydrogen evolved from 10 grammes of powdered sample, calculated from:—		
	(*a*) Weight of silver.	(*b*) Weight of gold.	(*c*) Weight of pyrophosphate.
LI.	2·52 c.c.	2·36 c.c.	2·50 c.c.
LII.	3·03 ,,	2·93 ,,	3·00 ,,
XXXIV.	3·60 ,,	3·61 ,,	3·50 ,,
XXXV.	1·26 ,,	1·01 ,,	1·08 ,,
,,	1·63 ,,	1·41 ,,	1·50 ,,
LIX.	4·74 ,,	4·39 ,,	4·42 ,,

(*d*) *Estimation of alkalinity* (lime) *of samples after being acted upon by water.*—It has already been pointed out that by the reduction of calcium phosphate [$Ca_3(PO_4)_2$] present in coal and quartz, calcium phosphide (Ca_3P_2) is liable to be formed during the manufacture of ferro-silicon.

I tested the samples of ferro-silicon after they had been acted upon by water and found that when any gas had been evolved the contents of the flask were invariably alkaline to litmus and that the water used contained free lime. I therefore made determinations of the alkalinity after the action of water in a large number of samples.

I had hoped that these lime estimations would add a fourth method to those already described for the estimation of phosphoretted hydrogen. But assuming the lime to have been originally present in the sample as calcium phosphide (Ca_3P_2), the quantities found corresponded, in the majority of instances, to only one-third or one-half of the volume of phosphoretted hydrogen found by the previous three methods, except in the case of samples containing from 60 to 96 per cent. silicon, where for the most part the agreement was fairly close, while in two instances an excess of lime was found. The discrepancies noted, therefore, require explanation, and the following occurs to me as probable—viz., that the greater amounts of phosphoretted hydrogen found by the first three methods of determination (which agree *inter se*) are partly accounted for by the presence of calcium phosphide and partly by the fact that some free phosphoretted hydrogen is occluded in the samples.

The assumption of occlusion in certain grades is strengthened by the sudden evolution of gas which occurs on breaking lumps of ferro-silicon containing about 50 per cent. of silicon. This sudden evolution of offensive gas which is so characteristic can scarcely be accounted for by the decomposition of calcium phosphide only, which, although it occurs rapidly in a moist atmosphere, is not instantaneous.

Arsenic.—That arseniuretted hydrogen is present in some samples has already been demonstrated by previous investigators. Apparently, however, no attempt has been made to test directly for arsenic in the gas evolved by the action of water on ferro-silicon, to effect which I devised the following experiment:—

Carbon dioxide evolved from pure marble and pure hydrochloric acid in a Kipp's apparatus was passed first through a Drechsel wash-bottle, containing a solution of sodium bicarbonate, to arrest any traces of hydrochloric acid, and next into a flask containing the powdered ferro-silicon and water. This flask was fitted with an indiarubber stopper perforated by two tubes, one for the inlet of the carbon dioxide, the other for the outlet of the same gas, together with any other gases evolved. The mixed gases were then passed through another Drechsel wash-bottle containing a little water, and finally through a calcium chloride tube before passing through a narrow tube of Jena glass with its end drawn out, such as is used for the deposition of arsenic from a Marsh-Berzelius apparatus. The Jena glass tube was heated by a small Bunsen flame.

The carbon dioxide gas was first tested for arsenic by passing it for a considerable time through the apparatus before putting the flask containing the sample into connexion. The flask containing 10 or 20 grammes of the powdered ferro-silicon together with 20 cubic centimetres of water was then connected up and gently heated and the carbon dioxide slowly passed through. In the majority of cases, with certain exceptions, a black deposit was obtained, which in all instances was proved to be arsenic by the production of well-defined microscopic crystals (tetrahedra and octohedra) of arsenious oxide in the usual way.

I had hoped to estimate the arsenic by this method, by weighing the Jena tube before and after the experiment, and did in fact make a few such weighings. Obviously, however, some phosphorus was also deposited, the amount of which, though exceedingly small, proved sufficient to entirely vitiate the quantitative estimation of the arsenic. Sometimes the phosphorus was just visible as an orange deposit near the flame, while sometimes, though present, was not to be seen. I therefore resorted to another method of estimating the arsenic after the removal of the phosphoretted hydrogen which is described later.

These preliminary experiments, however, served a useful purpose, and it is for this reason that they are mentioned—viz., *they proved the simultaneous presence of phosphoretted and arseniuretted hydrogen in the gases obtained direct by the action of water on ferro-silicon samples.*

The phosphorus deposited with the arsenic in these experiments was proved to be such by conversion into phosphoric acid with nitric acid and application of the molybdate test. Some experiments were made with calcium phosphide and water alone under the same experimental conditions, the results of which showed that about 20 per cent. of the phosphorus present in the phosphoretted hydrogen evolved was thus deposited, the remaining 80 per cent. being volatilised.

Estimation of arsenic in the samples.—The gases evolved from 10 or 20 grammes of a powdered sample of ferro-silicon by the action of water were passed into decinormal silver nitrate solution and the reduced silver solution filtered. Any traces of arsenic present would be contained in the filtrate in the form of arsenious acid (Hoffmann's reaction). The filtrate was then poured into a Marsh-Berzelius apparatus in which hydrogen was being evolved. In nearly all cases, with some exceptions, arsenic was deposited as a mirror in the Jena glass tube and its weight obtained.

All the usual extreme precautions were taken in these estimations. The Marsh-Berzelius apparatus was entirely constructed of glass; the zinc and hydrochloric acid used for the evolution of hydrogen were specially tested for purity, &c., in the manner well known to toxicologists.

From the amount of arsenic obtained from a known weight of the sample the corresponding volume of arseniuretted hydrogen was calculated from the relation $As = AsH_3$.

The greatest amount of arsenic obtained from 10 grammes of any sample was 1·6 milligrammes. In some cases, however, the reaction was negative and in others varied from an unweighable trace to 1·2 milligrammes. The volumes corresponding to these weights are 0·0 to 0·47 cubic centimetre, or, expressed as percentage volume of total poisonous gas evolved, from 0·0 to 13·0 per cent., the average being about 7·5 per cent.

I have omitted reference to many other experiments which I made in the course of my investigations, such as determinations of relative hardness and specific gravity, observations as to presence or absence of disintegration after the lapse of some months' storage, and of the effect of exposure of samples to moist and dry air respectively, all of which are described at length in the Local Government Board Report. I should also have liked to refer to Mr. Bennett's interesting report on the physical structure and properties of ferro-silicon, but time will not permit me to discuss these points.

I will therefore conclude by a reference to the general summary of my results in which I have expressed approximately the total volume of poisonous gases evolved from some samples of ferro-silicon in cubic feet per ton. The following abbreviated table will suffice to indicate the general results arrived at on this point:—

Percentage of silicon in samples.	Number of samples examined.	Number of samples evolving PH_3 and AsH_3 in contact with water.	Range of volume of poisonous gases evolved (cubic feet per ton).
10–29	3	1	0·26
30–35	1	1	0·13
42–49	9	9	2·1 to 16·4
50–52	8	8	2·4 to 15·8
60–62	1	1	1·0
70–96	6	6	2·1 to 5·7
—	28	26	—

These figures are given with a view to emphasise the potential danger of certain grades of ferro-silicon in connexion with its transport, storage, and use in large bulk; and when it is remembered that phosphoretted hydrogen acts fatally when present in so small a quantity as 2½ volumes of the gas in 10,000 volumes of air, and that arseniuretted hydrogen is scarcely less dangerous, it will be seen that the atmosphere of a cabin on board ship might, under certain conditions, very rapidly assume a toxic character if ferro-silicon forms a part of the cargo, as has indeed been sadly demonstrated by the fatalities already recorded.

After consultation with Dr. Copeman, and as a general conclusion based on the examination of 64 samples of all grades, I have classified these grades in three groups as follows :—

Class I., 10 to 30 per cent. silicon, containing practically no poisonous impurities and not liable to spontaneous disintegration.

Class II., 70 to 96 per cent. silicon, not entirely free from poisonous impurities but also not liable to disintegrate spontaneously.

Class III., 35 to 60 per cent. silicon, containing, in most instances, a considerable proportion of poisonous impurities and in addition being more or less liable to spontaneous disintegration.

Finally, I am pleased to be able to state that the summary of conclusions and suggested regulations as to precautionary measures in connexion with the transport and storage of ferro-silicon put forward by Dr. Copeman on pp. 113–115 of his report have been officially adopted without any modification by the Board of Trade.

ON THE NOTIFICATION OF CONSUMPTION.

BY THE RIGHT HON. R. FARQUHARSON, M.D. EDIN.

IN January of this year what the admirable John Burns calls "our great Notification of Tuberculosis Order" was issued, and is now, I presume, rigorously enforced. Medical opinion seems to be strongly in its favour, and the general public, with the indolent and lamblike docility which is so much easier than independent thought, peacefully follow suit. Shall I be considered very ignorant and retrograde if I interpose my possibly insignificant Partington mop between these surging, popular waves and their victims, and give some reasons for my belief that this legislation is hasty, unnecessary, and likely to cause so much oppression, that many may consider the remedy to be even worse than the disease.

Now, on what do I base this conviction? First and foremost on the admitted fact that consumption, instead of being on the increase, is rapidly diminishing, and although it is sadly true that "the world loses 70,000 people through the scourge of tuberculosis every year, in the past 40 years it has been reduced some 50 per cent. The death-rate was 247 per 100,000 in 1860–70; it was but 115 per 100,000 in 1906, or 52 per cent. decrease in forty years." There can be no doubt about the absolute authority of these figures, for they were quoted by the President of the Local Government Board in the practical and eloquent address delivered by him when he opened the Whitechapel Tuberculosis Exhibition in June, 1909.

And do they not give us cause for serious reflection? If the incidence and spread of consumption are really on the downward grade, what is the excuse for all this excitement and worry about it? The British nation, as we all know, are subject to periodical scares, which blaze up on slight provocation and happily cool down with equal rapidity, and it ought to be the duty and the privilege of the medical profession to check the supply of fuel to the flames. Many ignorant people honestly believe that mere contact with a consumptive is dangerous; that the air they breathe is impregnated with infection, and that if he ventures to spit, they must flee in terror to some safer place. Foreign health resorts are boycotted because a few poor victims may be seen to drag their feeble limbs up and down the parade, or to seek the sheltered security of a bath-chair. The phthisical member of a family is looked upon with suspicion; a fit of coughing at a public dinner table fills the other guests with dismay, and if the official regulations for compulsory notification are rigidly enforced, the working man, branded as a leper and proclaimed to the world as a focus of infection, must necessarily join the already swollen ranks of the unemployed and with his family belongings become a burden to the State.

Now comes the next and even more important point—and that is a grave doubt in my mind as to the really dangerous infection of consumption. In my student days we were taught to look upon the Italians as little better than lunatics because they brought forward plausible evidence in favour of the direct personal communication of tubercle, in which they enthusiastically believed, and professional scepticism on this point was not only removed but exchanged for ardent advocacy the other way by Villemin's experiments. Scientific scepticism is a valuable thing, more especially when it is allied to Scotch caution, so I think I need make no apology for hesitating to accept the brilliant Frenchman's conclusions as absolutely satisfying. An animal known to be exceptionally susceptible to consumption is removed from its familiar surroundings. It is closely caged in a box under depressing and insanitary conditions; a lump of tubercle (probably what Professor Sims Woodhead calls "a maximum dose of infection far in excess of what was necessary to produce infection under ordinary circumstances") is violently thrust into its tissues, and before it has had complete time to recover from the shock and general disturbance it is killed and evidences of infection are not unnaturally found. I for one decline to accept the full analogy between this artificially created chain of events and what takes place in the human body, and to show that I do not stand alone in doubting the necessarily fertile effects of the grain when planted on ordinary soil I will appeal to the high authority of speakers at the recent conference in Edinburgh—many of whom agreed that caution towards animal experimentation was necessary.

The first witness I call in favour of my contention is no less a person than the late President of the Royal College of Physicians of London. My friend Dr. D. W. Samways of Mentone, in a remarkably able and suggestive letter in the *British Medical Journal*, quotes Sir Douglas Powell as saying :—

> My own personal experience and observation convince me that, apart from artificial conditions, such as those brought about by experiment and in the ordinary circumstances of life, phthisis is not an infectious malady.

Laennec's experience was the same, and Dr. Samways adds his own opinion :—

> It took centuries for the profession to discover phthisis was infectious, and it is doubtful had we depended upon clinical observation and experience alone whether it would not have taken centuries more. Is a phthisical patient who has been taught to expectorate into a suitable receiver a danger to anyone? If not, why should he be treated as an outcast?[1]

The opinion of the world-renowned authority, Koch, stated in his paper translated for the Sydenham Society by Mr. Stanley Boyd :—

> Many practical men have no doubt kept in mind the possibility of infection, but with the medical profession generally phthisis is regarded as the result of constitutional peculiarities rather than of direct contagion.

Dr. Sinclair Coghill spoke of consumption as "conditionally infectious—i.e., certain conditions must be present before the invading element, the bacillus, can initiate the infective process"; and, again, Sir Hugh Beevor concluded as a result of a close examination of the problem that "the term infectious is too loose a term to apply to both measles and tuberculosis." He suggests that "sub-infectious" is the most appropriate term.

Whitelegge and Newman in their text-book speak of phthisis as "a true infective disease, but a sub-infectious one."[2] Dr. Hermann Biggs has laid special stress on the importance of differentiating between tuberculosis and the acute infectious diseases, and Dr. H. T. Bulstrode, with the judicial impartiality which distinguishes his admirable report, thus sums up the case :—

> Tuberculosis may, perhaps, be best viewed as occupying a distinct and separate position from the exanthemata, and as regards its duration, and *low degree of infectivity*, meriting a class by itself. (The italics are mine.)

But if consumption were really so infectious in its nature as popular, no less than some medical, opinion seems to believe, we should naturally find that those whose occupations bring them perpetually into contact with the sick would fall victims to the disease. But here again the evidence points the other way. Dr. Samuel West, one of our leading authorities, says :—

> If phthisis were a contagious malady we should expect to find the clearest proof of it among those who are placed relative with the sick, e.g., among married couples, among nurses and doctors, and among inmates of the same house or institution.

And Ransome also says :—

> That if the simple contagion theory were true, hospitals for consumption should have been, at any rate in the past, centres and hotbeds of

[1] Misconceptions concerning the Riviera, Brit. Med. Jour.
[2] Report of Medical Officer of Local Government Board, 1905, p. 77.

infection, but the universal testimony of physicians to these institutions is that no conveyance of the disease can be traced to any such institution even before the practice of disinfecting the sputum had been carried out.

And Dr. Theodore Williams, as the result of his great experience at the Brompton Hospital, where in former days the ventilation was bad and the sputa were not disinfected, says:—

> We consequently ought to have seen an extension of the disease to non-consumptive cases as well as to the nurses; but nothing of the sort occurred, only the usual results of hospitalism—i.e., erysipelas and sore throat. The evidence of large institutions for the treatment of consumption, such as the Bromptou Hospital, directly negatives any idea of consumption being a directly infective disease, like a zymotic fever.

We may therefore dismiss absolutely this mode of introduction into our bodies and ask, What are the other routes? Many people now dread sitting in the same room with a consumptive, and only the other day some young friends of mine were in great tribulation because their parents forbade them from going to private theatricals at a well-known sanatorium, worked upon thoroughly up-to-date principles, for fear of infection. It is satisfactory to note that this popular superstition has been thoroughly shattered by the late Professor Strauss of Paris, who (quoted by Samways) says "that the air expired by a phthisical patient does not contain tubercle bacilli or any other bacilli."

We next come to the sputa. Children as a rule do not expectorate, so we may freely associate with them, and of course we all know that in the earlier stages of consumption and in its fibroid forms at all stages there is no breaking down of lung tissue and therefore nothing to bring up, and even admitting to the full the danger thus spread about by the advanced phthisical sufferers, much may be done to prevent it. In the first place, sputa exposed to the air soon loses its infective properties, and without imitating the drastic methods of New York, where a casual act of expectoration leads to a heavy fine or imprisonment, county councils and various public bodies have passed, and enforce, by-laws which must do much to ensure public safety.

Next, what are we to say about meat and milk? Evidence taken before two Parliamentary committees on which I sat convinced me that the flesh of the tuberculous beast if carefully separated from any adherent glands is probably innocuous, and that if any suspicion hangs about it may be effectually removed by cooking, and I am convinced that the danger from milk is much exaggerated.

Without proclaiming myself an adherent of the Koch heresy, I cannot believe that such a distinguished man, the discoverer of the tubercle bacillus, would have lent his name to such a revolutionary hypothesis unless there was something in it. And evidence to which I paid most careful attention made it quite plain to my mind that milk drawn from a tuberculous cow, in which there was no gross and palpable disease of the udder, cannot infect anyone. But here, again, we may steady our minds in case of suspicion by thorough boiling.

It is alleged that the case against milk depends largely on the undoubted fact that children are very subject to mesenteric disease, but other factors come into play. Auto-infection, on which Dr. West lays so much stress, is responsible for a great deal of mischief among the young, and "scrofulous" tonsils and cervical glands and joints are often the foci from which the bacilli carry out the "flitting" to the lungs with disastrous results. But these again are the outcome of bad feeding and housing and clothing and all the depressing sanitary conditions which so sadly sap many young and promising lives. And this leads me to take up another link in my chain of argument. What other causes are at work besides direct infection to account for the large number of lives annually sacrificed to what is really a preventable disease? Now, in spite of much strong assertion to the contrary, I am convinced, as an old insurance office director, that consumption is really hereditary, and that the family history to which these offices rightly attach so much importance means not only the furnishing of a suitable soil but also the grain to occupy it. And then again, I am perhaps retrograde in holding that a variety of bad hygienic conditions not only encourage, but actually invent or produce, the infective material on which the disease depends.

Let us first hear John Burns:—

> It can be fought by many forces in many ways, led by general well-being, higher wages, cheap and abundant food, better housing, increased sobriety. As pauperism diminishes, consumption declines; as food cheapens, tuberculosis disappears. The cost of food, its abundance and variety, has a great influence on the decline of consumption. Professor Brouardel says the public-house is the purveyor of tuberculosis. In fact, alcoholism is the most potent factor in propagating consumption, and a celebrated French doctor, Professor Bundron, says it is now generally admitted by those who know, that the most potent factor in the spread of consumption is the public-house. The best, simplest, cheapest remedy is to open your windows day and night. Sir William Broadbent shortly before he died came to see me and when he was ill he put his hand on my table and said: "Mr. Burns, if windows were kept open day and night, if many of the simple remedies, some of which I have given you to-day, were carried into effect, consumption might be stamped out in a generation."

Canon Horsley, Mayor of Southwark, in opening an exhibition at the Alexandra Institute, summed up the case in these vigorous words: "Consumption is a disease we made, and a disease we can unmake. It is attributed chiefly to the damnable D's, dirt, damp, drink, and drunkenness." And speaking of damp, let us not forget the classical researches of Dr. Buchanan and Dr. Bowditch which are summed up in these words by the former distinguished authority, "that dampness of soil is a cause of phthisis to the population living upon it."

I think I am now in a position to answer Sir Charles Cameron's query propounded during the debate on a very practical and suggestive paper on notification read by Dr. H. Scurfield of Sheffield.[3] "He would like to know what those who opposed notification proposed, for up to the present he had heard nothing practical from them."

In the first place I should like to express my confidence in the sanatorium treatment as carried out carefully and scientifically at Nordrach-on-Dee and elsewhere. But we must not expect too much from it. In the case of rich patients the result is usually very satisfactory, and if they have attention early enough arrest, if not actual cure, of the disease may be expected—i.e., if, as usually happens, they are in a position to live with a certain amount of precaution and avoid the predisposing causes which we have just considered. Working people will derive benefit from a prolonged series of open-air baths, but they must not expect when they go out to be able to resume their ordinary work all at once.

The case is well put in the sixth annual report of the Nottingham Sanatorium:—

> It has always been pointed out that a stay of three or even six months in a sanatorium cannot do more than arrest or check the disease, which may break out again on return to the previous conditions of life—a most careful life for a period of two years at least is needed before a "cure" can be fairly spoken of. To the rich consumptive this is possible. We want to make it so for the poor.

Next we must put the prevention of spitting and if this is not entirely practicable, the disinfection of the lung products by suitable and convenient methods, and the thorough cooking of meat and boiling of milk in cases of (or even without) suspicion, good feeding, housing, clothing, careful avoidance of damp and overcrowding, strict temperance in drink, and, above all things, freedom from dust and from those occupations which produce it in its most irritating and dangerous forms.

If these golden rules can be followed, and if we agree with Dr. Bulstrode, and where is there a higher authority,[4] that, "as has already been shown by charts representing the behaviour of tuberculosis in England and Wales, there are indications that the disease may, ere many years be passed, become an uncommon, if not rare, malady in this country. It may disappear, as not improbably will have proved to be the case, with typhus fever, relapsing fever, leprosy, and other diseases, which at the present time, so far as this country is concerned, have little other than a historical interest,"—what is the necessity or excuse for subjecting the unhappy victims of this depressing and insidious malady to the tyrannical supervision of superficial authority, and the social and industrial ruin which must inevitably follow? It is, I think, admitted that the attempts to carry out the process voluntarily have failed, and that we must have recourse to "that blessed word compulsion."

As Sir John Byers, no mean authority, has said, "Speaking for himself, he was confident that it would be much better and much simpler to notify all forms of the disease, both medical and surgical." That is to say, if you happen to live in Sheffield and happen to look a little "off colour," to shirk your morning rasher, and cough in the morning and evening, and if the doctor when he is called in finds dulness under one of

[3] THE LANCET, July 16th, 1910, p. 166.
[4] Report of Local Government Board, p. 79.

your clavicles, you are subjected to the following process. Your medical attendant, under a penalty of a fine not exceeding 40s., must report your case to the medical officer of health. An officer of the corporation can then enter your premises between 10 and 6, and forcibly clean and disinfect, and any person obstructing him in the discharge of his duty is liable to a heavy fine or a continuing penalty of 20s. per diem. Books, bedding, clothing, and other domestic articles must be delivered to an officer of the corporation for disinfection, or another penalty of £5 will be imposed.[5]

No doubt steps can be taken, and are taken, to exempt consumptives from the extreme pressure of disability imposed on sufferers from the exanthemata, with which it has no true analogy, but all the same inconvenience and positive discomfort and even danger, when bumbledom is allowed a free hand, must result. Do what we can, murder will out, and the poor consumptive, branded with the mark of Cain, will find himself, in the present exaggerated state of public feeling, shunned like a leper, and almost forced into the ranks of the unemployed by the reluctance of employers to give him work, or of workmen to work with him.[6]

Dr. Jane H. Walker, whose large opportunity of observation gives weight to her words, writes: "I frequently find that employers who are charity itself in paying for clerks or servants, will not take these employees even when I can guarantee them fit for work. I find the greatest reluctance on the part of most shops to employ ex-patients and I can never get help locally for my discharged consumptives." And Dr. M. S. Paterson, medical superintendent of the Brompton Hospital Sanatorium, writes: "The extreme popular views of the contagiousness of consumption with the natural tendency to treat all sufferers as lepers, is unjust, unwarranted, and an economic error." But is not recent legislative and municipal action playing directly down to this stupid and ignorant scare, and driving the consumptive who is perfectly well able to work during the earlier stages of his disease, to be a national burden, because popular superstition and unnecessary tyranny practically compel him to remain idle—and suffering as he is from a depressing disease, and lowered in social comfort by the sad necessity of his life, and compelled to bring what Sir Henry Holland called the influence of "expectant attention" upon his physical condition, can we wonder that he goes down the hill rapidly and leaves without regret a world in which his "lines" have not recently been pleasantly cast?

Then what is the natural result of all this? If anyone begins to suspect an invasion of tubercle the last thing he will think of will be to send for a medical man, who is compelled under legal compulsion to report his case to the authorities. And the worst of the whole business is the difficulty in which it will place the family practitioner, whose natural impulse will be to protect his patient, and who is bound to get into trouble with him if he divulges a secret which may prove his ruin. I do not think it unreasonable to hold the doctor's confidence with those who trust in him to be as inviolate as the secrets of the confessional.

Well, to conclude, I sum up against notification. There is no evidence that it has done any good. Dr. Bulstrode, after a most careful review of the evidence, maintains a judicial balance of opinion. And all the remarkable diminution of phthisis occurred long before it was ever heard of. I quite agree with Dr. Samways, who writes: "The popular persecution of the consumptive, and alarming of the healthy, is a disgrace to civilisation."

The Conference has been held in Edinburgh with some startling results, the chief of which is that, on the authority of Professor Sims Woodhead and others, consumption is apparently a universal disease. To use the words of that eminent authority—"Some asserted that 90 per cent. of those who lived on to 45 had been infected with tuberculosis. He believed the proportion was even higher, and that in all probability tubercle bacilli found a foothold at some period of life in almost everybody." This is an alarming statement, and the logical outcome of it is, if the notifiers have their way, that the entire population must be reported by their medical attendants to the local authority, they must stand among the dreary ranks of the unemployed or shiver out their lives in chilly sanatoriums or wait patiently in a hospital until released by friendly death. Some one has well said that it is far more important to prevent consumption than to cure it, and the admirable work of Dr. R. W. Philip and the Countess of Aberdeen shows what can be done by skilled energy working on common-sense lines. Her Excellency told the Conference that in Ireland in the last two years there had been a decrease of 1085 deaths from tuberculosis. I do not follow that notification had anything to do with this, or with the equally good results obtained in Edinburgh, but the rigid enforcement of admirable hygienic precautions, the better housing and feeding and clothing of the people, and the avoidance so far as possible of the depressing but avoidable result of poverty have been the main factors in this remarkable improvement in public health. These lowering factors are conditions which I believe breed consumption, and the bacilli, *perhaps*, are the outcome and not the cause of the disease. If we are all consumptive our best friends are our phagocytes, which make relentless war against infective intruders, and we must keep them in good fighting trim by maintaining our own constitutional vigour, and through their exertions and our own we shall be able to keep the foe at bay.

Porchester-gardens, W.

[5] Sheffield Corporation Act of 1903.
[6] Report of Local Government Board.

A CASE OF DERMATO-MYOSITIS WHICH RECOVERED.

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DERMATO-MYOSITIS is so rare a disease that every case requires to be reported. Only about 30 examples are to be found in the literature. The case here published seems a fairly typical one, but presents no new features and, unhappily, affords no fresh clue to the etiology. Dermato-myositis was first described in 1887 by Wagner of Leipsic and Hepp at Strasburg. Its causation is unknown; its course acute, subacute, or chronic; its chief clinical resemblance to trichiniasis; its prognosis grave—17 out of 28 patients dying; its treatment undetermined.

The patient, an officer in the Indian army, aged 50 years, of good physique and active habits, a keen sportsman, had enjoyed excellent health up to 1907. He then began to complain of "heartburn" and a constantly coated tongue. He was an excessive smoker. His face, he says, became flushed at times and he had pains in his left shoulder and arm; he thought the arm had become smaller and used to talk of "his withered arm." But this diminution in size seems to have been slight. In May, 1909, he returned to England from India, and in July, as his "indigestion" had grown more troublesome, he was put on "sour milk treatment" and an alkaline antiseptic mixture, the excessive smoking being at the same time stopped.

In August the patient went to Teignmouth to fish, and on the 10th he had stiffness and pain about the left ankle when walking. On the 11th both ankles were painful and the pain and stiffness had spread up the legs, the shins becoming tender. He put this down to rheumatism. On the 16th he came to Okehampton, where his wife met him at the station and noticed his difficulty in walking. On the same day Dr. Gwynn of Belstone, Okehampton, saw him and found him scarcely able to walk, with weakness of both ankles and wrists and some degree of foot-drop and wrist-drop, yet with increased knee-jerks; the fingers were flexed on the palms and felt "numb and tingling," especially the little and ring fingers; the ankles were painful, especially the left, and his sleep, he said, was disturbed by painful spasms of the feet and "fidgets," with acute pain in the left instep as if a knife were being run into the foot. He had no anæsthesia nor any weakness of bladder or rectum. There was no history of syphilis, alcohol, mineral poisoning of any sort, influenza, or of the ingestion of shell-fish, pork, or sausages. The condition, except for the increased reflexes, might rather have suggested a multiple neuritis. He was put to bed, on light diet, and was given a mixture of iodide of potassium and sodium salicylate.

On August 31st an enlarged spleen could be made out. The legs, which had been swollen and feeble, had decreased in size and had considerably recovered their power. There was a line of marked tenderness on the left leg in front of

the ankle and over the arch of the foot, near the position of the external division of the peroneal nerve. The arms had begun to swell and to get feeble, as the legs had done before them; they were red, swollen, and tender to above the elbows, the fingers bent on the palms owing to the combined swelling and weakness. The trunk muscles were apparently unaffected, respiration was unimpeded, and the action of the heart was good. The abdomen was slightly distended and tympanitic. There was no anæsthesia, no interference with the function of bladder or rectum, no optic neuritis, no tenderness or irregularity of the spinal column. The temperature was a little over 99° F. each night, and usually about normal in the morning.

The swelling and tenderness of the arms gradually increased, and by the third week in September both arms and hands had become very swollen, tense, and painful, with marked limitation of movement. Profuse perspiration was complained of over the backs of the hands and on the face. The legs remained weak, the patient having some difficulty in raising them from the bed. Slight œdema was now noticeable over the upper part of the chest in front, the skin being dusky red. Dusky red areas also appeared over the scapular regions behind. The pectoral and deltoid muscles were tender. The tongue had become very coated, though food was well taken. Hot arm baths and fomentations with glycerine and belladonna relieved the pains in the arms. Sleep was very broken by restlessness, "fidgets," and pain in the legs. Veronal was given and it proved useful. On Sept. 23rd, 24th, and 25th the patient's temperature rose to 103° with rigors and profuse sweats. It then fell to its previous level, where it remained. On the 30th the blood was examined and showed nothing noteworthy except a slight eosinophilia of 4·4 per cent. The fæces were examined for signs of trichinæ, but none were discovered.

By the second week in October the swelling of the arms and hands had diminished. The backs of both pitted on pressure. Both grasps were weak and there was marked tremor of the hands. The legs had again swollen, pitting on pressure over the feet, tibial muscles, and the insides of the thighs. The trunk muscles had now also become weak and the patient could no longer raise himself. The face, too, had begun to swell and was fiery red with a blotchy erytbema. By the third week of October the face was so swollen as to be unrecognisable. The eyes were closed and the conjunctivæ were injected. The tongue was very coated, the breath foul, and ulcers were present on the gums and inside the cheeks. Profuse salivation was present and had become very distressing, preventing sleep; the parotids were swollen, tender, and painful. The condition of the mouth allowed of nothing but liquid food being taken. There was also considerable laryngeal irritation with a weak, hoarse, falsetto voice, and constant hawking of blood-stained mucus. The laryngoscope, however, showed the vocal cords to be free from inflammation. The patient had difficulty in opening his month. He was greatly depressed. Vomiting occurred occasionally.

Atropine and morphia relieved the salivation and pain, the parotids were fomented, a chlorate of potash mouth-wash was ordered, and cyllin, quinine, stryohnine, and β-naphthol were administered after Nov. 2nd. On the 16th the arms were almost free from œdema, and now appeared much wasted. The triceps were especially atrophied. The biceps felt hard, nodular, and tender. There were subcutaneous nodules, dusky red and tender, rather like those of erythema nodosum, at the back of the elbow, behind the knees, over the left biceps, and in the right axilla. Nodules could also be felt in some of the tendons. The legs were less swollen, but some œdema persisted over the anterior tibial muscles and inside the thighs. There was slight effusion in the right knee-joint. The œdema of the chest wall had disappeared, but the skin was still stained purplish, and bruise-like stains appeared in patches over the biceps, deltoid, and gluteal muscles, behind the knees, inside the thighs, and over the gastrocnemius. Salivation had almost ceased, the tongue was cleaner, and the voice was stronger. The face was also less swollen. The patient slept better.

On Dec. 10th the œdema had quite left the arms and was much less in the legs and face. The tongue was much cleaner and the voice had become normal again. The arms were greatly wasted and the thenar and hypothenar eminences were flattened. Painful sores had formed between the fingers of the left hand. There was some numbness of the fingers. Massage was cautiously begun. A previous attempt had seemed to cause a slight return of the myositis, but now no such result followed. On the 25th improvement was definitely proceeding in all respects. The face, however, remained very red.

On Jan. 12th, 1910, as progress, though steady, seemed extremely slow, the blood was examined at our request by Dr. R. V. Solly of Exeter, but no micro-organisms could be discovered in it. On the 30th the patient was well enough to walk into his sitting-room, to feed and to dress himself, and to write. He could rise from his chair with only slight help. The face was still red, but all swelling had gone from it. The muscles of the thigh remained hard.

Improvement became so great that we were able to permit the patient's removal to a home on the South Coast. On May 7th we heard that recovery was proceeding uninterruptedly and that the patient could now walk up and down stairs and go short distances on the level with occasional rests. The redness of the face, however, persisted.

With regard to the diagnosis, no reasonable doubt of it seems possible; the onset, course, and grouping of symptoms did not suggest trichiniasis, there was no ascertainable source for that disease, and the absence of considerable eosinophilia as well as of evidence of trichinæ in the stools were against it. As is usual in dermato-myositis, no culture could be made from the blood, and the case throws no light on the etiology of the complaint.

How far treatment determined recovery is difficult to say with certainty. Individual symptoms were undoubtedly relieved by the measures we have indicated. The clinical picture suggested a toxæmia arising from some infection of the alimentary canal, and our efforts were therefore directed to disinfection of the month, throat, stomach, and bowels. In the mouth there can be no doubt the remedies employed were of great use, and so it is not unreasonable to believe that the disinfectants applied to the rest of the alimentary canal were also of value. Their diligent use was at least followed by marked general improvement and ultimate recovery from an extremely grave condition. Should we ever meet with a similar case we would undoubtedly adopt the same treatment.

Exeter.

AN EXAMINATION OF THE BLOOD SERUM OF IDIOTS BY THE WASSERMANN REACTION.

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THE examination of the blood serum of idiots by the Wassermann reaction has been the subject of several papers. Raviart, Breton, Petit, Gayet, and Cannae[1] examined 246 cases, of which 76 were found to give a positive reaction. Kellner, Clemenz, Bruckner, and Rautenberg[2] examined 216 cases, of which 13 gave a positive reaction by Stern's method, and 9 gave a positive reaction by the original Wassermann method. To the 13 cases must be added 3 cases which were deficient in complement, and were found to be positive by the original method. H. Lippmann,[3] working in Wassermann's laboratory, examined 78 cases at Uchtspring, and obtained a positive reaction in 7 cases—that is to say, 9 per cent. An examination of the cases at the Dalldorf Asylum gave a result of 13·2 per cent. Lippmann also examined 77 cases by clinical methods, and decided that 40·2 per cent. showed signs of congenital syphilis.

At the suggestion of Professor Wassermann I investigated the inmates of the Wilhelmstift, an asylum for idiots at Potsdam. The inmates were all children or young adults, and the majority were cases of simple idiocy or imbecility. The method was as follows: 1. All the cases were examined for evidence of congenital syphilis. 2. A sample of blood was taken from the arm vein and tested by the Wassermann reaction. 3. Subsequently the cases which had given a positive reaction were submitted to a further clinical examination.

The serum test was carried out strictly in accordance with

the original method, and watery extract of congenital syphilitic liver was used as antigen in all cases. The extracts and the hæmolytic system were carefully standardised by titration, and in the actual test adequate controls from well-authenticated cases were invariably employed. No test was considered positive where more than the slightest trace of hæmolysis could be detected.

In all 330 cases were examined, of which 51 gave a positive reaction—that is to say, 15·4 per cent. Among the 51 cases which gave a positive serum reaction, 7 were found which had definite signs of syphilis and 3 or 4 in which syphilis might have been suspected, but not with certainty diagnosed. In addition, there were 2 cases with definite signs which gave a negative reaction. That is to say, among the 330 patients were 9, or, including the doubtful cases, 13, which from physical signs and symptoms would have justified the diagnosis of syphilis.

The results in detail were as follows:—

	Cases examined.	Positive.
Simple idiocy of all grades	287	44
Congenital spastic diplegia (Little's disease)	15	1
Marked hydrocephalus	14	4
Epilepsy	1	1
Microcephalic cases	4	0
Mongols	1	0
Deaf and dumb	7	1
Progressive muscular dystrophy, with mental symptoms	1	0

All the cases which gave a positive serum reaction were subsequently very carefully examined with the object (1) of discovering any sign of syphilis which had been previously overlooked; and (2) of detecting any symptom or group of symptoms common to all the positive cases.

Of the positive cases, 1 was subject to epileptiform convulsions and showed slight choreic movements, 1 had strabismus and nystagmus, 1 had a right-sided hemiplegia, 1 had spastic diplegia and conformed to the type of Little's disease, 1 was a deaf-mute, and 2 were aphasic. Among the remaining cases I was unable to detect any evidence of a local lesion.

An examination was made of the cerebro-spinal fluid from 12 cases which had given a positive serum reaction. In only one case was a positive reaction obtained.

I also obtained for examination specimens of serum of the parents of ten of the positive cases. The results were as follows:—

Age of patient.	Result of examination of parents' serum.	Age of patient.	Result of examination of parents' serum.
9	Father positive. Mother ,,	11	Father negative.
15	Mother ,,	16	Father positive.
11	Father ,, Mother ,,	12	Father negative.
11	Father ,,	9	Father ,, Mother ,,
13	Mother ,,	14	Mother positive.

Thus among 13 parents 9 were found to give a positive reaction. It will be noticed in the above table that in the case of one patient a positive reaction was obtained at an interval of 15, and in another case at an interval of 16 years after the birth of a syphilitic child.

The period during which a positive reaction may be obtained is known to be extremely variable in the case of the acquired form of the disease. In the congenital form it might be expected that the percentage of positive results would bear a close relation to the age of the patients examined. A grouping of the 330 cases according to age gives the following result:—

	Examined.	Positive results.
1. Patients of ten years and under* ...	94	20 = 21·27%
2. Patients from 11 up to 15 years of age inclusive	142	24 = 16·9%
3. Patients from 16 to 20 years of age	66	4 = 6·06%

* Of these 2 only were less than 5 years old.

Of patients from 21 to 30 years, 24 were examined with three positive results. The remaining eight patients ranged in age from 31 to 44 and all eight gave a negative reaction.

The above table appears to show that the percentage of positive results diminishes rapidly after the sixteenth year, and that a larger percentage of positive results might be expected from the examination of a series of very young cases. In any case, the average age of the patients investigated must be regarded as an important factor in any estimation of the prevalence of congenital syphilis, and it seems to me possible that the very contradictory results already published may be reconciled by taking the age factor into consideration.

Of the 51 cases in which a positive serum reaction was obtained 7 only showed conclusive evidence of congenital syphilis from a clinical standpoint. In the remaining 44 cases a diagnosis of syphilis rested entirely on the evidence of the serum test.

At the present time it is, I think, generally admitted that a positive result obtained by the Wassermann reaction affords strong evidence of a syphilitic infection, and it is superfluous for me to cite evidence in support of its reliability. The practical value of the test must necessarily be measured by the number of those cases in which the positive serum reaction is the only obtainable sign of a syphilitic infection. In cases where latent syphilis is suspected the value of a positive result has been established beyond all reasonable doubt. In this connexion great interest has been aroused by the cases reported by Plaut and others in which the husband or wife of a syphilitic has been shown to give a positive reaction, but has never shown any sign or symptom of the disease. It is even held that the serum reaction may be the only sign from first to last of a syphilitic infection.

Linser,[1] quoted by Bruck, has examined a series of children of syphilitic patients and finds that two-thirds give a positive serum reaction, while only one-third show any other sign of infection. Numerous cases are also on record in which it has been demonstrated that the apparently healthy mothers of syphilitic children give a positive reaction, and conversely the serum test has been positive in apparently healthy children of syphilitic mothers. The numerous investigations on these lines tend to prove that the evidence of a positive serum reaction may be accepted even in the absence of the usual signs and symptoms of the disease.

If, however, it is granted that the 51 cases of this series were the subjects of congenital syphilis, or at least the children of syphilitic parents, it still remains open to question whether there is any evidence of a causal relation between syphilis and idiocy. It might very reasonably be held that the two conditions were unconnected or that syphilis effected a very remote influence, as a predisposing cause, by in some way impairing the vitality of the parent or offspring. It can also be maintained that a syphilitic taint is to be expected among the children of parents whose mental and moral faculties are presumably below the average level.

I had hoped that, by a careful examination of those cases which had given a positive result to the serum test, it might be possible to detect some symptom, or group of symptoms, which was common to all. This I failed to do. Very few of the positive cases showed any evidence of a gross lesion in the central nervous system, and this, I think, is quite in accordance with what one might expect, for the gross changes in the brain which are known to be due to congenital syphilis are not compatible, as a rule, with a continuance of life. If a causal relation exists between congenital syphilis and idiocy the condition which arises may perhaps be classed as parasyphilitic.

The absence of the ordinary signs of congenital syphilis in idiocy is closely paralleled in the already authenticated parasyphilitic diseases. It is, of course, notorious that tabes and general paralysis commonly occur in patients where the early symptoms of syphilis have been mild or even unnoticed. Among the cases of the juvenile form of general paralysis collected by Mott[2] quite half were found to show no sign of congenital syphilis, but nevertheless to have been born of syphilitic parents and to have brothers and sisters who exhibited the ordinary signs of the disease.

It seems to me reasonable to think that many cases of idiocy should be classed with that form of syphilis which manifests itself alone by a selective toxic action on the elements of the central nervous system. I do not wish to attach an exaggerated importance to the results of the examination of the serum in one series of cases, but when it can be shown that a considerable percentage of idiots afford evidence of a syphilitic infection, and since it is well known that the virus of syphilis is capable of exercising a selective action on the central nervous system in cases in which there

is no other evidence of the disease, I think it is not unreasonable to infer a causal relation between the two conditions.

From the therapeutical standpoint it is hardly, I think, to be expected that any improvement will be obtained by the mercurial treatment of cases of established idiocy which give a positive Wassermann reaction. On the other hand, it does not seem unreasonable to suggest that the information which can be gained from the Wassermann reaction should be made of use as part of a system of prophylactic treatment. It should not be impracticable, or even very difficult, to secure a specimen of the blood serum of any woman during pregnancy in cases where any suspicion of syphilis might be entertained. If a positive reaction was obtained it can hardly be doubted that the active treatment of the mother followed later by treatment of the infant would be the means of averting or modifying the occurrence of symptoms. It has been even suggested by Professor Wassermann that a routine examination should be undertaken of the blood serum of every patient who is admitted to a lying-in hospital. The proposal is the logical result of the belief that a syphilitic infection may exist in an apparently healthy subject and that a reliable diagnosis can be obtained by the employment of the Wassermann reaction.

In conclusion, I have pleasure in expressing my gratitude to Professor Wassermann for the kind interest which he took in these experiments. My best thanks are also due to the director and medical officers of the Wilhelmstift Asylum in Potsdam for their kindness in assisting me in collecting samples of serum and in the examination of the patients.

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THE MEDICAL PROPOSALS OF THE MINORITY REPORT: AN APPEAL TO THE MEDICAL PROFESSION.

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NO well-informed section of the community can be blind to the fact that far-reaching changes in our whole system of local government are inevitable. Mr. Balfour's suggestion in his Election Address (January, 1910) that the machinery of the Poor-law must be "scrapped"; the Prime Minister's arresting interrogation at Bletchley (August, 1909), "Can any person doubt that the advent of old-age pensions is but the first step in the breaking up of our old Poor-law system?"—these are the conclusions to which our most responsible statesmen are driven by the Report of the Royal Commission upon the Poor-laws.

Without insisting for the moment on any particular changes, we would emphasise as forcibly as possible the fact that some change is inevitable. Upon that point there is no division of opinion either among the Commissioners or in the world outside. We suggest that the medical profession as a whole has not sufficiently grasped this fact, and that unless it faces the situation, shapes a policy, and fights for its own interests it is liable to be sacrificed to political considerations.

Mr. Balfour's appointment of the Poor-law Commission in 1905 was nothing but the tardy recognition of the fact that a new spirit had crept over our methods of treating the destitute, and that the Poor-law machinery, which was efficient enough for 1834, had become rusty and useless, if not positively dangerous, by 1905.

In 1834 we set up one authority, and one only, to deal with all classes of the destitute. Since then, under the promptings of a more enlightened conscience, we have set up various other authorities to attend to various classes of our population who were destitute, not of the necessaries of life, but of health, or knowledge, or mental capacity, or of employment. Meanwhile the old Poor-law has remained, and that also has continued to deal with large sections of these same destitute people. There has never been any attempt to regulate harmoniously the workings of these different authorities, and the result to-day is a confusion and muddle and waste that have become intolerable.

The Minority Commissioners, when they speak of "breaking up the Poor-law," are not inspired by any violent desire to demolish an old and honourable institution. They would, indeed, do better to speak of "completing the break-up of the Poor-law." Their scheme is merely the logical outcome of the evolution of our methods of dealing with the poorer classes of the community. Large sections of the sick are already being dealt with by the public health authorities; surely it would be wise to draw out from the Poor-law the remnant of the sick people and give them to the newer agencies that are specially equipped for such work. Similarly, it would be wisdom to draw out all the children from the Poor-law and hand them over to the education authorities that are specially fitted to deal with children. The Majority Commissioners themselves admit that the feeble-minded should be taken from the Poor-law and given over to the authorities specially constituted to deal with feeble-mindedness. The aged are already getting their pensions—not from the relieving officer but from the post-office. The Minority scheme would merely complete this process and transfer those remnants still left in the Poor-law to the appropriate authorities.

These proposals were debated in the House of Commons on April 8th of the present year, and to the astonishment of the man in the street the Prime Minister and the Leader of the Opposition both showed considerable sympathy with the efforts and proposals of the Minority Commissioners. It is fast becoming the general feeling that something like the Minority Report will sooner or later become the law of the country. The debate served to re-emphasise the urgency and the certainty of far-reaching changes.

That public health legislation will probably be laid down upon the lines of the Minority Report is made the more certain by the general disfavour shown to the medical proposals of the Majority. It is impossible here to criticise these in detail. A pamphlet entitled "The Poor-Law Report and the Medical Profession" (Fifield and Co.) contains a convincing attack on the Majority proposals from the private practitioner's point of view. It will be almost sufficient to quote the dissenting report of Sir Arthur Downes, himself one of the Majority Commissioners, and the only doctor on the Commission. He says: "The scheme set out in the report appears to me to offer what amounts to a large measure of free medical relief without adequate safeguard either to the medical profession generally or to the ratepayer."

In practice the scheme of the Majority would mean a vast extension of provident work under the control of local philanthropists, without any safeguard whatever to the private practitioner. The position of the average doctor is often hard enough now. It would become unbearable under a scheme of this kind. Fortunately there is not the remotest likelihood of any statesman venturing to turn these proposals into law. The question is, therefore, what other shape will the inevitable changes take. No medical man who has practised in our poorer districts can fail to see that some change ought to be made in our present confused methods of looking after the health of the poor. To-day we have at least two distinct authorities engaged upon this work, without any intelligent coördination. At one time the Poor-law authority was the only local body existing that could deal with the work of public health administration. It still has under its control infirmaries all over the country where all manner of sickness is treated. It is the authority responsible for the enforcement of the Vaccination Acts. It provides maternity wards for expectant mothers and nurseries for infants whose parents are dead or unable to provide them a home. It is the asylum of the incapacitated worker and of the helpless aged. All over the country the Poor-law authorities are doing a large amount of medical work, sometimes with conspicuous success, more often with dismal failure.

Meanwhile, alongside of this service has grown up the Public Health Service, with its ever-growing encroachment on the sphere of the Poor-law. It is a mistake to think that

this Public Health Service is in any way confined to sanitation and general preventive administration. It has 700 municipal hospitals, some of them with out-patient departments, and dispensaries and large staffs of health visitors; it is beginning to organise domiciliary nursing, "schools for mothers," "milk clinics," and to supervise midwives; it is being entrusted with the medical inspection and treatment of school children; it is taking over one disease after another from the Poor-law with the consent and encouragement of the legislature. Even hospitals for accidents have been instituted by this same authority in some parts of the country. So that this service is, to sum up, nearly as costly and just as ubiquitous as that of the Poor-law.

Some mode of unification or coöperation must be found. The Majority proposals of a gigantic scheme of provident dispensaries have won no support. The plan of Sir Arthur Downes, the dissenting Majority Commissioner, to unify the service by thrusting back all medical relief into the Poor-law is not practical politics at a time when the Poor-law has been condemned by all political parties. The Minority propose the alternative of unifying the whole service by entrusting to the public health authorities the medical work now done under the Poor-law. Surely this is the obvious, sane, logical policy. Dr. McVail, who was specially appointed by the Commission to investigate the subject, decided that there was no other feasible solution. Every one of the responsible heads of the departments concerned—the chief medical officer of the Local Government Board for England and Wales, the medical member of the Local Government Board for Scotland, the medical Commissioner of the Local Government Board for Ireland, and the medical officer of the Board of Education—agree with these proposals, or to speak more accurately, pressed this conclusion upon the Commission.

The advantages of the scheme are patent. It means, to begin with, simplicity of administration, and therefore effective administration. One body and one only will be in charge of the Public Health Service in each locality, and therefore efficient organisation will be just as possible as to-day, with conflicting jurisdictions, it is impossible. The result will be that the problem of building up the health of the community will be undertaken with a new and firmer grasp. But greater still will be the advantage of inspiring the whole of our medical service with the traditions and principles that dominate our public health administration. The Poor-law is by the law of its own nature deterrent. Its work is not to build up health, but rather to prevent the destitute from dying. The business of the public health authority, on the other hand, is to make men and women healthy; to prevent disease; to disseminate the principles of health. The existence of a large section of very poor and very unhealthy people is a serious danger to the community and a disgraceful waste of valuable brain and muscle. These human failures can only be converted into successes by an authority whose one business is health.

The economy which this scheme will effect should also appeal to the medical man as a ratepayer. At the present time we are wasting public money, wasting it with our eyes wide open, by maintaining two costly and co-extensive medical services. The unified service, taking over the buildings and offices of the superseded bodies, will be enabled to effect economies that the older system made impossible. There will be far more specialism, unity of administration, and simplification of machinery. If the ministrations of the Public Health Service tend to increase in the future, this will be due to the inevitable tendencies of our social development. Those tendencies will manifest themselves far more inimically and far more expensively if we continue our present dual system.

The medical proposals of the Minority Report have gained a wealth of enthusiastic and intelligent support among all classes of the community. The medical profession, however, is still in doubt. So, putting aside all considerations of public spirit, let us examine the naked question—How will these proposals affect the ordinary medical man? What the profession fears is that the State will rob its members of the reward of long and thankless years of study by taking from them a large number of their poorer patients, and so making intolerable the present hard struggle for a living. This danger was carefully considered by the Minority Commissioners in drawing up their scheme. They were acute enough to recognise the futility of framing any scheme of reform which would enlist against them the hostility of the medical profession. It is their boast that their solution will conserve the interests of the medical profession far more effectively than does the present system. We believe that the more carefully the Minority proposals are scrutinised the more will they commend themselves to the profession as the only satisfactory path of emergence from the present chaos.

It is of grave consequence to us as a body that this awakening should come fast. Parliament does not always act with a conscience. Its measures cannot fail to bear the stamp of external pressure. What the medical profession needs now is to understand clearly that change must come, and then formulate a precise and practicable plan of campaign. Politico-philanthropic motives will prove its ending unless it takes means to ensure its own safety. Just, if not generous, treatment at the hands of the State is contingent upon the sanity and coöperation of the profession as a whole during the next few years.

The Minority propose that the area for public health purposes should in future be the county or county borough, and all such work be under the general control of the health committee of the Council. At the head of the medical staff would be a county medical officer (not necessarily a sanitarian), whose work would be almost entirely administrative. Under his direction there would probably be four coördinate services: 1. The medical officers of health attending to the sanitary needs of the district. 2. The district medical officers giving domiciliary treatment. 3. The superintendents of institutions (infirmaries, infectious and isolation hospitals, &c.). 4. The school medical staff. Such a service, unified and organised, will give adequate treatment for all those who need it, enforce sanitary requirements, and save our children from the stunting and stultification that result from the early neglect of minor ailments. It will do this if the State is wise enough to pay its servants adequately. The medical profession can, if it likes, demand a fair return for the invaluable work that a large number of its members will be called upon to do under these new conditions. The county medical officer, at the head of the service, should receive not less than £1000. The salaries of the other officers would range from £250 to £600. Well-paid work is nearly always good work, and if this scheme of medical reform is to be of any permanent value to us as a community the Minority recognise the importance of paying sufficient salaries to attract the best men. But it will depend on the energy and loyalty of the profession to see to it that Parliament and the local bodies enforce this principle. It may be added that the tenure of all officers will be permanent, dismissal being subject to the consent of the central authority, which to crown the scheme should be a Board of Health. An automatic system of pensions is, of course, part of the plan of reform.

Another feature of the scheme that will add considerably to its attractiveness in the eyes of medical men is that it will give those employed by the State a far greater freedom than they enjoy to-day, and an infinitely greater freedom than they would enjoy under any provident dispensary scheme. The State medical officer will be liable to dismissal only upon gross neglect of his duties. He will be free to talk plainly to his patients—a thing the club doctor dare not do. He will not be harassed by a hundred financial and social considerations that are utterly irrelevant to his work. Under the scheme proposed by the Minority the State medical officer will be free of every consideration except the health of his patients. There is not the slightest justification for the belief that State employment, at any rate for a medical man, will mean any crushing of his individuality. It will set him free to think and act in a way often impossible in a private practice.

It is important to make it clear that all medical men who become civil servants will benefit as we have described, for already a very large proportion of the medical profession, about one-third, is under the direct employment of the State, and it may reasonably be anticipated that the proportion will be still greater under the Minority scheme. For the purpose of the Minority is the prevention of destitution, and this means a searching and systematic campaign against the sickness and insanitary conditions that are responsible for half the destitution of to-day. This sickness and these insanitary conditions are at the present time largely untreated. The

private practitioner, except out of sheer charity or incidentally in the building of his practice, makes no attempt to cope with these evils. The efforts of the Local Government Board and of local bodies are usually of a rather superficial character. The Minority propose for every district a more adequate staff, a better paid, and therefore a more efficient, staff.

It is certain, also, that before long it will be recognised as preferable to overworking three practitioners to employ four, and to give each only that amount of work that he can do efficiently. In the last fifty years this nation has developed a conscience for health. That conscience becomes more sensitive day by day, and nothing is more sure in our social evolution than that more and more importance will be attached to measures for the prevention and cure of sickness of every sort. Before long it will dawn on us as a people that health is more important than education. For our particular purpose we are urging this point because it means that more and more medical men will be invited into State employ, and we believe that the medical profession can see to it that such a transference will not be in any way unwelcome to the average practitioner. But this shifting will also be very welcome to the doctor who does not enter the State service, either because he does not care for it or because he is not given the opportunity. The reason is plain. If more medical men are taken on by the State to deal, not with the old work but with new work made necessary by our new social outlook, there will be fewer practitioners left in private practice, and there will be more breathing space in one of the most crowded of English professions. The State will certainly want more medical men; these will deal with patients untouched to-day by the ordinary practitioner. Thus the same amount of practice in the aggregate will be left to a smaller number of private practitioners. This conclusion is confirmed by the undoubted fact that under the new *régime* a vast amount of untreated and almost unknown disease and sickness among the very poor will be brought to light. No doctor who knows how much superficial and unsatisfactory work is done in the out-patients' department of hospitals and dispensaries would hesitate to affirm that far more might be done for the poor than is done at present.

The experience of the school clinics set up at Bradford strikingly supports this view. Before the clinics were started only 11 per cent. of those children found by inspection with defective vision underwent treatment. Now it is 100 per cent. If we may draw inferences from this particular example, confirmed, indeed, by many others of a similar nature, it is certain that a great mass of ill-health of every sort among our destitute population would be brought to light by an efficient medical service. Reforms of this nature would entail upon our public health authorities a considerable additional burden of work, and they would need more doctors to cope with it. We are not making any fanciful statements when we declare that under the Minority proposals there would be more for the State to do and more for the private practitioner also.

The private practitioner would before long benefit in yet another manner. It is known that a good third of all our destitution is directly caused by sickness. A very large proportion of it is caused also by neglected infancy. These causes are tangible and traceable. Who can say how much more of our destitution is facilitated by the subtle, invisible undermining of strength and capacity that results from dirty and insanitary environment and neglect of the elementary principles of health in our slums? Mrs. Webb has said that a public-house stands at the side of every road that slopes down to the morass of destitution. In the same way it is true that ill-health is a contributory factor to many cases of moral or economic decline. More than half a million of those who come on the rates every year are driven there by sickness, and many of the other one and a half million might have been saved from the Poor-law had sufficient attention been paid to their bodily health. Remove the cause and you remove the effect. Put an end to the considerable portion of this sickness which is preventable and you replace a large number of ineffective parasitic people by wealth-producing wage-earning citizens. The faith of the Minority Commissioners, well grounded upon the most expert medical and sociological research, is that this transformation can in course of time be made. For the medical profession this means that a great number of men, women, and children who are now non-paying patients will be put into a position of economic independence and turn to their own private doctor for medical assistance. There is every reason to suppose that the work of our public health authorities, which will be mainly directed to the elimination of insanitary and unhealthy factors in the lives of the very poor, will build up a class of self-reliant men and women who will go to their own medical attendant for the medical assistance which is needed at times even by the strongest.

One thing, and one only, can militate against this view of the private practitioner's future, and that is the danger of a too attractive State service. This is the crux of the whole question. This is the point upon which the success or failure of the proposals must turn. If there is to be a gratuitous State service, or one without any but nominal charges, then the medical profession must have nothing more to say to the Minority proposals. Such a service would mean that on both sides the pockets of private practitioners were picked. They would be robbed of their livelihood because great numbers of their patients would turn to the State for assistance. They would be robbed in rates and taxes for the ever-increasing expenditure upon this socialistic service. If the Minority cannot make clear their case upon this point, that such will not be the result of their scheme, they cannot expect any support from a profession already hard hit by a hundred gratuitous agencies.

It is the deliberate intention of the Minority to confine the ministrations of the public health authorities, so far as these are gratuitous, to those who cannot afford to pay. The Minority proposals, the whole of the active crusade now being conducted by the Minority Commissioners, is against *destitution*, and their field of vision is circumscribed by that word. They do not desire to withdraw a single patient from the practice of any private practitioner. The Public Health Authorities will, of course, attend to sanitation, &c., as heretofore, and school children will be inspected and treatment enforced. But they will confine their *assistance* to those destitute people whose health is to-day either neglected or imperfectly looked after by the State and voluntary agencies.

Those very poor patients who come to most private practitioners at present are exceedingly few in number and not a desirable addition to their *clientèle*. If the practitioner treats them and accepts a fee, he feels that he is robbing them of the necessaries of life. If he refuses to treat them, he often feels that he is acting inhumanely. The average doctor would be glad to get rid of such patients, and to get rid also of the feeling that if he does not treat them there is no properly constituted authority who will. We have been at pains to confirm this statement by obtaining particulars from a number of medical men practising in the East End of London. One writes from Bermondsey: "I do not think that more than 5 per cent. of my patients have an income of less than 22*s.* per week for family of five. These we would be very gladly rid of, for we can do nothing for them because they are so poor and their conditions of life are so bad." Another practitioner with a 6*d.* and 1*s.* practice in Stepney informs us that less than 8 per cent. of his patients earn under 22*s.* per week per family.

What the reader may question is the practicability of this proposal to confine State assistance to the destitute. This is the attitude taken up by most of the critics of the Minority. They urge that gratuitous State assistance for the very poor will widen into a gratuitous assistance for the whole populace. As the *Times* of March 16th, 1910, put it: "If you offer people relief ..... without any drawback, it is absolutely certain that many will take advantage of it, and that more and more will follow."

The problem is, therefore, to confine free medical assistance to that section of the community which without it would go untreated. To-day, he it noted, there is no such restriction. While a vast amount of sickness goes unnoticed except by the sufferers, there is a great mass of free medical assistance rendered to applicants who could well afford to pay for it.

The widespread abuse of our voluntary hospitals is almost equalled by the abuse of the institutions set up by the State. The ratepayer is heavily taxed for the thousands upon thousands of well-to-do patients who every year crowd to the State hospitals for which he pays, and who generally, with the deliberate encouragement of the legislature or the local authority, refuse to pay a penny for their treatment.

As far as the metropolis is concerned, Parliament has sanctioned this position by expressly omitting from its Public Health (London) Act of 1891 all provision for making any charge for hospital treatment. Sir Francis Burdett in his pamphlet on "The Future of the Hospitals" summed up the matter by saying: "As at present constituted the health authorities are the only authorities who have never recovered anything from the person to whom they have rendered service, or, in any case, the recoveries have been so small as to be virtually inappreciable." Witness after witness before the Royal Commission drew attention to the abuse of State and voluntary medical aid. Here are a few quotations taken almost at random from the evidence before the Commissioners: "The dispensary charity here is much abused to the detriment of the medical profession. In a minor way the hospital, too, is much abused. Many of the working-classes crowd to the dispensary daily and receive gratuitous attendance who could well afford to pay fees or club payments to a general practitioner."[1] The organising secretary to the Newcastle Charity Organisation Society stated: "We found that only a small percentage of those whose names had been sent in to the dispensary on a given day, and who had received letters, should really have been treated by the dispensary."[2] Another witness, speaking of the Newcastle Dispensary, affirmed: "There is no doubt tbat in connexion with this charity many receive medical relief who could well afford to pay for it, and apart from the injustice to the medical profession it is making the people less reliant and more inclined to depend on outside help."[3] There is no occasion to multiply instances. The fact is too much felt by the profession to which this article is addressed to be overlooked by them.

Now this chaotic state of affairs means that the people are demoralised, and that the medical man, while heavily taxed as a ratepayer, is robbed at the same time of his legitimate practice. And the danger is, let there be no mistake about it, that this will go on. Our Public Health Service has grown up piecemeal; our voluntary institutions have arisen in response to no consistent or elaborated scheme; and if this disorderly growth continues the very existence of the private practitioner will be endangered in the near future. The opportunity of educing some system out of this muddle is given the profession now.

Acting in constant touch with expert medical opinion, the Minority elaborated their scheme of charge and recovery with a view to putting an end to this gratuitous treatment of non-destitute patients. Their whole scheme stands or falls upon this basis of charge and recovery. They see that it is no longer possible to apply the old Poor-law method of deterring applicants by making it unpleasant for them to apply, because, for the sake of the community, it is essential that all who require medical aid should get it at its best and promptly.

Some other method of deterring the non-destitute must be found. The Minority propose the simple and well-thumbed artifice of charging a definite amount for the assistance given and the systematic recovery of that sum wherever the applicant can afford to pay it. This will ensure that all those who desire treatment or who must be forced (as in the case of infectious patients) to accept it will be properly attended to. But it will also have the effect of preventing the man with an income from applying. If he has to pay in any case he will prefer to choose his own doctor rather than accept the efficient, hut none too ceremonious, service offered him by the State. The Minority propose, tberefore, that a departmental committee (Report. Chap. viii. E. 4) should decide what income for what size family would constitute ability to pay; what relatives should be held liable; how much should be charged; and how far the present legal procedure should he modified to make this recovery swift and effective. The Minority do not claim to have arrived at precise conclusions upon these points, but their statements are sufficiently detailed to make plain the outline of their scheme of charge and recovery. Realising the importance of this point for our own particular purpose we made special inquiries about it from Mrs. Webb herself. Without dogmatising, she considers that charge and recovery should proceed on the basis adopted for industrial schools and for the London County Council elementary schools—i.e., that payment should be demanded from all families where the income is above 3*s.* a week per adult member plus rent. This works out roughly in practice that in the case of an average family of five members with an income of more than 22*s.* per week payment would be enforced.

It is instructive to note in this connexion the payments now being carefully enforced by the London County Council for the medical treatment of its school children. We quote the following table from the statement of proceedure for the guidance of children's care (school) committees and head teachers (Form M.T. 2 of the Education Department):—

Class.	Income of standard family (after deducting regular outgoings).	Ringworm cases—Full charge. 3*s.* per attendance for not more than five attendances.	Ear, nose, and throat cases—Full charge, 1*s.* 8*d.* per attendance for not more than three attendances.	Eye cases—Full charge, 1*s.* 4*d.* per attendance for not more than three attendances.
		Amount of remission per attendance.		
I.	Under 20*s.*	2*s.* 8*d.* may be remitted.	1*s.* 4*d.* may be remitted.	1*s.* may be remitted.
II.	20*s.* and under 22*s.* 6*d.*	2*s.* 4*d.* ,, ,,	1*s.* ,, ,,	8*d.* ,, ,,
III.	22*s.* 6*d.* and under 25*s.*	2*s.* ,, ,,	8*d.* ,, ,,	4*d.* ,, ,,
IV.	25*s.* and under 27*s.* 6*d.*	1*s.* 8*d.* ,, ,,	4*d.* ,, ,,	Full charge may be made.
V.	27*s.* 6*d.* and under 30*s.*	1*s.* 4*d.* ,, ,,	Full charge may be made.	,, ,,
VI.	30*s.* and under 32*s.* 6*d.*	1*s.* ,, ,,	,, ,,	,, ,,
VII.	32*s.* 6*d.* and under 35*s.*	8*d.* ,, ,,	,, ,,	,, ,,
VIII.	35*s.* and under 37*s.* 6*d.*	4*d.* ,, ,,	,, ,,	,, ,,
IX.	37*s.* 6*d.* and above.	Full charge may be made.	,, ,,	,, ,,

NOTE.—The amounts in the above scale may be raised or lowered having regard to special circumstances in particular cases, subject to the conditions specified in this circular.

In this scale families are dealt with in terms of adults, and for this purpose an adult is regarded as any person over 14 years of age, and each child of school age or under is taken as 0·75 of an adult. The standard family referred to in the scale is taken as two parents and four children—equal to five adults. The net income of the family is the amount available after deducting rent and other regular outgoings, such as payments for sick club, insurance, and fares to and from work.

The machinery for enforcing whatever charges Parliament decides to make has been most carefully elaborated. It is proposed that a registrar shall be appointed by every county or county borough council to keep a register of all the different forms of assistance given by any public authority, and also as far as possible of that rendered by voluntary agencies. The registrar will also, in accordance with the code decided upon by the Legislature, assess in every case the charge legally to be made for every public service, and he will enforce that charge upon the individual. This mode of charge and recovery will be, as it were, automatic. The committee of the council which gives the relief will be free as an administrative body should be from the judicial duty of making the charge for it. The registrar will be freed from every consideration except the legal. And incidentally we may note that this machinery will set the doctor free from the odium that he so often incurs to-day of enforcing the charges for his work. He will simply do his work as a doctor and the financial business will be entirely in other hands

[1] Appendix, vol. v.,; App. lxviii.
[2] Appendix, vol. v., 51746.
[3] Appendix, vol. v.; App. civ.

This machinery is devised for the purpose of confining medical and other relief to the destitute. Is there any reason why it should not succeed? We may admit at once that its success has not been perfect in the past, and the obvious reason is that we have never provided any proper machinery for extracting payment from those who are able to make it. There is to-day nothing in the way of systematic charge and recovery throughout our public administration. The need for it has never been consciously recognised by the State.

But even with such broken and rusty machinery as exists, there has been sufficient charge and recovery to justify a belief that it will be easy to make it effective and systematic. The public health authorities have consistently recovered for all improvements made by them in the sanitary conditions of private houses. The Home Office collects annually a large sum in a thoroughly systematic fashion from the parents of children sent to reformatory and industrial schools. Where a board of guardians is energetic it collects every year from applicants or their relatives a considerable amount, running up to £3000 or £4000 in some unions, and for the lunatics in our county asylums the full cost of treatment is often recovered. Practically nothing is, of course, recovered for school feeding, because the education authorities are by law only entitled to feed the destitute.

The point to be enforced is that there is no inherent difficulty in recovering the cost of treatment from patients. It has been done to a large extent already. Given a properly framed code and the adequate machinery, it will be as easy as the collection of rates and taxes to restrict our medical service to the destitute by this process of charge and recovery.

Most members of the medical profession would like to see the voluntary hospitals brought into this scheme in order to prevent all hospital abuse and completely safeguard the private practitioner. The Minority suggest that some arrangement might be made with the voluntary hospitals by which they would fall into line with these proposals.

We have addressed ourselves throughout this article solely to the interests of the medical profession. We have urged the unassailable fact that changes are imminent in our public provision for medical assistance, and we would point out once more that unless the profession has some conscious plan of campaign with which to take the field it stands in risk of disaster. We believe that the proposals of the Minority outline the measure which Parliament will almost certainly introduce, and we think that these proposals offer practitioners many advantages which they do not enjoy to-day. Our only fear is lest by reason of divided counsels the profession should not demand from Parliament the consideration to which it is entitled.

In conclusion, we ask that these proposals may be studied also from the wider view-point of the welfare of the community. By means of a well-organised and well-qualified Public Health Service, acting in conjunction with a highly skilled private medical profession, it is easy to do much towards building up the health and with it the self-respect of our people. Every practitioner knows that almost an infinity of sickness might be prevented were proper measures taken to effect it. Underlying the whole scheme that we are recommending, and especially in its public health proposals, lies this intense desire to prevent what evil can be prevented. Upon that ground alone we claim with confidence the coöperation of the medical profession in converting these proposals into law.

CHELTENHAM GENERAL HOSPITAL.—At a recent meeting the governors of the Cheltenham General Hospital decided to draw on capital and to sell Consols to the amount of £2748 to meet a balance on the "Extension Building Fund" and an accumulating deficiency on the last two years working of the charity.

THE SOCIETY OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A general meeting of this society will be held on July 26th at 4 P.M., at 1, Upper Montague-street, Russell-square, London, W.C., when short addresses will be given on the history and aims of the society. During the afternoon Dr. W. G. Dickinson, who has for 15 years served the society as honorary secretary, will be presented with an illuminated address. All Members and Fellows of the College are cordially invited. The honorary secretary of the society is Dr. Sidney C. Lawrence.

TUBERCULOSIS IN ITS RELATION TO THE GENERATIVE FUNCTIONS.[1]

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IN order to be able to interpret correctly the mortalities from tuberculosis, as well as those from any other disease, it is necessary to compare the number of deaths with the living populations of the same age. If we divide a given mortality into its component parts and compare each of these with the general population, we shall arrive at completely erroneous results. For example, in 1904 154 Argentine males aged 20–30 years died from tuberculosis in Buenos Aires; 25 aged 50–60 years died from the same disease. If we compare these numbers of deaths with the general population, we arrive at the conclusion that the mortality from tuberculosis is greater at 20–30 years than at 50–60 years, when in reality what occurs is the opposite, as can be verified by comparing the first series of deaths with the respective living population, which amounted to 34,979, and the second series with its respective population, which only reacbed 4415.

Relatively recent studies carried out by this exact method in some countries of Europe have shown that the idea, so generally held up to a short time ago, with respect to the most fatal epoch of life in the case of tuberculosis was a mistaken one.

Applying the method to the mortality from tuberculosis in Buenos Aires, it becomes possible to confirm the fact that youth is not the age of predilection for this disease. At the same time certain data can be obtained which appear to place mortality from tuberculosis in marked relation to the exercise of the generative functions. The year 1904 has been selected as the basis of study, for the reason that on that year the last city census was taken, and there we find complete statistics regarding living populations with respect to age, sex, and nationality. The appended table shows the

—	ARGENTINES.				FOREIGNERS.			
	Age.	Living population.	Deaths from tuberculosis.	Per 1000.	Age.	Living population.	Deaths from tuberculosis.	Per 1000.
Males	0–2	26,219	35	1·33	—	—	—	—
Females ...	0–2	24,828	18	0·72	—	—	—	—
Males	2–5	33,594	37	1·10	—	—	—	—
Females ...	2–5	33,049	28	0·84	—	—	—	—
Males	5–10	51,006	33	0·64	5–10	4,854	2	0·41
Females ...	5–10	51,319	34	0·66	5–10	4,686	4	0·85
Males	10–15	40,862	24	0·58	10–15	7,944	5	0·63
Females ...	10–15	42,813	46	1·07	10–15	7,441	4	0·53
Males	15–20	27,935	60	2·14	15–20	17,565	28	1·59
Females ...	15–20	33,339	126	3·77	15–20	15,504	31	2·0
Males	20–30	34,979	154	4·40	20–30	58,259	128	2·19
Females ...	20–30	43,672	206	4·71	20–30	45,461	92	2·02
Males	30–40	18,919	106	5·60	30–40	57,644	158	2·74
Females ...	30–40	20,983	100	4·76	30–40	40,539	81	2·0
Males	40–50	10,295	55	5·34	40–50	49,223	159	3·23
Females ...	40–50	11,233	40	3·56	40–50	32,329	53	1·60
Males	50–60	4,415	25	5·66	50–60	27,575	77	2·79
Females ...	50–60	5,338	7	1·31	50–60	18,943	14	0·70
Males	60—*	2,588	12	4·63	60—*	16,126	46	2·85
Females ...	60—	5,029	4	0·79	60—	13,503	9	0·66

* Sixty years and upwards.

mortalities from tuberculosis as they affect Argentine males, Argentine females, foreign males, foreign females, calculated

[1] A paper read at the American International Congress of Medicine and Hygiene held in Buenos Aires in May, 1910.

at so many per 1000 of the respective living population. In the part dealing with male and female foreigners, the first two epochs have been omitted, because at these ages relatively few come to this country, and calculations based on small numbers are apt to give fallacious results.

What first attracts our attention is the greater mortality from tuberculosis amongst Argentines than amongst foreigners. This was what was to be expected, since the Argentine population is composed of strong and weak, whereas the foreign one is selected, for the strong and not the weak emigrate from one country to another in search of work.

In the second place, we find that in the Argentine, as well as in the foreign populations, men die generally from tuberculosis in greater proportion than women. This is opposed to what we should expect. We know that the conditions of life in which man lives in this country render him less predisposed to this disease than women; man is much more active, he lives in better surroundings of pure air, he receives in greater quantity the light of the sun. Drunkenness is rare in Buenos Aires. Some potent factor must therefore exist which so heavily weighs on the male mortality. What is this factor?

Let us note what occurs in the epoch of life between 50 and 60 years of age—an epoch in which the generative functions of women have ceased, while they continue in the case of men. As shown in the table, among Argentine women the line of mortality undergoes a rapid and marked descent, and the same occurs in the case of foreign women, and the descent in the mortality line continues yet further, in both cases, during the next epoch of 60 years upwards. We have then this fact, that in the case of women, both Argentine and foreigners, the advent of the menopause coincides with a marked failure on the part of Koch's bacillus to invade efficiently the human organism. Let us meanwhile find out what occurs with man at the same ages. Amongst Argentine men, in the epoch of 50–60 years, the mortality line, far from accompanying that of women in its descent, on the contrary rises to its highest level; in the case of male foreigners the line reaches a very high level, although not so high as in the epoch of 40–50 years. After 50 years of age man does not cease in his generative functions, but in the later epochs of life these functions are carried out at the expense of great loss of nervous energy. Generative functions always require a great expenditure of nervous force. The human organism does not possess an unlimited supply of this force, and this energy is necessary if Koch's bacillus is to be successfully resisted. So long as man finds himself in the fulness of his strength, the moderate use of his generative functions does not place him in unfavourable conditions to resist the bacillus of tuberculosis. But after mature age the organism is subject to degenerative changes, and then the exercise of the generative functions, especially if carried out in an immoderate degree, implies such an expenditure of force as leaves the organism in a defenceless condition to resist the invasion of the bacillus. After 50 years of age, woman economises her nervous force with the advent of the menopause; man, on the contrary, goes on spending his strength when the organism more than ever requires vigour to defend itself. Koch's bacillus attacks both. Woman defends herself successfully; man succumbs for want of resisting power.

In the third place the table shows that tuberculous mortality reaches its highest level in the case of Argentine men from 20 years upwards, especially between 30 and 60 years of age. In the case of Argentine women the highest level of tuberculous mortality obtains between 15 and 50 years of age, especially between 20 and 40 years. These epochs of life correspond more or less to those in which the generative functions are most active in each sex. Woman anticipates herself a few years. (For every man who marries in Buenos Aires before he is 20 years old ten women marry at the corresponding age.) And woman ends her generative life long before man. In the case of the foreign population the same tendency to coincidence between high tuberculous mortality and great sexual activity is manifested; foreign men present their highest level of tuberculous mortality from 20 years upwards, especially after 30 years of age; foreign women between 15 and 50 years, especially between 15 and 40 years.

In the fourth place the table can be divided into two marked levels of mortality—a high one and a low one. The low one corresponds to the ages of infancy and childhood in both sexes, and to the period after the menopause in the female; this level corresponds, therefore, to the ages of low sexual activity. The high level corresponds to maturity and advanced age in the male, and only to maturity in the female: that is to say, it corresponds to the epochs of great sexual activity in both sexes, and in the case of the male also to that epoch of life in which sexual activity takes place under disadvantageous conditions for the maintenance of vigour in the organism.

We know that Koch's bacillus can only successfully invade organisms which lack proper defence; we know that the lines of natural defence are weakened when the organism loses its vigour; we know that sexual functions exercised in immoderate degree, or exercised by organisms in a state of degeneration, spend inordinately the strength of the individual. Finally, we know that modern hygienic measures snatch from a sure death many children who afterwards pass on to the reproductive epochs of life with frail organisms. This simultaneous occurrence of great sexual activity, or sexual activity exercised under disadvantageous conditions (maturity in both sexes and advanced maturity in the male), and great mortality from tuberculosis cannot, therefore, be a mere coincidence—the first must be the cause of the second.

Buenos Aires.

A CASE OF

SUPPURATIVE PERICHONDRITIS OF THE LARYNX IN THE COURSE OF ACUTE PNEUMONIA; RECOVERY.

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THE great rarity of laryngeal complications in the course of acute pneumonia is accentuated in an annotation which appeared in THE LANCET of Feb. 26th, 1910, p. 586, where a case of œdema of the larynx is described which was reported to the Société Médicale des Hôpitaux de Paris by A. Chauffard and G. Laroche, and another case is referred to which was reported by Dévé [1] The following account of another case in which severe œdema of the larynx progressing to suppurative perichondritis occurred in the course of acute pneumonia, and in which recovery occurred, may therefore be of interest.

The patient was a man, aged 28 years, who on Dec. 21st, 1909, was taken suddenly ill with symptoms which were thought to be those of influenza Four days later he developed severe lancinating pains in the lower part of the left side of the chest, the temperature rose to 105° F., and he became delirious. He was admitted to St. George's Hospital on Dec. 31st, 1909. An extensive pneumonia of the left lower lobe was present, the physical signs were typical, and the sputum was swarming with pneumococci. One million of a vaccine of a stock pneumococcus was administered subcutaneously on Jan. 1st, 1910, and two millions on the 4th. Crisis occurred on the 5th, but the delirium persisted until the 7th, and he remained feeble and tremulous. On the 10th the temperature rose to 102°, and a general punctate erythematous rash made its appearance which persisted until the 17th. On the 19th he developed a sore throat with enlarged tonsils, œdema of the fauces, and enlargement of the cervical glands. On the 22nd the right tonsil was incised and a small quantity of pus was evacuated. The right side of the epiglottis was now seen to be red and œdematous. On the following day there was considerable dyspnœa, and a further incision was made in the right tonsil, releasing more pus. The temperature during the 11 days following the development of the sore throat was normal. The swelling of the tonsils, fauces, and epiglottis subsided slowly, but an increasing swelling, which became brawny and painful, made its appearance in the neck on either side of the hyoid bone, larynx, and trachea, gradually extending downwards and greater upon the right side; there were much dysphagia and dyspnœa. The region of the right arytenoid was markedly

[1] Normandie Médicale, June 1st, 1908, p. 306.

swollen and the right vocal cord was fixed in a position of abduction external to the usual cadaveric position. On the 30th the temperature reached 101°. The laryngeal œdema had increased and now involved the entire right half of the larynx. The external induration had increased in the right anterior triangle and the whole larynx was pushed over to the left. The physical signs were those of perichondritis of the thyroid cartilage. A further dose of vaccine (3,000,000 pneumoeocci) was administered hypodermically. On Feb. 2nd the urine though acid contained blood, pus, and albumin and the patient was weaker. On the 3rd the dyspnœa was urgent and an incision was made into the external swelling over the right ala of the thyroid cartilage. The tissues were seen to be involved in a uniform hard œdema and no pus was found. No organisms could be cultivated from the wound. Laryngeal examination did not show any appearance of suppuration within the larynx. A few hours after the operation the patient in making an effort to cough suddenly brought up about two ounces of pus and his dyspnœa was at once relieved. On the following day he was very much better, the temperature was normal, and the laryngeal œdema and the external swelling were rapidly subsiding. There were a few coarse moist sounds in the chest accompanied by the expectoration of a little mucus and pus, pointing to the aspiration of some of the pus from the laryngeal abscess. The condition of the urine rapidly became normal and the patient quickly made an uninterrupted recovery and left the hospital on Feb. 16th. An examination of the larynx at the time of his departure showed that this organ was normal and that the movements of both vocal cords were perfect.

Of the two previously reported cases above referred to the laryngeal œdema appeared on the first day of the illness in Chauffard and Laroche's case and subsided without suppuration. This patient developed a pneumococcal pyæmia with secondary abscesses in several joints and pyuria which persisted for a week. He eventually made a perfect recovery. In Dévé's patient the laryngeal œdema appeared on the fifth day after defervescence and death occurred from asphyxia in 48 hours. In our patient the laryngeal complications appeared on the sixteenth day after the crisis, and the involvement of the fauces and tonsils three days earlier. The presence of a pneumococcal pyæmia was indicated by the occurrence of pyuria.

BRIEF NOTES ON THE TREATMENT OF RHEUMATISM BY BEE STINGS.

BY F. H. MABERLY, M.R.C.S. ENG., L.R.C.P. & L.M. EDIN., L.S.A.

IN October last I happened to see an old patient who three years before had a severe attack of rheumatism which developed into chronic rheumatic arthritis. Almost all known remedies—baths at Buxton, Llanwrtyd, and Droitwich, electricity, massage, and the usual drugs and diets—were tried without success, and he became so ill that although only 55 years of age he was pensioned off by the Birmingham Water Department, where he was employed. He steadily grew more helpless, and had long given up all treatment. His legs and arms were flexed strongly, his chin was drawn down almost on to his chest, and he was only able to open his mouth about half an inch. He was never free from pain, and from being a fine and active man he had become a helpless cripple. I tried to cheer him, and told him that if I heard of anything likely to do him good I would let him know, and the same evening I happened to meet a "bee expert" who said the case was just one for the bee treatment. So I made arrangements to have the patient driven to my house, and he was given the first application on Oct. 30th. With the greatest difficulty he hobbled into my consulting-room, his height being only 5 feet 3 inches so doubled up was he, though his real stature was 5 feet 10 inches. We persevered with the bee treatment, giving him about 18 stings weekly, and in two months he stood 5 feet 5 inches, he could hold his head up and open his mouth fully, and the pains in the joints had almost disappeared.

A second case brought to my notice was that of a man about 35 years of age, who had been laid up three times with rheumatic fever for six or seven months each time, and found his joints increasingly stiff with each attack. In his case the bee stings did marvels. He told me that his feet had always been stiff from the first attack, but now he could walk anywhere, and "did about 20 miles every Sunday." I found his ankle movements to be perfect and he stood on his toes for me quite easily. He said that he always ate and drank whatever he liked, and whenever he could catch a bee in his garden he did so and put it on. I visited a number of other cases with the same friend, some of old-standing chronic rheumatism, both in elderly and younger subjects, and all were doing well, while in nearly all the usual remedies had been tried without any good result.

I select a few of my own cases for mention as examples of the treatment. Mrs. ——, a married lady, aged 30 years, was attacked with rheumatic fever while on holiday about 20 miles from home. She was brought back delirious in a motor and confined to bed for eight weeks. During the first fortnight her temperature kept between 104° and 105° F. with profuse acid perspirations and very severe joint pains. Endocarditis supervened and left a regurgitant mitral murmur. During convalescence the joint pains were very troublesome, and after trying various remedies without much relief I persuaded her to allow me to try the bees. Five applications completely relieved her and she has been quite well since. Miss — , a young lady aged 25 years, was attacked with influenza four years ago which left a neuritis of the left arm. This was so painful that she could not even sew with comfort, and if she attempted to ride her bicycle the jar was more than she could bear. She carried her arm in a sling for six months, giving it perfect rest; she also tried electrical treatment, massage, and various ointments, but without any permanent good result. A few months ago I persuaded her to try the bees, and four applications completely cured her. Mr. ——, aged 35 years, a professional violoncellist, in December, 1909, was attacked with influenza leaving "rheumatic" pains in the joints. Although I advised him to try the bees, he had found such good results from certain saline baths on a former occasion that he determined to take a course of them again. During his stay he was attacked with rheumatic fever and was laid up there for some weeks. When he returned the pain and stiffness in his joints were very severe and prevented him fulfilling any professional engagements. On Feb. 27th I put 15 bees on him and on March 3rd he played at a concert away from home. He continued the treatment until May 29th, altogether having ten applications of bees, and is now quite well. I conclude from this that the remedy, if it does not effect a complete cure, gives relief in almost hopeless cases.

In elderly people it is better to start with about six stings for the first three applications when they may be gradually increased, even up to a couple of dozen. Sickness often supervenes if too many are put on at first. There is a little difficulty for a novice in putting them on, but I have perfected a pair of forceps which, while preventing injury to the bees, holds them firmly. The stings should remain in for a few minutes before removing them. In old-standing cases the treatment will have to be continued for many months.

Bibliography.—THE LANCET, June 22nd, 1907, p. 1737; June 29th, 1907, p. 1806; August 3rd, 1907, p. 320; Oct. 5th, 1907, p. 985. Brit. Med. Jour., June 22nd, 1907, p. 1517; June 29th, 1907, p. 1579; July 6th, 1907, p. 63.

Handsworth Wood, Staffs.

THE ROYAL NATIONAL HOSPITAL FOR CONSUMPTION, VENTNOR.—The medical report of this nospital for the years 1905 to 1908 has just been issued at the price of 1*s.* from the London office of the institution, 18, Buckingham-street, Strand, London, W.C. The report, which is illustrated with many pictures of the hospital, its grounds, and the patients at work and play, is divided into two parts, the first dealing with the climate and life of the patients and the second containing a commentary on the medical statistics; while an appendix adds meteorological and other tables. It is interesting to note that during the four years covered by the report the average annual number of sunless days was only 58, the average number of days or nights during which rain fell 171, the average number of nights on which there was frost 13, and the average number of days with a maximum shade temperature of over 70° 25. The statistics, which are "simply a contribution to the study of pulmonary tuberculosis," show that 3000 patients have been discharged from the hospital during the years 1905-08, and the authors of the report state that "they [the statistics] have been considered 'without prejudice' and a personal interpretation of the facts has been left as far as possible to the reader."

Reviews and Notices of Books.

Diseases of the Heart. By JAMES MACKENZIE, M.D. Edin., M.R.C.P. Lond. Oxford Medical Publications. Second edition. London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 419. Price 25*s.* net.

THE importance of Dr. Mackenzie's original and interesting book on "Diseases of the Heart" is strikingly attested by the appearance of a second edition so soon after the publication of the first and by the demand for its translation into a number of languages, of which we are told in the preface. Moreover, in all recent monographs on the subject of heart disease Dr. Mackenzie's views and methods are quoted, and it is not too much to say that in this country, at any rate, the more careful and accurate clinical study of the conditions of the circulatory mechanism in disease which is now possible is largely due to his pioneer work in the application of instrumental methods, and still more to his patience and ingenuity in interpreting them. It is probable that in the past the mechanical aspects of the circulation have somewhat dominated the minds of clinicians to the partial exclusion of physiological or vital considerations. The remarkable work of Gaskell on the properties of heart muscle, although classical to the physiologists, has been largely neglected or ignored by the clinician. It is interesting to notice that when Gaskell's work has been systematically applied to the investigation of the problems of the mechanism of the human heart it has resulted in valuable advances in our knowledge, both as regards normal and diseased conditions. Dr. Mackenzie briefly discusses the myogenic and neurogenic doctrines of the origin of the heart beat and indicates a possible compromise between them. He also describes the five primitive functions of heart muscle as demonstrated by Gaskell. He gives a brief but intelligible account of the nature and functions of the auriculo-ventricular bundle and of the nodes of Keith and Flack and of Tawara, which are regarded as the remains of the primitive cardiac tube in the mammalian heart. The symptoms occurring in cardiac disease are then critically considered, together with their significance and their clinical indications; incidentally Dr. Mackenzie develops his own views as to the nature of visceral pain—viz., that it is of reflex character, referred to other parts. He described it as a viscero-sensory reflex, and maintains that it is often protective in character. To this class of reflex protective phenomena angina pectoris is referred, occurring when the contractility of the heart is opposed by a resistance beyond its capacity.

Instrumental methods of investigation are described in detail, and the two forms of polygraph employed by Dr. Mackenzie are figured and described. The interpretation of the tracings obtained is worked out clearly, more especially in regard to the venous pulse. The various forms of this are described in detail, and the nature and mode of production of the different waves and depressions are discussed in so far as they are known. It is especially in the study of the complex and hitherto little understood subject of arrhythmia that Dr. Mackenzie's method has proved so valuable and instructive, and the analysis and classification he gives of this subject are by far the best with which we are acquainted. The various forms of arrhythmia differentiated at present are as follows: sinus irregularities, extra-systoles, the nodal rhythm, irregularities due to defects in the conducting system, and those due to depression of contractility.

Interesting tracings illustrative of these conditions are given; these are in all cases reproductions of actual records, for Dr. Mackenzie states in his preface that he desires to keep the record of his facts apart from their interpretation, which must be at present tentative. The views he gives represent the present state of his knowledge. He has certainly afforded a scientific and rational method for the study of obscure cases of cardiac irregularity and thrown light upon the nature of many conditions of disturbed cardiac action. The most controversial and difficult of these irregularities is that to which Dr. Mackenzie has applied the term of the nodal rhythm, on the assumption that the contraction of the heart starts at or near the auriculo-ventricular node instead of at the roots of the great veins in the Keith-Flack node as under normal conditions. It is this form of irregularity which most commonly occurs in the majority of cases of severe heart failure. The evidence of its nature, though strongly suggestive, is hardly conclusive and Dr. Mackenzie admits this. The peculiar condition of paroxysmal tachycardia is also discussed, and also a variety of slow rhythm described as nodal bradycardia. A chapter is devoted to the effects of digitalis on the human heart, and here Dr. Mackenzie registers a strong plea for the careful and systematic observation of the action of drugs upon the heart by instrumental methods. A new feature in this edition is a chapter on the electro-cardiogram, by Dr. Thomas Lewis. The Einthoven string galvanometer is described, tracings are reproduced, and their interpretation is discussed.

Dr. Mackenzie's book fully deserves the success it has obtained, and it will doubtless long remain as one of the most original and suggestive contributions to the clinical study of heart disease.

A Practical Study of Malaria. By WILLIAM H. DEADERICK, M.D. London and Philadelphia: W. B. Saunders Company. 1909. Pp. 402. Price 20*s.* net.

THIS treatise is the work of an observant physician engaged entirely in general private practice largely in the home of the severer forms of the disease. When we consider the busy work of a country practitioner and the few moments he can snatch from his arduous labours we can appreciate to the full the hard work that has evolved this exposition of malaria in both its scientific and practical aspects. In order to make the work as complete as possible we see that our author has given especial attention to that "mystic paramalarial syndrome," hæmoglobinuric fever. He also describes for the first time in the English language the parthogenetic cycle of the parasite the significance of which was first noticed by Schaudinn, and which affords the most rational explanation of latency and relapse.

The work opens with the history of the successive steps leading to the discovery of the true nature of the disease, illustrated by the photographs of Laveran and Ronald Ross. Next the facts relative to the geographic distribution of the disease are pourtrayed, and then we come to its etiology. Here we find noted the influence of climate, season, rainfall, soil, topography, altitude, earthquakes and volcanic eruptions, inundations, trees and vegetation, winds, and race, amongst other points. With regard to the endemic index, Ross's dictum of determining the degree of malaria in a given locality by ascertaining the average time in which a newcomer becomes infected is quoted with approval. Native children constitute the class of newcomers most accessible for making the estimate, and thus the percentage of children infected in the locality is the index to the prevalence of malaria in that region. The three modes of infection are then set forth—namely, congenital, artificial inoculation, and inoculation through the bites of mosquitoes, and with regard to the latter a lengthy list of the malaria carriers is given. The facts relative to malaria-bearing mosquitoes as regards their breeding places, their biology and anatomy are illustrated by some beautiful plates; and then the student is instructed

how to investigate this insect. This section is rendered clear by a diagrammatic picture of the cycles of the parasite, whilst there are some very finely executed coloured plates of the various forms.

The vexed question of the etiology of hæmoglobinuric fever receives due attention, and the arguments in favour or otherwise of the three theories as to its nature—that it is malaria, that it is quinine poisoning, and that it is a disease *sui generis*—are set forth. The author, we see, holds that malaria is essentially and solely the predisposing cause, and that in some cases it may act also as the exciting cause. This may be so, but many observers in India state that they have never seen a case of blackwater fever, although they have had under their care hundreds of cases of malaria of all degrees of severity; and the same is also true with regard to the influence of quinine. Sambon, and the facts in our experience cause us thoroughly to agree with him, holds to the third theory, that it is a disease *sui generis*. A chapter on the pathological anatomy of malaria follows, also well illustrated by plates, after which we come to the clinical history of the disease. This is excellent; the varieties given are the simple tertian, the quartan, and the æstivo-autumnal, with its two chief subdivisions, the malignant tertian and quotidian, and lastly, the form of pernicious malaria. The individual symptoms are analysed, and amongst them we find that the writer agrees with the valnable researches on the urine changes formerly shown by Dr. Henry Ralfe. Lastly, this chapter concludes with the subject of hæmoglobinuric fever, chronic malaria, malaria in children, malaria in the negro, and the surgical aspect of malaria.

With respect to the diagnosis of the disease, speaking of periodicity, the author rightly states that quotidian periodicity is worthless, but that tertian and quartan are pathognomonic. There are, however, rare examples to this rule; for example, the case of malignant endocarditis reported by Dr. J. Rose Bradford which exhibited tertian, and a case of trypanosomiasis under Manson showing quartan periodicity. The student is well instructed in the method of making a microscopic examination of the blood. With regard to this examination stress is rightly laid on the fact of the necessity for more than one examination; the procedure is not such an easy performance as some speakers on the subject, themselves evidently never having once investigated the matter, would have us believe. The third test for malaria is the therapeutic: a fever which resists quinine is not malaria. Remarks on the differential diagnosis conclnde the chapter. The remaining portion of the work is occupied with the prognosis of malaria and its prophylaxis, and here the results gained at Port Said and Klang and Port Swettenham are given. The chapter is one of the best in the book. The concluding remarks deal with the actual treatment of the disease.

Dr. Deaderick has produced a work which should hold a place in every medical library.

Travaux du Laboratoire de M. Charles Richet, Professeur de Physiologie à la Faculté de Médecine de Paris. Paris: Félix Alcan. 1909. Pp. 513. Price 12 francs.

To anyone who knows the multitudinous interests in physiological subjects of the genial, learned, and versatile professor of physiology in the Medical Faculty of the University of Paris, it will come as no surprise that Volume VI. of these "Travaux" shonld deal with subjects so diverse as Anaphylaxie, Alimentation, and Toxicologie.

Everyone is familiar with prophylaxis, but its antithesis, anaphylaxis, viz., the curious property possessed by certain poisons to augment, to increase—instead of diminishing—the sensibility of the organism to their action, is a more recent conception. It is exactly the opposite action to that called prophylactic or immunising. In immunising by previous injections the organic sensibility of the organism is diminished. Already anaphylaxis is a familiar word in medical literature. The author has experimented largely with the "venin" obtainable from the tentacles of the sea anemone preserved in glycerine and extracted with water. This filtered extract is very toxic. After repeated injections the subjects become more sensitive to the poison, which, however, appears to consist of two distinct poisons—one "thalassine," which produces urticaria and prnritus, and in moderate doses is not fatal; the other is a toxo-albumin which the anthor calls "congestine." It causes intense congestion of the whole intestinal canal. It produces excessive irritation, vomiting, diarrhœa, and tenesmus, while the fæces are mixed with blood, and post mortem the whole gastro-intestinal mucous membrane is hæmorrhagic.

Professor Richet contributes a second memoir on anaphylaxis, this time by means of a substance obtained from the common mussel, which he calls "mytilo-congestine." A third memoir deals specially with thalassine which he characterises as a "poison pruritogène" which is contained in the tentacles of actiniæ. What is practically an amplification of these researches is the Contribution to the Poisons of Actiniæ, by Aug. H. Perret. The other papers deal with the action of phosphorescent calcium sulphide on lactic fermentation, on the action of minimum doses of substances on lactic fermentation, and on the influence of a free surface on lactic fermentation—all three by Professor Richet.

The papers on Alimentation deal with feeding of tuberculous dogs on raw and cooked meat, which seems to retard the progress of the disease. Similar results have been obtained in the human snbject. Langlois and Desbouis found that the inhalation of the vapour of naphtha or benzol causes "hyperglobulie"—i.e., increase of the red corpuscles up to 15-30 per cent., which seems to be due to increased production of the red corpuscles. Altogether this is an interesting series of researches.

Elements of Pharmacy, Materia Medica, and Therapeutics. By Sir WILLIAM WHITLA, M.A., M.D. R U.I., LL.D. Glasg., Professor of Materia Medica and Therapeutics, Queen's University, Belfast. Ninth edition. London: Baillière, Tindall, and Cox. 1910. Pp. 674. Price 9*s.* net.

THE high standard which the author set in previous issues of this justly popular work has been well maintained. In general arrangement the new edition does not differ from the eighth edition, published seven years ago, but many alterations have been made in the text and new matter has been introduced.

Part I. explains the various operations of compounding and dispensing remedies and the different processes mentioned in the Pharmacopœia for the preparation of its numerous drugs and formulæ. This part, in the present edition, contains two new chapters; these deal with the making of compressed tablets and capsules, in which forms medicinal agents are nowadays frequently prescribed. The chapters on tablet making and capsule making treat of the subjects in a concise and practical manner, and although it is not in the ordinary experience of many medical practitioners to manufacture tablets or capsules, the instructions given should enable them to prepare either form of medication should necessity arise, and in particnlar to judge the merits of the preparations which they buy. Another addition to Part I. occurs in the chapter on weights and measures, in which the new designations, *mil*, *decimil*, and *centimil*, are explained, the *mil* being the eqnivalent to the older term, the *millilitre*, or measure of the volume of one cubic centimetre. Part II. treats of the science of writing and reading prescriptions, and includes a short glossary of

terms and abbreviations used by physicians in ordering remedies. It also deals with the classification of remedial agents and the questions of dosage and incompatibility. Part III. treats of the materia medica of the British Pharmacopœia and the official preparations, and since the 1898 Pharmacopœia formed the basis of this section in the eighth edition of Sir William Whitla's work no material alteration has been necessary in the new edition. Part IV. discusses the pharmacological action of drugs in connexion with their therapeutic indications and uses. This section is of particular value to busy practitioners, and a perusal of the notes on some of the drugs shows that the author has kept his book abreast of the times. In the note on lactic acid the author refers to the properties of the various lactic-acid-forming bacilli and expresses the belief that the best results are obtainable from the home-made koumiss. Part V., the section on non-official remedies, has been largely rewritten, and while a number of remedies have been omitted from the present edition nearly a hundred have been added, 125 pages being devoted to this section. The notes on some of the drugs have been extended (for instance, the notes on glycerophosphoric acid and pyrogallic acid), while an ably written account is included of the new sera and vaccines which will be as instructive to students as it will be useful to practitioners for purposes of reference. The notes on gland substances have also been extended. Synthetic products, like aspirin and urotropine, are treated more fully than in the eighth edition, and others (for example, phenolphthalein) have been introduced. Some of the synonyms and trade names by which various synthetic products are known are mentioned, but with the proviso, in at least one case, that the substances by which these names are covered are probably not absolutely identical.

As a text-book for medical students this work can be recommended as strongly as ever, and as a book of reference practitioners will continue to find it extremely useful.

LIBRARY TABLE

The Conquest of Disease through Animal Experimentation. By JAMES PETER WARBASSE, M.D., Surgeon to the German Hospital, Brooklyn. London and New York: Appleton and Co. 1910. Pp. 176. Price 4*s.* net.—This able defence of so-called vivisection is written down to the level of the scientific knowledge of the average layman, but it is at the same time an accurate historical survey of the results of scientific research, obtained by experiments on animals. The volume will therefore be found most useful to those who wish to stock their minds with well-arranged and trustworthy statements for purposes of defensive argument. The language employed by Dr. Warbasse is occasionally somewhat flowery, but his statements are never exaggerated, and his valuations of the results obtained by experiment are never too highly estimated. Indeed, in many instances they might have been more forcibly stated. For instance, it is scarcely possible to over-value the experimental work of Dr. J. F. D. Jones in 1805 on the ligation of arteries. The results were enormous, though the surgical experiments on animals were very few. The present generation has forgotten them, but surgeons of the two generations just past were well aware of their value, and Sir John Erichsen said (immediately after a reference to Dr. Jones's work), "No subject in surgery affords a stronger evidence of the application of the experimental pathology to practice than this, as our knowledge of it has been wholly gained by experiment on the lower animals." And during every second of every 24 hours arteries are being tied by surgeons all over the globe, and in many cases each such operation represents a human life saved. If such is the numerical outcome of a few experiments made at the end of the eighteenth century, the benefits of which must ever abide with us, who can foresee the results of inoculation methods which are being worked out on animals to-day? The volume before us gives an admirable sketch of the scope of such experiments and the benefits which have been already derived from them. We trust that Dr. Warbasse's volume may have a large sale among the general public, as it will certainly throw light in dark places.

Cleanliness versus Corruption. By Lord RONALD SUTHERLAND GOWER. London: Longmans, Green, and Co. 1910. Pp. 56. Price 6*d.*—This brochure is an appeal in favour of cremation as opposed to burial. It consists chiefly of anecdotes and reminiscences dealing with the horrors of the charnel house and graveyard, addressed to the general public, and the matter presented carries its own case with it. The growth of cremation as a practice in England is very slow, so slow that we welcome any literature which is likely to popularise the method. We may note one very important point from the rules of the Cremation Society of England, which is that life membership may be secured by a donation of five guineas, and that life membership entitles the member to be cremated at death at any crematorium in Great Britain. Such a subscription may be considered an economical investment.

Pocket Therapeutics and Dose Book. By MORSE STEWART, B.A., M.D. Fourth edition, revised. London and Philadelphia: W. B. Saunders Co. 1910. Pp. 263. Price 5*s.* net.—As this little work has reached a fourth edition we presume that readers have found it useful, and as a means of refreshing the memory as to doses we can imagine that it would be so. Except for the dose-table, however, the remainder of the book is of little value unless as a cram book. The translations and expansions of Latin abbreviations and terms are in many instances very inaccurate. Thus the abbreviation "Concut." is expanded into "Concuti" and said to mean "shake," which it certainly does not mean. "Div." is said to mean "Dividendus" and this again to mean "Divide," while "Quat. in die" is expanded into "Quatuor in die" and translated as "four times a day." Dr. Stewart should see to these errors in his next edition.

The Pharmaceutical Pocket Book, 1910–1911. Edited by JOHN HUMPHREY. London: The Pharmaceutical Press; and Simpkin, Marshall, Hamilton, Kent, and Co., Limited. Pp. 412. Price 3*s.* 6*d.* net.—This is a most handy little book which should prove of use to all students of pharmacy as well as to pharmacists. The general directions as to the science and art of dispensing are good and clear, while the Latin of abbreviations and the translations thereof are correct. The only portion of the book which we think might be improved is the section on the analysis of a mixture of a solution of metallic salts. This section appears to us needlessly involved, both as regards the tabular statement and the text. Other portions of the book consist of tables of various sorts, such as physical constants, tables of freezing mixtures, thermometric tables, weights and measures, notes on photographic matters, a small dictionary of pharmaceutical synonyms, and a valuable section on the training of pharmacists.

A Graphic Atlas of the World, with General Index. Edited by J. G. BARTHOLOMEW. London: John Walker and Co., Limited. 1910. 128 maps and plans, with 139 pages of index. Price 5*s* net.—The world has now grown so small by reason of the growth of intercommunication that there are very few places left from which news does not arrive, if not day by day, at least week by week. This being so, an atlas is a necessity for anyone who wishes to keep himself in touch with the doings of his fellow creatures, and the work now before us is an admirable specimen of its class. Two maps of special interest are

hose showing the North and South Polar regions. In the ormer we note that Cook is credited with having reached he Pole in April, 1908, as well as Peary in 1909, an entry vhich certainly needs modification. Considering the small ›rice charged, the atlas is a wonderful publication. It ›ontains an astonishing amount of names, and even the ›mallest can be easily read, thanks to the clearness of the ›rinting.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XL., No. 5, July 1st, 1910. London and Edinburgh: Cambridge University Press. Price 6*s*.—The contents of this number are: 1. The Influence of Oxygen Inhalations on Muscular Work, by Leonard Hill and Martin Flack, from the Laboratory of the London Hospital Medical College. 2. A New Form of Blood Gas Pump, by G. A. Buckmaster and J. A. Gardner. The apparatus is a modified Topler pump. The advantages claimed for it are: the absence of all taps and joints; that if due precautions are taken there is no possibility of a leak, and hence that the figures obtained are absolute values; that the apparatus can be cleaned, sterilised, and put together again with facility; and that it is inexpensive. 3. The Diastolic Filling of the Mammalian Heart, by Hermann Staub, Dr. Med., from the Institute of Physiology, University College, London. 4. The Heat Produced in Contracture and Muscular Tone, by A. V. Hill, B.A., Trinity College, Cambridge, George Henry Lewes Student, from the Physiological Laboratory, Cambridge. The author finds that the heat production occurring at the normal twitch of the skeletal muscle of a frog, for the determination of which he has devised a special apparatus, a drawing of which is given, is almost instantaneous. Yet prolonged heat production lasting sometimes for several minutes is seen in many instances. In other cases, when the muscle has been left unstimulated for some time, a shock may even set up a permanent constant heat production, but then contracture or prolonged contraction is always present; probably therefore prolonged heat production causes prolonged contraction. There is every reason for believing the heart is analogous to a muscle stimulated at regular intervals. 5. On the "Heat Coagulation" of Proteins, by Harriette Chick, D.Sc., assistant, Lister Institute of Preventive Medicine, and C. J. Martin, M.B., D.Sc., F.R.S., director of the Lister Institute of Preventive Medicine. The main conclusion arrived at by the authors of this article is that "heat coagulation" is not purely a heat effect, but that it is a reaction between protein and water, the effect of temperature being merely to accelerate the reaction. 6. On the Rhythmical Contractility of the Anal Musculature of the Cray-fish and Lobster, by F. R. Miller, B.A., M.B., demonstrator of physiology in the University of Toronto. This number contains also the Proceedings of the Physiological Society for June 18th, 1910.

Annalen für das gesamten Hebammenwesen des In- und Auslandes. (*Annals for Midwifery in Germany and Abroad.*) Edited by Professors DIETRICH, KOBLANCK, WINTER, and Frau OLGA GEBAUER. Berlin: Elwin Staude. Quarterly. Yearly subscription, M.10. 1910. Band I., Heft 1.—This new quarterly review has been founded and published at the request of the German Association of Midwives. For a long time it has been felt by those interested in these questions that there existed a definite want of a paper to deal with questions affecting midwifery as practised by midwives. At the present time there is no publication which gives any information upon such important matters as the current legislation, statistics, regulations dealing with midwives, and the proceedings of the midwives of various countries. This want has been more especially felt by those whose duty it is to prepare statistics on economical and professional questions concerned with the practice of midwives. The *General German Midwives Gazette* does not concern itself with these matters, but is written more especially for midwives themselves. In order to fill this vacancy the editors have published these Annals, which will appear quarterly, and which will be devoted entirely to the consideration of the many administrative and other problems connected with the training and supervision of midwives. In view of the fact that these questions are really of international importance, it is proposed to publish articles not only in German but also in English and French, and on special occasions even in other languages. The original German articles will be accompanied by a short English and French summary containing all the salient points, so that they may appeal to a wide circle of readers. The midwives question is one of increasing importance, and this review will undoubtedly be a very valuable publication. In the present number Professor Dietrich contributes an article on Midwife Reform in Prussia, in which he gives a sketch of the historical development of the midwives in Prussia and enters into the details of the conditions at present prevailing. He shows that the training and supervision of the midwives are far from perfect, and that their material position and their security against want in old age are entirely inadequate. The Prussian Government has taken the question up and has instituted a number of reforms and regulations for the better training and examination of the midwives. It has also arranged that midwives should return to their training schools for further teaching after the first ten years of their practice and then every five or six years, and has also rendered the supervision of their work by the district physicians more effective. It has arranged, also, that the scale of fees shall be increased, and that in cases of invalidity a midwife shall be able to invoke the assistance of the professional relief funds of the Society of German Midwives. A short account of the Reforms in the British Midwifery Profession is contributed by Mr. H. Walter, the English summary of which contains a number of errors. It is to be hoped if the editors give summaries in English of articles written in German that they will see that they convey the meaning of the original article correctly. This review should prove of much value to all those who are interested in this question, but the value will depend to some extent on the accuracy of any translations that are made.

Archives of the Roentgen Ray.—With the June number of this publication is commenced a new volume—the fifteenth. It appears somewhat altered in form, and we think the alteration will meet with the full approval of its readers. It must be admitted that the former size of the paper was an awkward one for reading, for storage, and for carriage, but that size was chosen in the early days of Roentgenography so as to permit the reproduction of a full-sized plate. This is no longer of any importance since the improved skiagrams of the present day will yield reproductions on a smaller scale and yet give sufficient details. In its new form the changes in our opinion are all for the better. The *Archives* has now the same sized page as our own, and the principal articles are printed in single-column pages with a large clear type. Among the articles in the present number we notice an editorial dealing with the question of radio-vaccination, in which the editor points out that many observed effects of treatment by radium, X rays, and other radiations can only be explained on the assumption that the process brings about a true vaccination, "a carrying into the lymph channel of a toxin produced by a local pathological process." Although the term is not a happy one, from the evidence there seems sufficient reason for investigation being made

in this direction. A very interesting paper is furnished by Dr. C. Kaestle, Dr. H. Rieder, and Dr. G. Rosenthal entitled, "The Bioroentgenography of the Internal Organs." In this the authors describe their methods of taking kinematograph pictures of the movements of the stomach and intestines. Their apparatus is capable of taking four full-sized plates per second, and a study of the plates that are reproduced throws an interesting light on the movements of the stomach, especially near the pylorus. Those specially interested in gastric disorders should read this paper, since the results there recorded tend to upset many ideas formerly held. Dr. Leopold Freund, of Vienna, gives a very complete paper on the Roentgen Treatment of Goitre. He narrates his own experience in 23 cases, besides quoting the experiences of others. Passing on to the July number, just issued, we find a paper by Dr. Franz M. Groedel on Recent Advances in the Roentgen Diagnosis of Diseases of the Stomach and Bowels, which is a useful addition to the paper referred to in the June number, and is illustrated with excellent plates and diagrams. Dr. M Nagelschmidt contributes an extensive paper on the Thermic Effects Produced by High Frequency Currents. This subject of "thermo-penetration," as it is called, attracted a great deal of attention at the recent Paris Congress on Physiotherapy. By means of this method it is possible to raise the temperature of the tissues to any desired degree, and this is done by generating the heat within the tissues and not by conduction from without. We understand that arrangements are being made for the author of this paper to give a demonstration of the method in London during the autumn. Running through both numbers is a summary of the proceedings of the Paris Congress on Physiotherapy, and also reports of societies, reviews of books, notes and abstracts, &c., keeping the paper up to the high standard it has always aimed at. The illustrations are all that could be desired.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

A QUARTERLY meeting of the Council was held on July 14th Mr. H. T. BUTLIN, the President, being in the chair.

The PRESIDENT reported the result of the meeting of the Fellows for the election of four members of Council, as already reported in THE LANCET.

Mr. Lockwood, Mr. Pollard, Mr. Ballance, and Mr. Bland-Sutton were introduced, made declarations in the terms of the oath prescribed by the Charter of 1800, and took their seats on the Council.

A letter was read from the Secretary of State for Home Affairs conveying the King's thanks for the loyal and dutiful Address of the College on the occasion of the lamented death of His late Majesty King Edward VII.

The PRESIDENT announced that His Majesty the King had graciously consented to continue to be an Honorary Fellow of the College.

It was resolved, in accordance with the recommendation of the Museum Committee, that the "Guide to the Museum" shall be offered for sale at 6*d*. per copy. It was also resolved that a collection of medico-legal specimens be formed in connexion with the Museum of the College.

The best thanks of the Council were given to Sir John Tweedy for his gifts of books, including some rare editions of the fifteenth century.

The best thanks of the Council were given to Mr. Stephen Paget for presenting the late Sir James Paget's notes of lectures and various manuscripts.

The names of two Members of the College who had previously been removed from the Medical Register were removed from the roll of Members of the College.

The PRESIDENT stated that the conservator of the museum and the pathological curator would conduct members of the British Medical Association over the museum on Wednesday, July 27th, between 4 and 6 o'clock.

Mr. Butlin was re-elected President and Mr. Clement Lucas and Mr. Mansell Moullin were appointed Vice-Presidents.

The following lecturers were appointed:—Arris and Gale lecturer: Dr. G. Elliot Smith, three lectures on the History of Mummification. Erasmus Wilson lecturer: Mr. S. G. Shattock, six demonstrations on Advanced Surgical Pathology. Arnott demonstrator: Dr. Arthur Keith, six demonstrations of the Contents of the Museum. Hunterian professors: Dr. Arthur Keith, six lectures on the Anthropology of Ancient British Races, illustrated by the Museum collection; Dr. F. W. Edridge-Green, two lectures on Colour-vision and Colour-blindness; Dr. Walter d'Este Emery, two lectures on the Immunity Reaction in Relation to Surgical Diagnosis; Mr. Kenneth W. Goadby, one lecture on the Association of Diseases of the Mouth with Rheumatoid Arthritis and certain Other Forms of Rheumatism; and Mr. Benjamin Moore, one lecture on New Views on the Chemical Composition and Mode of Formation of Renal Calculi.

The next ordinary meeting of the Council will be held on Monday, July 25th.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.

A COUNCIL meeting of this association was held at 34, Copthall-avenue, London, E.C., on July 14th, Mr. D. B. BALDING being in the chair. He was congratulated by the members present on his recovery from his recent accident.

A notable instance of the inequitable manner in which district medical officers are frequently treated by the guardians came up for consideration. A member of the association had been notified by his board that it proposed to put on to his district, without additional remuneration, a portion of his colleague's, who had applied for an increase of salary on account of the great increase of work. The guardians recognised the justice of this claim, but instead of acceding to their officer's request, decided to relieve him at the expense of his colleague. The latter's work had also increased, but not in the same proportion, but he was now doing much more work than in former times, and his salary was the same as it had been during the last 30 years. The council advised an appeal to the Local Government Board if the redistribution were insisted upon, and resolved to use all the influence of the association in the member's behalf.

The council next considered the agenda for the special meeting of the association arranged for Friday, July 29th, at 4 P.M., in the council chamber of the British Medical Association. After some discussion it was decided that the time should be devoted to the following resolutions, the consideration of which was adjourned from the annual meeting at Halifax on July 1st to a subsequent meeting of the association:—

(1) That it is not desirable that there should be a "break up" of the present Poor-law system. That proper reform of existing institutions would be better for the welfare of the sick poor and the good of the nation.

(2) That any system in which *free* medical relief is given subject to no other condition than the *subsequent* recovery of the cost from all able to pay would be pauperising to the nation and ruinous to the interests of all medical practitioners in poor districts.

(3) That except in urgent cases some *test*, such as the present medical order, should be required of *all* applicants for State medical relief.

(4) That there are no logical grounds for drawing any distinction between medical and other relief when granted by the State.

(5) That the medical treatment of paupers or State patients by provident institutions is strongly to be condemned. That what is done for the State should be paid for by the State *at an equitable rate*. That the payments accepted at provident dispensaries in order to encourage individual thrift cannot form any sound basis for State payment for the medical charge of the destitute.

(6) That a system of "part time" is better for the interests of the sick poor. That it is better for the latter to be attended by the same doctors as the rest of the community, rather than by officials appointed to attend only on the poor. That a system of "part time" medical officers lessens the distance that has to be traversed by applicants for medical relief, a matter of great importance in country areas.

(7) That the Poor law Medical Service, however it may be coördinated with the Sanitary Medical Service, should be kept separate from the latter.

The Astley Cooper Prize for 1910 has been awarded to Professor E. H. Starling, F.R.S., for an essay upon the Physiology of Digestion, Gastric and Intestinal.

THE LANCET.

LONDON: SATURDAY, JULY 23, 1910.

The Work of the Imperial Cancer Research Fund.

THE Annual Report of the Imperial Cancer Research Fund was presented at the ninth meeting of the general committee on July 20th, and, as will be seen by references to our account of the general meeting of the Fund, exhibited many points of interest and hope for the future. We are glad to see that although the expenses during the year exceeded the income from interest on capital by more than £1600, yet there remained a balance to the good, because the contributions towards the general fund during the year were larger than in previous years, and because no expense has been incurred in the publication of a scientific report during the year. We have mentioned the financial aspect of the Fund first, because sufficient funds are essential for the proper prosecution of the study of malignant disease. The increase in receipts also shows that the public are appreciating more the value and the importance of the work of the Fund. It is to be hoped that further and ample financial assistance will be given, so that the study of this most important disease may be continued without hindrance. Cancer is still a terrible mystery, but assiduous research is shedding light on dark places. The work must be steadily and hopefully continued, and just as the awful evils to be combated are evident, so is it evident that a sequence of scientific labour can only be maintained at heavy expense.

It is a little difficult to select from the extensive work carried out by the director of the Fund and his assistants that which is of the most importance and interest, for in one way and another everything that has been done carries us farther in the direction of attaining to a complete knowledge of cancer. The question of the heredity of malignant disease has always excited much attention, and till a few years ago it was firmly held that cancer was distinctly hereditary; but statistics, when carefully examined, failed to substantiate this view. It will be therefore of no little interest to learn the results of the breeding experiments which have been made in the laboratories of the Fund, and we see in this respect the great advantage of employing short-lived animals for studying the possible influence of heredity. The breeding experiments have now been in progress for five years, and nearly 2000 animals of known age and ancestry have been obtained. The numbers are accordingly sufficiently great to permit of exact analysis for ascertaining the influence of ancestral constitution; and it has been found that in cases where malignant disease has occurred both in a mother and in her offspring the figures show a higher incidence in those born before the mother developed the disease than in those born after. These statistics are clearly and strongly opposed to the idea of contagion, but the director is prudent enough to draw no hard-and-fast deductions from them. The situation is put out as one of interest, and those who read are at liberty to draw their own conclusions. Another question of great general interest has been dealt with—viz., the relation of the tumour to the organism primarily attacked. A number of experiments are recorded which serve to elucidate this relationship in an interesting manner. The transplantation of a spontaneous tumour into the same animal is shown to be almost invariably successful, although transplantation into other animals of the same species may fail in a large number of cases; and this difference obtains whether the other animals are normal, either old or young, or even if cancerous. Thus, in 55 re-inoculations of affected animals with their own tumours the results in all cases but one were positive, whereas in 77 inoculations of spontaneous tumours into other spontaneously affected mice only five positive results were obtained. If transplantation of a spontaneous tumour be practised under the most favourable conditions, the successes rarely reach 30 per cent. From observations such as these we must conclude that animals naturally the subject of cancer do not suffer from it because they present a soil uniformly favourable for the disease, but rather because the circumstances associated with the appearance and growth of cancer are, in each case, peculiar to the individual attacked, which circumstances need not be similar to those existing in another individual. Moreover, the experiments go far to prove that the cancer cell, though highly dangerous to the individual in which it arises, is relatively harmless to other individuals.

It is noteworthy that both for spontaneous tumours and for tumours which can be propagated it has been shown that young animals afford a more suitable soil for transplantation than do older animals, although the latter are much more prone to develop cancer naturally. Tumours growing in a living animal can be protected from all outside influences, and when they are propagated in large numbers of young mice of the same strain, the conditions can be made as constant as it is possible to devise. It is therefore interesting to note that the tumour cells possess a relative constancy in their general biological properties, but at the same time exhibit an inherent tendency to vary, in spite of the constancy of the environment, and therefore, apparently, for reasons independent of it. A large proportion of the work of the Fund has been devoted to the reactions conferring resistance to the transplantation of cancer, to those reactions responsible for the disappearance of transplanted tumours, and to the natural cure of spontaneous malignant growths. It is now possible in mice, under given experimental conditions, to prevent a secondary transplantation for certain tumour strains. This result has been obtained by inserting between the primary and secondary transplantations an inoculation of a very rapidly growing tumour showing only transitory growth. A similar result can also be obtained by the implantation of tumours growing much more slowly, and liable to spontaneous absorption, as well as by an inoculation of normal mouse-tissue. By similar methods the growth of the primary transplanted tumour may be greatly hindered or even brought to a standstill. These results must not be confounded with successful vaccination against spontaneous cancer, for animals perfectly

protected against the repeated inoculations of cancer may develop tumours of their own. It must also not be forgotten that these results obtainable in mice cannot be looked upon as applicable directly to the human subject. They are enormously suggestive, but do not, at any rate in our opinion, point the way as yet to practical therapy. The experiments have fully shown that the problems presented by spontaneous tumours are far more difficult than those of transplanted cancer, for the methods successful in preventing or retarding the growth of transplanted tumours have been utterly without action on the continued growth of spontaneous tumours.

From what we have said, as well as from Mr. BALFOUR'S eloquent exposition of the matter at the annual meeting, reported elsewhere, it is clear that progress has been made; definite ideas are being obtained as to the conditions under which malignant tumours grow. The continuation and the extension of the work of the Fund are in consequence urgently called for, and we trust that the public, obtaining this assurance from medical men, will facilitate by their purses the efforts of the Fund. In addition to Dr. E. F. BASHFORD, many distinguished men have been working in the laboratories of the Fund, and many of them have come from foreign countries; while in support of its international character the Fund continues to distribute tumours and other material for investigation to many laboratories abroad as well as at home. The value of the work done by the Fund is shown by the fact that several of the foreign workers in the laboratories have, at the termination of their labours here, received important pathological posts abroad. The Imperial Cancer Research Fund fully justifies its existence, and if it be supported as it should be, we may look forward with confidence to the results which it will achieve. And a demand for patience, which Dr. BASHFORD does not make but which we may make for him, is legitimate. The problem is a vast and complex one, and the road to the truth has to be hewed through obstacles of many kinds.

Medical Education in the United States of America.

THE standard of medical education has changed greatly within the last hundred years, and the improvements in teaching have been enormous, but even at the present day notable differences exist in the quality of the teaching given at different schools of medicine, and perhaps even greater differences are to be found in the equipments of the various schools. The process of levelling up has for years proceeded in this country, but even with us the standards attained by different schools are not identical, although the General Medical Council prevents gross disparities; while vast variations undoubtedly exist amongst the medical schools of the United States of America. This has been brought out by the Carnegie Foundation for the Advancement of Teaching in a manner which has proved too frank for some susceptibilities.[1] Some five years ago, it may be remembered, the Carnegie Foundation was established and provided with an endowment for the purpose of increasing the salaries of teachers in the colleges and universities of the United States. The remuneration of the instructors in higher education is nearly everywhere absurdly small, and the value of such an endowment, if properly administered, should be great. A difficulty, however, immediately confronted the trustees, for it was recognised that under the name of colleges many institutions existed which were concerned mainly with secondary education, and not with truly professional or technical instruction. In fact, we are told that this is true of a large majority of all the institutions in the United States bearing the name of "college." In conditions such as these the trustees of the Carnegie Foundation, before making grants to teachers in pursuance of the terms of the Trust, felt themselves compelled to institute an inquiry into the work of the colleges and universities in the area with which they had to deal. The trustees have accordingly published a report detailing the results ascertained during a visit to 150 different medical schools, a report which will prove of great value both to the institutions concerned and to the public. Medical education is a matter in which the public have every reason to be deeply interested, and the more information on the subject that can be supplied to the public the less hold will quackery have upon them. We can believe that some of the institutions have resented the curiosity of the trustees, but this was inevitable. A similar inquiry into the state of medical education in Great Britain, France, and Germany is to be made, so that experiences and performances in medical education may undergo international comparisons.

This study of the transatlantic medical schools has shown that for the last 25 years past there has been in the United States an over-production of uneducated medical practitioners, in utter disregard of the public welfare. When it is stated that in the United States there are four or five times as many medical men in proportion to the population as there are, for instance, in Germany, it is clear that the number of medical men is unnecessarily large. Many of the men are ill-trained, and this is mainly due to the existence of a very large number of medical schools started for the purpose of earning a profit for their founders, and supported by advertisements, by which young men are seduced from industrial occupations into the study of medicine. Until a short time ago it was possible for the managers of a medical school to derive no small amount of gain from it, and still, perhaps, do their duty by their pupils and the public, for the instruction was mainly given through lectures and the working expenses were small. But, as the need for laboratory work has become more keenly felt, the expenses of any medical school worthy of being called efficient have greatly increased. It is obvious that many of the medical schools in the United States must be inefficient, for nearly half of them have an income of less than £2000 a year each. It is the opinion of the trustees of the Carnegie Foundation and their advisers, from the consideration of the facts contained in this report, that true progress in medical teaching in the United States will require a smaller number of schools, but they will have to be much better equipped than are the majority of schools at present. So far as the public are concerned, it would be better that fewer physicians should be graduated every year, but they should be better educated and better trained. For one great disadvantage under which medical education

[1] THE LANCET, July 9th (p. 137) and 16th (p. 181), 1910.

labours in America—and it is not entirely unknown here—is the unsatisfactory state of the preliminary education of the medical student. Medicine is now so complex a subject, and it depends so greatly on other sciences, that a student who enters it ill-provided with general knowledge is heavily handicapped in his professional studies, though teachers all over the world are perplexed in attempting to decide where general education should stop and professional education begin. Even in the short time, however, during which the Carnegie Foundation has been acting some beneficial results have been attained in the country of its origin. Some colleges, finding themselves unable to carry on a medical school on the lines required by the present state of medical science, have decided to discontinue their medical department, and in other cases, where two ill-provided and competing schools have little more than managed to exist, they have united into a single school, far better qualified to fulfil efficiently the function of medical education.

The difficulties in the future are great. Every one of the United States possesses the right to make what laws it chooses for the instruction and examination of medical stndents, and to this fact must undoubtedly be attributed the large number of medical schools existing. For instance, in the State of Illinois there are 14 distinct medical schools, and Missouri has 11. When the public are more alive to the importance of the proper training of medical men, they will insist on the sufficient equipment of all medical schools. It is difficult to imagine the lack of facilities for teaching which were discovered in some of the colleges by the visitors from the Carnegie Foundation. In many we hear that anatomy is taught almost entirely by tutorial classes, or "quiz-classes" as they are called; subjects for dissection in some cases are utterly wanting, and in others they are provided in such small numbers as to be of very little value. Not infrequently, we are told, "the school skeleton" is defective, and the students possess no "bones" of their own. In physiology the teaching is in a majority of the colleges confined to lectures, and practical work is nnknown. Sometimes some new physiological apparatus is shown, but it has been bought merely to satisfy the requirements laid down by the law and is unused. Chemistry appears to be equally nnprovided for; we hear of absence of running water at the desks and of a single set of reagents being provided for a whole class. In the teaching of pathology very little use is made of necropsies. We are told that at one college the students witness a "few" necropsies in the course of the year; at another "four or five" are to be seen. Bacteriology is also much neglected. In clinical teaching there appears to be great need for reform. In many instances the student has nothing personally to do with the cases; he merely listens to what is said about them. In many of the colleges clinical facilities are almost wanting, in others only a few beds are available. In one "medical university" we learn that the top floor of the building is the "hospital," and when it was inspected it contained only two patients. Sometimes the clinical opportunities depend on a certain lecturer, and if he resigns from the school the beds under his authority can no longer be used for the instruction of the classes. The out-patient departments, or "dispensaries," as they are usually called, are often very thinly attended, which is excellent hearing in one way, as it points to the fact that, at any rate away from the great centres, the question of hospital abuse is not so acute in the United States as it is with us. But the position has its educational difficulties. For instance, at one school the visitors were told that there was "a dispensary room, and almost every day someone comes." When in spite of these inadequate provisions we learn that the examination results are often exceedingly good, it is obvions that the examinations fail in being not sufficiently practical.

As has been said, and as might have been guessed, the report of the trustees of the Carnegie Foundation has given offence in some qnarters, but recognising, as we do, the splendid work that is done in the leading medical schools of the United States, we cannot help believing that such drastic criticism will do good. We have referred mainly to the schools in the United States in our remarks, but the position is similar in Canada, where the smaller schools offer a medical education that may undoubtedly prove a serious danger to the public, but where the two great schools, McGill and Toronto, are deserving of the high praise accorded to them.

Industrial Perils.

THE report of the Departmental Committee appointed to inquire into the dangers attendant on the use of lead in the arts and industries, and into the question also of injury to health arising from dust in the manufacture of earthenware and china, was issued within a short period of the publication of the annual report of the Chief Inspector of Factories and Workshops for the year 1909. It will therefore be convenient to consider both reports simultaneously. The report upon the use of lead compounds in pottery is a highly interesting document, in which the question of lead poisoning is dealt with at very considerable length, and the statistics which the committee had before them showed a very marked decrease in the number of cases for the year 1909. In 1896 there were 432 cases reported in the United Kingdom. In 1908 the number was 117, and in 1909 it had fallen to 58. The committee came to the conclusion that lead poisoning was largely to be accounted for by defective conditions of labour, espccially when not associated with adequate exhaust draughts. Undue pressure of work was also held to be an important factor in producing an outbreak of the disease, while the report also mentions that the committee arrived at the belief that the susceptibility of any class of workers to contract lead poisoning was, without doubt, enhanced by any insufficient nourishment of the physical system. On this account Dr. A. A. HILL, one of the medical witnesses, in his evidence referred to poverty as predisposing to attacks of plumbism. Sir THOMAS OLIVER and other witnesses, carefully selected for expert knowledge, strongly advocated the provision of milk to workers in lead processes before they commenced their morning shift. The necessity of this had, it was stated, been recognised by certain mannfacturers, who had voluntarily made this provision for years. The committee made many recommendations dealing with the medical

examination of lead-workers. It was thought, for example, that opportunities should be given to certifying surgeons to obtain in difficult cases the assistance of specialists, approved and remunerated by the Home Office. Questions of ventilation, and overalls, and head-coverings were considered, as well as such large matters as the effect of work in lead processes on women and its connexion with miscarriages. A proposal for a further period of abstention from work after child-birth gained approval. Other matters dealt with included the temperature of work-rooms, sanitary arrangements, inquests on fatal cases of lead poisoning, inspection, and supervision. One of the most interesting recommendations which was formulated concerned the use of milk, on the value of which so much stress had been laid by certain witnesses. A rule was proposed that a supply of that article should be provided for all women and young persons working in scheduled lead processes who commenced work before 9 A.M.

In his annual report, Dr. B. A. WHITELEGGE, the Chief Inspector of Factories and Workshops, refers to the work of this Departmental Committee, and regards the remarkable reduction in the returns of lead poisoning in the period 1908–09 as being due to their appointment. The committee began their inquiry in July, 1908, and it is difficult to avoid the conclusion, Dr. WHITELEGGE writes, that this led at once to increased attention to the risks of the workmen, to better measures for preventing risk, and to closer supervision of the daily and hourly details upon which the efficiency of all such precautions largely depends. Dr. WHITELEGGE'S bureau is itself an example of the value of constant supervision. For example, amongst other official reports the results of which the Chief Inspector summarises is that of the Humidity Committee appointed to suggest recommendations as to the relative degree of moisture in humid textile factories consistent with a healthy environment. These recommendations are, however, not yet to hand, but in a preliminary report a statutory limit for the reading of the wet-bulb thermometer and a simpler requirement as to the minimum difference between the wet- and dry-bulb readings are foreshadowed. Whatever standards may ultimately be proposed, there is evidently a need for a simple and accurate form of hygrometer which can be read by unskilled persons. Further reports deal with the recommendations of the Coroners Committee bearing upon work of the factory department, the inquiry by Dr. S. MONCKTON COPEMAN for the Local Government Board into the dangers arising in the transport and storage of ferro-silicon, and the work of the factory inspectors in connexion with the investigation made by Dr. REGINALD A. FARRAR with regard to the manufacture and sale of rag flock. All these matters have been dealt with in our columns at various times, and particularly when the official reports were published, while Dr. WILSON HAKE'S article on the poisonous gases of ferro-silicon, which will be found in another place in this issue, confirms in every way the regulations suggested by Dr. COPEMAN, and now substantially adopted by the Board of Trade. Dr. WHITELEGGE refers to an interesting point in connexion with the proposal to enforce the washing of dirty rags. This process if adopted would, he says, obviously improve the conditions under which the rags are handled in factories by removing or lessening the dust. The suppression of dust in various industries has received considerable attention, and it is interesting to note that in the campaign against injurious dust two important advances were made in 1909, one directed to the rapid and accurate quantitative estimation of dust and the other to the devising of improved means of exhaust for its removal.

An interesting innovation this year in connexion with factory legislation has been the exhibition, in response to an invitation from the Belgian Government, of recent advances made in connexion with the Factory, Mine, and Explosives Departments of the Home Office, at the International Exhibition at Brussels. Some of these exhibits will be shown again at the Turin Exhibition in 1911, and it is hoped that they will form the nucleus of a permanent collection similar to the museums of safety appliances already existing at certain of the leading continental cities.

Annotations.

"Ne quid nimis."

ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THE seventy-eighth annual meeeting of the British Medical Association will be held in London next week under the presidency of Mr. H. T. Butlin, President of the Royal College of Surgeons of England, consulting surgeon to St. Bartholomew's Hospital. On Tuesday Mr. Butlin will deliver his presidential address in St. James's Hall, Great Portland-street, at 8.30 P.M.; on Wednesday Dr. J. Mitchell Bruce will deliver the address in Medicine; and on Thursday Mr. H. G. Barling will deliver the address in Surgery. The two latter addresses will be given at 12.30 P.M. in the buildings of the University of London, South Kensington.

The work of the sections has been arranged for Wednesday, Thursday, and Friday, and will be conducted in the Imperial Institute, commencing at 10 o'clock each morning. The sections, which number 21, are as follows: Anæsthetics, Anatomy, Bacteriology, Dermatology, Diseases of Children, Gynæcology and Obstetrics, Laryngology, Medical Sociology, Medicine, Navy, Army, and Ambulance, Odontology, Ophthalmology, Otology, Pathology, Pharmacology and Therapeutics, Physiology, Psychological Medicine, Radiology and Medical Electricity, State Medicine, Surgery, and Tropical Medicine.

The Pathological Museum will be held in the Elementary Physics Laboratory, South Kensington, and the exhibition of foods, drugs, instruments, &c., in the Great Hall and West Gallery of the Imperial Institute. Religious services will be held on Wednesday in Westminster Abbey (at 3 P.M.) and in Westminster Cathedral. The annual dinner will take place on Thursday, at 7.30 P.M., in the Connaught Rooms, Freemasons' Hall, Great Queen-street. There will be a conversazione at the Guildhall on Wednesday, at 8.30 P.M., and a reception by the Metropolitan Counties Branch at the Natural History Museum, on Friday, at 9 P.M. Garden parties are also arranged, as well as a ladies' dinner on Thursday, at the Hotel Cecil, Strand.

FERRO-SILICON.

THE dangers of ferro-silicon are clearly set forth in a communication to our columns this week by Mr. H. Wilson Hake, who has made a careful experimental investigation on behalf of the Local Government Board of the properties of this curious alloy. It is well that Mr. Hake has been able to draw definite conclusions in regard to the nature and origin of the poisonous emanations from this substance, inasmuch as its application to steel manufacture is increasing year by year, the present demand for it amounting to about 4000 tons, which are imported into England from France. It is desirable, therefore, that some precautions should be enforced in regard to the handling, transport, and storage of ferro-silicon. Certain recommendations have already been issued in a report issued as a supplement to the report of the medical officer of the Local Government Board for 1908-09 which relate to these points. As Mr. Hake explains, the demand for ferro-silicon has arisen because its addition to steel imparts to it, among other valuable physical properties, a high tensile strength when present to the extent of rather less than 1 per cent., together with small proportions of carbon and manganese. Silicon steels are used amongst other applications for motor-car construction. The compound ferro-silicon is in reality a means of incorporating the element silicon into steel. It is made by heating together in an electric furnace steel turnings, quartz, and coal, the proportion of iron varying according to the grade of ferro-silicon required. The coal reduces the quartz to silicon, which then forms an alloy with the iron. There is no reason for believing that absolutely pure ferro-silicon or iron silicide has any poisonous property in the same way that the crude substance has. In other words, the poisonous emanations of commercial ferro-silicon are due to impurities, arsenical and phosphoretted gases, derived from the ingredients used in its manufacture. Calcium phosphate, which is present in the coal and quartz used, becomes, as Mr. Hake points out, reduced to calcium phosphide; arsenic, which is present in both coal and iron, appears as calcium arsenide. The former gives phosphoretted hydrogen in contact with water or moist air, and the latter arseniuretted hydrogen, both of which are intensely poisonous gases. The volume of gas given off varies, and Mr. Hake finds that certain low-grade ferro-silicons containing from 10 to 35 per cent. of silicon yield on an average 0·2 cubic foot per ton, while certain high-grade ferro-silicons containing from 70 to 96 per cent. of silicon yield from 2·1 to 5·7 cubic feet per ton. Intermediate grades containing from 42 to 52 per cent. of silicon yield the largest amount of poisonous gases—namely, from 2·1 to 16·8 cubic feet per ton. When, as Mr. Hake points out, it is remembered that phosphoretted hydrogen acts fatally if present in so small a quantity as 2½ volumes of the gas in 10,000 volumes of air, and that arseniuretted hydrogen is scarcely less dangerous, it will be seen that the atmosphere of a cabin on board ship might, under certain conditions, very rapidly assume a toxic character if ferro-silicon forms a part of the cargo, and that this can occur has been sadly demonstrated by fatalities already placed on record. It is to be hoped, therefore, that the precautions recommended in the report made on behalf of the Local Government Board by Dr. Monckton Copeman and officially adopted by the Board of Trade will be carefully regarded. They are as follows:—

1. Ferro-silicon should not be sent out from the works immediately after manufacture, but, after being broken up into pieces of the size in which it is usually sold, should be stored under cover, but exposed to the air as completely as possible, for at least a month before being despatched from the works.

2. Manufacturers should be required to mark in bold letters each barrel or other parcel of ferro-silicon with the name and percentage grade (certified by chemical analysis) of the material, the name of the works where it is produced, the date of manufacture, and date of despatch.

3. The carriage of ferro-silicon on vessels carrying passengers should be prohibited. When carried on cargo boats it should, if circumstances permit, be stored on deck. If it be considered necessary to store it elsewhere, the place of storage should be capable of being adequately ventilated, and such place of storage should be cut off by air-tight bulkheads from the quarters occupied by the crew of the vessel.

4. This regulation should apply to the transport of ferro-silicon on river or canal barges as well as on sea-going vessels.

5. Storage places at docks or at works where ferro-silicon is used should have provision for free access of air, and should be situated at a distance from workrooms, messrooms, offices, &c.

OPHTHALMIA NEONATORUM.

WE have repeatedly called attention to the problem presented by ophthalmia neonatorum, but a return to the subject needs no apology. The disease is said to cause 10 per cent. of all cases of blindness in this country. It was found to be responsible for 42 per cent. of cases in the Sheffield School for the Blind, and for 36 per cent. of cases in the London County Council Blind Schools. It has been estimated by Mr. M. Stephen Mayou, from the Census statistics for England and Wales, that there are now about 3000 children under the age of 15 years blind from ophthalmia neonatorum. With records such as these at hand it would be surprising if no public body interested in the health and welfare of the community were to make some effort to remove the disgrace attendant upon what is admittedly a preventable condition. The consensus of opinion of those qualified to judge is in favour of notification of the disease, and it is gratifying to know that steps in this direction, already taken in Germany, Austria, France, Switzerland, and 15 States of the United States of America, have now been taken also in Chester, Stoke-on-Trent, and all other towns in the Potteries district. But this is not enough. It is not fitting that the metropolis should lag behind the provinces in a matter which affects it at least equally, and we are glad to know from information kindly supplied to us by the medical officer of health of the borough, that the matter is now receiving careful consideration by the public health and housing committee of the metropolitan borough of Poplar. Whilst adducing evidence of the need of notification, evidence which is already familiar to our readers, they rightly carry the inquiry a step further. Notification alone would be of little avail if the machinery were not provided for dealing adequately with the cases and preventing lapses due to carelessness, ignorance, and other causes. The council of Poplar has one health visitor, and if the whole of her time were devoted to visiting the 5000 infants born annually in the borough, one visit to each, the only way in which cases of ophthalmia neonatorum could be discovered without notification, would necessitate the regular payment of 20 visits per day on every working day in the year. At present midwives under the rules of the Central Midwives Board are instructed to call in a medical man if the child's eyes are inflamed, ever so slightly, and to inform the local supervising body—in London the London County Council—that they have done so. There is, however, at present no machinery to ascertain how many midwives fail in this respect, whereas if the disease were compulsorily notifiable to the medical officer of health his visitors would find this out and the medical officer of health would thus help to raise the standard of work of the midwives. Moreover, he and his staff could see that the child was adequately treated, locally or at an ophthalmic hospital. All cases, however, are not attended by midwives, and it should be the duty of the medical practitioner, head of family, nearest relatives, any person in charge of the patient, or, in default of these, of the occupier of the building, to report the case, any failure to comply with the law entailing an adequate penalty, pecuniary or otherwise. As regards the legal aspects of the question, it would appear that laws already promulgated

meet the case. The Children Act (1908) states that "if any person over the age of 16 years, who has the custody, charge, or care of any child or young person causes such child to be ill-treated or neglected in a manner likely to cause such child unnecessary suffering to his health (including injury to or loss of sight) that person shall be guilty of a misdemeanour." Under the Public Health Act, 1875, any local authority may make provision for the conveyance to a hospital or other place of destination, of persons suffering from any infectious disorder. Under the Infectious Diseases (Notification) Act, 1889, the local authority may pay the expenses of a person in hospital, even though such may not be a pauper, and may provide nursing attendance on patients who cannot be removed to hospital. That money so spent would be true economy is shown by the fact that one Chester boy who is being educated at the Liverpool School for the Blind (Wrexham Branch) under the Elementary Education Committee (Blind and Deaf Children) Act costs the city £19 16*s.* per annum.

THE HOLIDAY HUDDLE.

IT is easy enough to account for the absurd position that most people's holidays are packed into the same period of opportunity (which is generally the month of August or thereabouts), but it is not so easy to see why such a silly arrangement is allowed to continue. The time arrangements of the schools, we are told, must be endured. Parents must wait until their sons and daughters break up at school before they can embark upon the general holiday, and the result is that everyone is bound to seek holiday in exactly the same season because the schools all break up and start again at the same times. There would be no objection to this if the holiday extended over a longer period than it does at present—if, instead of being confined to, say, six weeks, it was extended to three months, which would give a much greater latitude in which to choose the time for going away. If, for example, the terms at the University of Cambridge were chosen, the summer holiday would extend from June 24th to Oct. 1st, which gives a vacation period of three months, out of which a suitable time could be chosen for a stay in the country or seaside. As it is, what is called the season at seaside and other places is compressed into a month or six weeks, and the inconvenience of this limited time must seriously appeal to everybody. Accommodation is expensive, hard to get, and crowded, the railway companies are at their wits' ends to cope with the sudden demand upon them, and altogether the discomforts and inconveniences are so great consequent upon everybody going away at the same time that not a few have given up the idea of a holiday in absolute despair. The whole thing is a worry from beginning to end, and it is doubtful whether under these manifest disadvantages a holiday is a holiday in its proper sense at all. It is pitiful to see the inconvenience and cruelties which families have to put up with because they are all forced to go away at the same time. It is also absurd that the proprietors of hotels, apartments, and so forth, are not able to enjoy a longer patronage than that which some two months afford; and, in short, it would be to the general advantage of all concerned if the holiday were not made such an intensely concentrated occasion. And all this submission to an irksome wearisome time, which, on the contrary, should be made as pleasant and enjoyable as possible in the interests of the health of both parents and children, is due to the arbitrary ruling of the school authorities. Surely there needs to be a revision of our methods of taking holiday, and the remedy cannot be far to seek or an impracticable one. At the risk of curtailing the school holidays at Easter and at Christmas, it seems feasible to suggest a straightforward three months' holiday in the summer, a period which gives some room in which to choose a time for going away, with all the unquestionable advantages that such a latitude would allow. The English summer, which is not always the compost of rain, wind, gloom, and cold which we are enduring this year, is not concentrated in August; it spreads over what can be the glorious months of June, July, and September, and earlier months have the advantage of giving a maximum of the sun's health-giving rays.

MEDICAL LIBRARY ASSOCIATION OF GREAT BRITAIN AND IRELAND.

AS has already been announced in THE LANCET of July 9th, p. 131, the annual meeting of members of this association will be held at the Royal College of Surgeons of England on Tuesday, July 26th, at 4.15 P.M. Open meetings will be held in the Mechanical Lecture Theatre (old School of Science), South Kensington, S.W., on Wednesday and Thursday, July 27th and 28th, at 9 A.M. On Wednesday the President (Professor W. Osler) will deliver an address, and Mr. Victor G. Plarr, Librarian, Royal College of Surgeons of England, will read a paper on "The Catalogue of the Royal College of Surgeons of England." On Thursday Mr. C. R. Hewitt, Librarian, Royal Society of Medicine, will read a paper on "The Organisation of a Medical Library"; Mr. H. M. Barlow, Assistant Librarian, Royal College of Physicians of London, will make a few observations on "The Medical Library Association"; and Mr. A. L Clarke, Assistant Editor and Cataloguer, Royal Society of Medicine, will speak on "Abstracts and Extracts in General and Professional Literature." An exhibition of rare and interesting books, papers relating to medical libraries, &c., will be held from Wednesday, July 27th, until Friday, July 29th. Communications should be made to Dr. I. Walker Hall, Pathological Department, University of Bristol, or to Mr. Cuthbert E. A. Clayton, Medical Library, University of Manchester, Joint Honorary Secretaries.

BRIGANDAGE NEAR FLORENCE.

DICKENS, writing as an "Un-Commercial Traveller" in the "sixties" of last century when London was terrorised by the garrotter, alluded to "that quarter of the Abruzzi which abuts on Waterloo Road." In the day now passing the Florentine may, with not less truth, refer to that "landslip from Calabria which collides with the City of Flowers." Two gentlemen from Boston, U.S., occupants of a villa off the road between Pontassieve and Vallombrosa, accompanied by two ladies, were returning from Florence in their motor-car when the chauffeur came suddenly to a stop, having remarked an enormous "macigno" (paving-stone) laid across the narrow road. The gentlemen were about to alight and remove the obstacle when two men, their faces partially bandaged, emerged from a thicket, and, levelling rifle and revolver at the passengers, demanded all the money they had got. Resistance was useless, the gentlemen being unarmed; so the elder of them (they were two brothers) handed them his pocket-book containing 220 francs (£8 15*s.*) and the younger the sum of 50 francs (£2). Not satisfied with this the brigands detained the gentlemen as hostages, while the chauffeur and the ladies continued their journey to the villa, not many hundred yards off, to bring back what money they could. Returning with 600 francs (£24) they gave it to the malefactors, who made off immediately, previously warning the gentlemen of the fearful vendetta awaiting them if they informed the police. Next day, however, the victims appeared at the Questura in Florence and their narrative at once put the constabulary and carabineers

on the track of the brigands, with what result has yet to be told. The incident has made a profound impression on all Tuscany as proving once more that Italy, even in a favoured resort of the valetudinarian and the votary of literature and art, is still unsafe—person and purse, life and limb, being equally at the mercy of the malefactor in city and suburb. Misery and mendicancy, prompting to aggression and robbery, are still, it seems, beyond her power to cope with—the foreign arrival, even if he finds that his luggage has not been pillaged *en route*, or that his bedroom has not been visited by the "hotel-rat" (*alias* "international thief"), being never sure, if he ventures abroad, that he will not be made to "stand and deliver" by the time-honoured methods of a Dick Turpin or a Captain Macheath. Where in London, or Paris, or Berlin, he is always within immediate hail of a policeman or constable, in Rome itself, to say nothing of provincial capitals like Naples, or Florence, or Milan, he is left (so far as representatives of public order are concerned) in an "isolation" by no means "splendid," having to put up with whatever violence or exaction the "sturdy beggar" or highwayman (professional or amateur) may be pleased to let him off with. Even if arrested the malefactor can afford to smile at the penalties of the law. The prison has no terrors for him, knowing, as he does, that it will cease to shelter and maintain him long before his "time" is up—to make room for others crowding in. Flogging has been suggested as likely to prove a deterrent no less efficacious with the Italian footpad than with the English garrotter—both of them are peculiarly sensitive (the former in particular) to physical pain. But it seems there is an irresistible aversion from the "cat" as only too reminiscent of the Austrian occupation, and so the legislature, importuned by the Association for Promoting the Influx of Foreigners, is still at its wits' end for a means of minimising an evil which tells disastrously on Italy in two ways—on her credit as a first-class Power and on her attraction for that main source of her revenue, the "paying guest."

THE ASSOCIATION OF BRITISH POSTAL MEDICAL OFFICERS.

THE annual banquet of the Association of British Postal Medical Officers was held at the Whitehall Rooms, Hotel Métropole, on July 14th, the President, Dr. George A. Mason, being in the chair. Among the guests were the Right Hon. Herbert Samuel, M.P., His Majesty's Postmaster-General, Sir Joseph Walton, Bart., M.P., Sir Dyce Duckworth, Bart., Sir Matthew Nathan, G.C.M.G., Sir Edward Troup, K.C.B., Sir William Collins, M.P., the Right Hon. Eugene Wason, M.P., and Surgeon-General W. L. Gubbins, C.B., M.V.O., Director-General of the Army Medical Service. The usual loyal toasts having been honoured, that of "Our Imperial Forces" was proposed by Sir Joseph Walton and responded to by Surgeon-General Gubbins, who welcomed the sentiment behind the term Imperial Forces. He acknowledged the debt which the army owed to the postal service, and stated that their work during the war in South Africa was beyond all praise. The toast of "The Houses of Parliament" was proposed by Sir Dyce Duckworth, who entered a protest against the all-night sittings and the prolonged speeches in the House of Commons. Sir William Collins, in his reply, pointed out that Parliament was becoming more and more concerned with the health of the nation. He would welcome more medical men in Parliament. The health of the Right Hon. Herbert Samuel, M.P., was proposed by the chairman, who referred to the difficulties of the work of postal medical officers and to the cordial relations existing between previous Postmasters-General and the association. He mentioned with approval the policy of the late Postmaster-General in recognising the Association of the Postal Employees. Mr. Samuel, in his reply, referred to the great growth of the medical service of the Post Office, which to-day numbered 3320, compared with 670 only six years ago, so that the medical officer was more easily accessible to the members of the staff. In regard to pulmonary tuberculosis, he stated that the Post Office would take its share in the preventive measures directed against this disease and endeavour to render sanatorium treatment available for its employees. He urged upon the medical officers that they should strongly recommend all postal servants to join the Post Office Sanatorium Association, the subscription being only 2*s.* a year. At present only one-quarter of them belonged to it. He announced that a departmental committee was at present investigating the condition of telegraphists' cramp with a view to its eradication. The toast of "The Association of British Postal Medical Officers" was proposed by the Right Hon. Eugene Wason and replied to by Dr. John Matheson. Sir Edward Troup, Permanent Under-Secretary of the Home Office, proposed the toast of "His Majesty's Post Office," which he described as the greatest business concern in this country. Sir Matthew Nathan, in replying, paid a tribute to the work of the medical officers. Other toasts were those of "The Guests," "The Secretary," and "The Chairman." An attractive musical programme was provided, under the direction of Mr. C. Graham Grant, the proceedings being continued to a late hour.

CHILDREN AND THE TRAFFIC OF THE STREETS.

THE greatly accelerated traffic of the streets introduced by motor vehicles has brought fresh perils to the pedestrian, and now a great deal of care needs to be exercised in regard to choosing a safe time to cross a busy line of traffic. The provision of more refuges or islands seems to be imperative, although we know how loth our street authorities are to introduce into the road anything which has a tendency to obstruct the vehicular stream; still, the safety of the pedestrian public should receive an equal consideration. The public, however, is rapidly adapting itself to the new traffic: is acquiring, in fact, that curious faculty, the sense of traffic, with its new meanings. And on the whole the steady development of this sense may be trusted to reduce in time the accidents which arise now partly from the swiftness of motor vehicles and partly from a failure on the part of the public to realise the meaning of their speed. The sense of traffic should be cultivated by all those who are constantly in contact with it, and the education might be begun early with advantage. Children especially should be impressed with the meanings of motor traffic and should be instructed particularly as to the rules to be observed when they are in the midst of it. The motor-car on the country road has claimed many a child victim owing sometimes to the stupidity of the child, sometimes to his ignorance, and not infrequently to a silly game of daring which it played. The game is known colloquially as "doing your dags," and was once more frequently played than it now appears to be. A crowd of children on spying an approaching motor used to dare one another to run across its path, and the one who ran last across the road before the motor passed was senselessly accredited the winner of the game. The "dags" of the others had been "done." We hope this "game" has been stopped. We should like to see street rules taught to children in this country as is done in Berlin. The adoption of such a scheme would have the most encouraging and valuable results. Parents and guardians should be called upon to read rules respecting the crossing of roads and so forth to the children under their care, and to explain to them their practical

observance. A correspondent has favoured us with a copy of the rules just referred to, and we reproduce them in the hope that the idea will appeal at home. The rules are as follows:—

1. Never play in a road where there are tramways or many carriages passing by.
2. When you are going to cross a road always look out for approaching tramcars, motors, and other carriages. Never run across a road just in front or just behind a tramcar, motor, or other carriage. Wait until the road is clear, and then cross over quickly by the shortest way.
3. When you are getting down from a tramcar never go round close behind to cross the road, but wait until the car has gone on. Then you can see whether a tramcar, motor, or other carriage is coming up fast.
4. Do not run after any carriage or cart nor hang on to it, for this is very dangerous and is strictly forbidden.
5. Never get on or off a tramcar or omnibus whilst it is moving, but wait until it stops. The getting up and down whilst it is moving is dangerous to life and forbidden by the police.
6. Do not cross the road where there are many carriages, but find out a place where there are fewer carriages going past.

We commend these rules for careful consideration with a view to their being added to the child's curriculum. The observance of the instructions there laid down may likely enough save life and besides make more acute "the sense of traffic" which adds to the power of self-preservation.

RECENT URBAN MORTALITY IN THE UNITED KINGDOM.

THE returns of the Registrar-General show that during the first half of this year the crude annual rate of mortality in the 77 largest towns of England and Wales, with an estimated population of nearly 17,000,000, was unprecedentedly low, and did not exceed 13·8 per 1000. In the four preceding corresponding periods (1906–09) the death-rate in 76 of these towns ranged from 15·7 in 1906 to 17 0 in 1907, and averaged 16·2 per 1000; the rate during the past six months was therefore 14·8 per cent. below the mean rate in the 76 towns in the four preceding corresponding periods. As nine years have now elapsed since the last Census, considerable doubt exists as to the present population of individual towns, and we have pointed out recently that our vital statistics may be vitiated by this fact. It should be remembered, however, that the official estimate of this aggregate population probably approximates more nearly than has been generally supposed to the correct number, as although the estimate undoubtedly overstates the population of many of the towns, this over-estimate is probably to a great extent balanced by an under-estimate of the population in other towns. In eight of the principal Scotch towns, having an estimated population of nearly 2,000,000, the annual death-rate during the six months ending with June last was equal to 16·5 per 1000, and showed an excess of 2·7, or 19·6 per cent., on the death-rate in the 77 English towns in the same period. In the 22 largest town districts of Ireland for which periodical returns are issued, and having an estimated population but slightly exceeding 1,000,000, the mean annual death-rate during the first half of this year was equal to 21·0 per 1000, showing an excess of 4·5 per 1000, or 21·8 per cent. upon the rate in the eight Scotch towns, and of no less than 7·2 per 1000, or 45·7 per cent. on the recorded rate in the 77 largest English towns. This marked excess of the rate of mortality in the Irish towns calls for more attention than it has yet received and is specially noticeable in the smaller towns. The average population of the 16 smallest of the 22 Irish towns only slightly exceeds 10,000, and yet in these small towns the annual death-rate during the first half of this year very considerably exceeded the mean rate in the 77 largest English towns with an average population exceeding 200,000. It is probably true that the crude death-rate in the Irish towns is to some extent overstated by the inclusion in their population of an exceptional proportion of elderly persons, but the marked excess in the death-rate points ominously to unsatisfactory health conditions and to inefficient sanitary administration.

SERIOUS RESULT OF INJECTION OF TUBERCULIN INTO THE SKIN.

THE original cutaneous reaction to tuberculin of von Pirquet, which is obtained by inoculating tuberculin into the skin as in vaccination, has been largely supplanted in France by the "intradermo-reaction" of Mantoux, which is obtained by injecting tuberculin into the dermis, and is claimed to be more reliable. At a meeting of the Société Médicale des Hôpitaux of Paris on April 29th Dr. J. Comby reported a serious result from this test. He never employs the intradermo-reaction, as he finds von Pirquet's method satisfactory and regards Mantoux's method as more likely to cause pain and inflammation. Of this he had seen several cases in his hospital practice. Recently he observed the following case in which a deep eschar was produced. A girl, aged 21 months, was admitted into the Hôpital des Enfants Malades on March 5th, 1910. She had suffered from cough since January and had previously been in hospital and submitted to the intradermo-reaction. She was discharged on Feb. 26th with redness at the point of injection. On readmission there was a scarlatiniform eruption, and in the evening the temperature was 100·7° F. On the following day the eruption disappeared, but the temperature pursued an ascending course. On March 9th the temperature was 103·5° and the eruption of measles appeared. On the following day she was removed to the measles pavilion, where she died after some days. At the time of readmission there was a red, hot, and painful swelling on the right thigh at the site of the tuberculin injection. The redness extended for some distance, producing the appearance of a patch of diffuse lymphangitis or erysipelas. In the centre was a prominent black point, such as would have been produced by the prick of a hypodermic needle. A round eschar larger than a franc gradually formed. This became detached, leaving a deep crateriform sloughing ulcer. Dr. Comby has never observed such a result after the use of von Pirquet's method, and is convinced that this procedure has the advantage of innocuousness over the intradermo-reaction. In this connexion the fact may be recalled that another local tuberculin reaction—the ophthalmo-reaction of Calmette—which seemed to be very useful in the diagnosis of tuberculosis, has in some cases caused such a severe reaction (ulceration of the cornea) that its use has been abandoned by many.

LOCAL AUTHORITIES AND THE COLOURING OF MILK.

THE attention of the Hove town council has again been called by its analyst (Mr. S. Allinson Woodhead) to the artificial colouring of milk as shown by the samples submitted to him for analysis. Of 22 samples no fewer than 18 had been so tampered with. "The artificial colouring of a natural product," Mr. Woodhead says, "is a practice which cannot be defended, as although the colouring matter may not be dangerous to health the reason for such addition can only be to make the milk appear richer in cream than it actually is. When we consider that the milk supplied in the country districts of east Sussex is usually richer than that supplied in the towns the reason for the addition of an artificial colouring substance is obvious." But no action appears to have been taken with respect to these 18 samples, and thus the practice of colouring the milk is allowed to go on unchanged. At the council meeting regret was expressed that the law did not insist upon the public being able to purchase milk without its being "faked." What of the Sale of

Food and Drugs Act? If pure milk were asked for and on analysis it was found not to be the genuine article in any particular whatsoever there would be ground for a prosecution at once. Local authorities do not take advantage enough of the provisions of that excellent statute, the Sale of Food and Drugs Act, and if wholesale samples of the so-called "pure milk" were taken by the authorities, and, where necessary, the vendors were subjected to the publicity of the police-court, there would soon be a smaller demand among purveyors for the annatto or other aniline dyes they are so fond of using. No excuse is needed for again drawing attention to this very common interference with milk. Milk is food for human beings; it is equalled by none in so far as its nutritive properties and ready digestibility are concerned; for the rearing of children nothing is more important than a pure and clean supply. Any tampering with it in any way whatsoever should, therefore, form the subject of police court proceedings with its concomitant penalties.

A DISCUSSION ON THE MEDICAL ASPECTS OF THE POOR-LAW.

As we have already announced, a number of medical men have arranged a meeting to be addressed by Mr. and Mrs. Sidney Webb on Wednesday, July 27th, at 4.30 P.M., at the Caxton Hall, Westminster. Invitation is extended to all those attending the annual meeting of the British Medical Association. Dr. J. Herbert Manley will take the chair and will be supported by Dr. Christopher Addison, M.P., Dr. Dudley W. Buxton, and others. Discussion and questions will be welcomed. The speeches will be preceded by a reception at 4 P.M.

TREATMENT OF PRURITUS VULVÆ IN DIABETES BY THE APPLICATION OF YEAST.

IN the *Progrès Médical* of May 28th M. Paul Carnot has described an ingenious method of treating the pruritus vulvæ of diabetes, based on the fermentation of glucose by yeast. The obstinate nature of this complication is well known. It is accompanied by erythema of the labia majora, which gives them a reddish-yellow and slightly dusky tint. As a result of scratching ulcers form, usually between the labia majora and minora, on the inner surface of the labia majora, or at the fourchette. These ulcers are reddish, painful, and pruriginous; they are attended by very little discharge and are very slow in evolution. The pruritus and erythema are due to the prolonged contact of the sugar-containing urine with the vulva. The treatment is general and local. General treatment, especially dietetic treatment, which ameliorates the diabetes, will also ameliorate the pruritus. For local treatment the frequent application of very hot Van Swieten's solution (1 part of mercury perchloride in 100 parts of alcohol and 900 parts of water) or a solution of bicarbonate of sodium, followed by powdering with talc and zinc oxide, is often used. The local application of tar, pure or mixed with lanoline, is sometimes very efficacious. In certain obstinate cases the local analgesic action of the X rays has proved very successful. But the most important point in the treatment is the prevention of the prolonged contact of the parts with the sugar-containing urine, which is accomplished by the careful use of lotions and injections after each micturition. In a recent case of pruritus vulvæ, remarkable for its obstinacy and severity, which rendered life intolerable, M. Carnot obtained excellent results from the application of brewers' yeast. His object was to cause the sugar to disappear automatically from the inflamed parts. This he accomplished by means of a lotion applied to the vulva and a vaginal injection made with a tablespoonful of fresh yeast in a litre of water. Not only was the irritating contact of the sugar with the inflamed parts prevented, but as the result of the fermentation it was replaced by a weak solution of alcohol, which had an antipruriginous and tonic action on the tissues. The injections and lotions were used twice daily and this was the only treatment. The pruritus ceased on the second day, the inflammation subsided, and the ulcers rapidly healed. M. Carnot suggests that this simple method should be tried in the various external manifestations of diabetes—certain sores, gangrene, and stomatitis—wherever, in fact, the sugar can be made to disappear by fermentation.

DENTAL TREATMENT OF LONDON SCHOOL CHILDREN.

THE Children's Care Subcommittee of the Education Committee of the London County Council issued its report on July 20th, within a week of the adjournment of the Council for the long summer vacation. The attitude of the London County Council with regard to the care of school children has been referred to in our columns on several occasions,[1] and it will be seen that the important question of dealing with defective teeth in school children has been postponed on two occasions for six months, but as the report has been brought up on the eve of adjournment the second postponement is virtually one of 12 months. The experience gained with regard to the dental treatment of children at Cambridge and elsewhere having shown that the number of carious teeth open to conservative treatment decrease as the children advance in age, and that treatment for children in the last year of school life is much more serious and expensive than in earlier years—the serious increase in the number of children with caries of the permanent teeth taking place between the ages of 7½ and 8½ years of age—the subcommittee proposes that a beginning should be made by providing treatment for such children, accepting the experience of Cambridge that 73 per cent. between these ages require dental treatment. In round numbers there are about 80,000 children between the ages of 7½ and 8½ years attending London elementary schools, and of these probably 60,000 require treatment. The British Dental Association being unable to undertake the work for the Council, the subcommittee is considering the desirability of arranging for the work to be done by private dentists in their own surgeries, and also whether it would be possible for the London hospitals to make special provision for dental treatment. It reports that two offers have been received which would enable the Council to obtain experience of dealing with the problem. The Poplar Hospital for Accidents will provide treatment at the rate of £50 a year for a dentist working one half day per week, with 2*s.* for each case. The facilities offered would secure treatment for 2200 children. A committee in Deptford has offered to provide treatment at a local surgery on two half days a week without charge to the Council, and to charge the parents for treatment in accordance with the Council's scale. On the assumption that 3500 cases a year would be treated, the cost to the Council would be £750 a year. These two schemes would secure treatment probably for 5700 children for, approximately, 4*s.* a case. On this basis 60,000 children would cost some £12,000 a year, exclusive of grants for equipment. The subcommittee recommends that advantage be taken of these offers and that for the present the selection of the children for treatment should be made by school medical officers. The stage reached, therefore, is that 5700 children are to be seen once in 12 months.

A RE-ORGANISATION of the system of medical inspection in London is in prospect by which children will be examined

[1] THE LANCET, vol. i., 1909, pp. 1069, 1335, and 1343.

at three, instead of two, age periods, each school to be visited by a medical man not less than once a term. The increased work will make necessary the appointment of two additional full-time assistant medical officers at a salary of £500 a year each, and 28 additional quarter-time assistant school doctors.

Mr. Robert Brudenell Carter, Knight of Justice, deputy chairman of the British Ophthalmic Hospital, Jerusalem, and formerly its honorary consulting surgeon, has been promoted to be Commander of the Order of St. John of Jerusalem.

ALL our readers will join us in congratulating Dr. Dawson Williams, editor of the *British Medical Journal*, upon steady progress towards recovery from his alarming accident.

Looking Back.

FROM

THE LANCET, *SATURDAY*, July 21st, 1832.

APPARATUS FOR VENOUS INJECTIONS.—RISK OF INJECTING AIR.

To the Editor of THE LANCET.

SIR,—The treatment of cholera by venous injection being at this time the subject of very extensive experiment, I am desirous of suggesting through your journal, that which I think the profession generally are not sufficiently aware of, viz., the extreme tenacity with which bubbles of air *adhere* to the interior of the tubes and other parts of the apparatus employed. Many persons with whom I have conversed imagine, that immediately the liquid appears at the point of the vein tube, the whole of the air has been dislodged from the apparatus, and that they may then safely insert the tube into the vein. My daily experience in fitting up and proving the perfectness of the various modifications of the instruments that we have manufactured according to the suggestions of different practitioners, prove to me that a considerable quantity of liquid must be passed through the *most perfect* apparatus, before the operator ought to satisfy himself as to the safety of introducing the tube into the vein, and for this purpose the point of the tube should be held under water, and the issue of the liquid carefully watched to detect the appearance of air bubbles. It will, *at first*, be found, after two or three strokes of the piston, unaccompanied by air, but the next stroke may exhibit abundance of air bubbles, and prove the necessity of persevering in this preparation of the apparatus until no more air can be detected, which I have generally found to require the passage of about a pint of liquid through the tube.

As a proof that my experiments have not been made on an imperfect instrument, I ought to state, that my observations hold good even when the whole of the apparatus is submersed in water. I am, Sir,

your obedient servant,

55, Aldermanbury, July 13, 1832. J. H. MAW.

ON Friday, July 29th, at the Central London Throat and Ear Hospital, Gray's Inn-road, from 3 to 5 P.M., there will be an exhibition of microscopical specimens pertaining to the throat, nose, and ear, and also a demonstration of interesting cases. The medical staff extend a cordial invitation to members of the British Medical Association present at the annual meeting next week.

Mr. John Hatton, director of the Grand Pump Room, Bath, is making preparations for 200 visitors on Saturday next, July 30th, in connexion with the meeting of the British Medical Association. A special train will run from Paddington at 10.40 A.M., with a return train due in London at 8.9 P.M.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

The 7 h.p. Single-cylinder Swift Car.

WHEN it was announced before the last Olympia Show that the Swift Motor Company, Limited, of Coventry and 15 and 16, Holborn Viaduct, London, had put on the market a small light cylinder two-seater, the advent was looked forward to with much interest, especially by the would-be medical motorist. For there can be no question that a little "runabout" is the ideal carriage for a medical man. Its cheapness to purchase and to run, as well as the advantage of a low tax, compensates, I am sure, for what is unavoidable with pretty well all single-cylinder machines, a somewhat audible note. Of course, this car does not desire to be considered in conjunction with four-cylinder engines, and yet, if it did, its claim would not be preposterous, as in many respects it certainly behaves like a multi-cylinder engine. Apparently many have realised the good points of the car, for though in November I had marked it for report in the columns of THE LANCET there has been such a demand for this "big car in miniature" that it was only recently that Mr. Bale, the London manager of the company, could find one to place at my disposal for the purpose of this article. From my point of view it was an ideal car, as I did not desire a specially tuned up one. I wished to be able to give my experiences on one that had been used, and the car handed to me had been subjected to the hardest of usage for some time. It was the London depôt demonstration car, and for months members of the press and possible purchasers had had drives in it. Of this I had more proof than even the condition of the carriage work, for when Mr. Bale was demonstrating to me the manipulation of the various levers we discovered a lack of power. The cause was soon discovered; a worn copper asbestos washer at the inlet valve cap joint permitted loss of compression. This trifle was soon corrected, but it was a proof that the car had not been prepared for my use.

The car follows generally upon the lines of a large car; in fact, it is a large car in everything but actual size and power, and it embodies all the mechanical refinements which go to make the modern big automobile the reliable vehicle it undoubtedly is to-day. The frame is of pressed steel, narrowed in front to allow of a wide steering lock to the wheels. The overall length is 9 feet and the overall width is 4½ feet. The rear springs are three-quarter elliptical. The engine has a bore of 4⅛ inches and the stroke is 5 inches. The normal speed is 1200 revolutions, but it can be accelerated to 1300, at which 9 brake horse power is given off. The valves are mechanically operated, of large diameter and interchangeable. The valve tappets are quiet and can be easily adjusted. Cooling is by thermo-syphon, but the cooling effect of the gilled tube radiator is assisted by the action of a draught set up by vaned arms on the fly-wheel and aluminium cone clutch. Two ignitions are fitted quite separate and distinct from each other. The magneto is gear-driven and can be easily detached. The make and break of the coil method of firing the mixture is driven by spur gearing off the rear of the cam shaft. Both systems have a fixed firing point; that on the accumulator is fixed well on the down stroke of the piston, so that as long as one does not endeavour to start on the magneto it is impossible to get a back fire. The magneto is, of course, arranged for advanced firing. The sparking plugs, the Bosch, are one of the best and most reliable types. Lubrication is by an oil pump, driven off a continuation of the commutator spindle. An indicator on the dashboard shows that the pump is working, and the oil after circulation passes through a strainer before again reaching the pump.

The carburettor is of a simple type, with an automatic air dashpot, which provides extra air as required in proportion to the engine speed. It certainly is not extravagant in the matter of petrol. Over hilly roads in bad weather I found I could average nearly 32 miles to the gallon, and this with two on the car and with a front glass and the hood up. The clutch is of the coned leather-to-metal type, with spiral springs beneath the leather to ensure smooth engagement. The clutch spring is enclosed and the end pressure is taken

on a ball bearing. The fly-wheel is of large diameter, which explains the steady running of the engine. There is a double flexible joint between the clutch and gear-box. The three-speed gear-box, as well as the engine-crank case, is of cast iron. Two felt washers encircle the main driving shafts at either end of the box and absolutely prevent leakage of oil or grease. The lay shaft is underneath the main shaft, and a praise-worthy feature is that a central bearing is provided for the gear shaft, thus reducing any possible springing to a minimum. An internally toothed wheel provides the top speed direct drive. The bearings are of cast iron, which has been found to answer remarkably well. The change speed is of the gate type, and a good feature is that before the reverse gear can be engaged a plunger in the speed handle must be depressed. The drive from the gear-box to the rear axle is by means of a propeller shaft, universally jointed at each end. The rear axle is of great strength and the wheels are mounted on well-spaced ball-bearings on independent sleeves. Both the brake pedal and the brake lever act on compensated internal expanding brakes in the rear wheel hubs, the pair of brakes to each wheel being side by side. A simple method of adjustment is provided. Both brakes are powerful, and I especially noticed that they kept quite clear of the drums when out of action. It certainly seems an advantage to dispense with the usual cardan shaft brake; it must be better for the transmission gear and tyres. The steering gear is of the usual worm and segment type. The petrol tank is very conveniently placed on the dash, and a gauge at the side shows the petrol level. A compression relief is provided to ensure easy starting. The control is simplicity itself, merely a throttle on top of the steering column; a foot control is also fitted. The levers on the driver's side are so arranged that it is possible to get out of the car on that side, and, so that this may not be prevented by the always useful Stepney wheel, room is provided in the tool box at the rear to carry that necessary adjunct there.

I used the car for an afternoon's round and on the following day gave it a severe testing over really bad roads during a 200 mile run. On the level the speed is quite up to the average, and I found the springing comfortable when the car was running underloaded as well as loaded. The car likewise held the road well, quite as well, in fact, as many a one of larger horse-power and longer base. Though a small engine, it certainly had a "big heart." I am sure that the Swift Company can well be proud of this car, and it is also one well suited for professional use. As a standard two-seater it is sold at £147, but for medical men I think the "De Luxe" rotund body, with hinged side doors and "scuttle" type dash board, well worth the extra £13 charged.

The Sad Fatality at Bournemouth.

The Hon. C. S. Rolls, the hero of the recent double flight across the Channel, was killed at the Bournemouth flying meeting on July 12th. He was competing for a prize offered to the airman landing nearest the centre of a circle 100 yards across. Seemingly the rear rudders of his Wright biplane broke loose, and the wires manipulating these rudders fouled the propellers, causing the machine to capsize and fall to earth. Death was probably due to a fractured base and must have been instantaneous. I feel that I ought just to chronicle this sad event, as Mr. Rolls was one of the greatest pioneers in the motoring world; of course, everyone has read the long accounts of the tragic occurrence.

The 8 and 10 h.p. De Dion Instruction Book.

It has for some time been recognised by motor-car manufacturers that the issuing of an instruction book is not only desirable but a necessity. Instead of a general instruction book Messrs. De Dion Bouton have decided to issue separate instruction books for each of their models. The first of these booklets deals with the 8 h.p. single-cylinder and the 10 h.p. four-cylinder types. It is well compiled, illustrated by numerous drawings, and should be of great use to all owners. If drivers of cars would but take to heart certain advice given in the introduction there is no doubt that fewer cars would need repairs. It is there stated: "Every part must be kept taut, and properly adjusted, and all movements should be thoroughly lubricated." A copy of the brochure will be forwarded to any owner of a De Dion car on application.

THE CONFERENCE AT EDINBURGH ON THE PREVENTION OF TUBERCULOSIS.

Annual Meeting of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(*Concluded from p. 188.*)

The Incidence of Tuberculosis in Childhood.

ON Tuesday morning, July 5th, the sitting was opened by the reading of Dr. Franz Hamburger's paper, which was published in our columns of July 9th.

Dr. J. E. SQUIRE (London) followed, and dealt, in respect of their medical examination, with tuberculosis in children of the school age. The figures given differed according to the motive of the inquiry. But even when there was tuberculosis it was often better for the child to attend school, where the conditions were immeasurably more hygienic than at home. There were two methods of investigation: first, by ordinary clinical examination; secondly, by one or other of the tuberculin methods. The first of these revealed only the children in whom tuberculous infection had resulted in some actual morbid change in the organs. The second method by itself only indicated at the most the existence of tuberculosis without determining its site, and it should therefore be combined with physical examination. Dr. Squire did not think the results of the tuberculin test could be accepted as evidence of the prevalence of tuberculosis. Of 672 children he had recently examined in a school in a poor part of London he found less than 1 per cent. with undoubted signs of tuberculosis of the lungs, though 9 per cent. showed signs which were not quite normal. Of 47 girls from 8 to 13 years of age, all of whom were stated to be tuberculous, he only found three with genuine signs of pulmonary tuberculosis. He was convinced that this disease was in no wise frequent during the school age. At Brighton, at Berlin, and other places the researches made gave similar results. This did not mean that the children were in a healthy condition. In South London, of 672 children examined he found 9 per cent. were not normal, and it would have been a good thing to send them to the country or the seaside. Possibly they might be carriers of disease, and if so this was another argument for tracking the condition to its real source—the home. It was in the home and not in the school that they would find the conditions which determined the onset of the disease and which favoured its advance.

Dr. J. DOUGLAS STANLEY (Birmingham) thought that the subject of surgical tuberculosis was neglected, and he gave further figures to show how rare tuberculosis of the lungs was among children. Also they did not spit, and therefore were not dangerous at school, but might easily be infected at home, and the speaker related incidents to illustrate this risk. Therefore he concluded that children should not be excluded from school.

Dr. THEODORE SHENNAN (Edinburgh) gave details of 1085 post-mortem examinations held at the Edinburgh Royal Hospital for Sick Children, and stated that 38·8 per cent. had died from tuberculosis and 82·0 per cent. of these had the lymphatic glands affected. The largest number occurred in the second year; then there was a rapid drop to the fifth year, a slight rise in the sixth, and then a continued drop till the twelfth. He thought that much of this was due to bovine infection, and he described three cases of children who were well in every respect but contracted tuberculosis when sent to the country where they drank milk direct from the cows. 47 per cent. of the cows on the farms from which this milk had been obtained reacted to the tuberculin test. When tried again three weeks later only 10 per cent. reacted. He felt convinced that children were infected by bovine tuberculosis.

Mr. H. DE C. WOODCOCK (Leeds) thought the tuberculin test only showed susceptibility, as with vaccine for small-pox. But there were physical signs, notably the shape of the hand, that also revealed this susceptibility. The town races resisted infection better than the country people.

Susceptibility of Children to Abdominal Tuberculosis.

Dr. A. DINGWALL FORDYCE (Edinburgh) read a paper to show the excessive prevalence, especially at the ages of 2 and 3 years, of abdominal tuberculosis at Edinburgh and Glasgow. 35 per cent. of the children who were patients at the dispensary were not nursed at the breast. The majority of those who were suckled were only so nursed for six months. Obviously, therefore, the first step of all was to obtain cheap and clean milk. To this end the "Gouttes de Lait" Congress held in 1905 had endeavoured to establish societies in all countries. At Brussels last year, when this congress met again, many nations sent official representatives, but Cuba and Great Britain were not represented. The speaker thought we ought to take an active part in all great international efforts for the protection of child life.

Dr. W. E CARNEGIE DICKSON (Edinburgh) explained that at the Sick Children's Hospital of Edinburgh three-quarters of the children who died and came under his cognisance died from abdominal tuberculosis. Far too much had been said about pulmonary tuberculosis. From the age of one day to 14 years the milk was the chief danger, and this peril was increasing of late years. The lung condition was comparatively unimportant as compared with the abdominal cases. Then surgical cases were almost all due to infection of the alimentary canal. Edinburgh and Glasgow were perfect plague spots in respect to infantile mortality.

Distrust of the Tuberculin Test.

Dr. R. W. PHILIP (Edinburgh) wanted to get at the root of the matter. Tuberculosis began with the child, but the manifestations were often so slight that they were forgotten. The mucous membrane from the nostril to the anus might easily be devitalised and thus become receptive. The child enters life in a compulsory environment of bad sanitation which favours devitalisation. The bacillus thus had its chance and generally attacked multiple small glands whose enlargement was hardly noticeable. Then, as a secondary involvement, the lungs might be affected. It was a grave mistake to draw a hard line of separation between the affections of the lungs and the alimentary canal. By watching cases for many years we learnt to take a larger outlook. Therefore at Edinburgh they did not work against one condition but against many—if possible, all conditions.

Dr. CHARLES M'NEIL (Edinburgh) sought to vindicate the value of Dr. Hamburger's statistics. If tuberculin only indicated susceptibility the statistics in question were valueless. But to demonstrate the merit of the von Pirquet reaction Escherich at Vienna had made 300 necropsies of persons in whom the reaction had taken place during life, and in 297 cases foci of tubercle visible to the naked eye were found. Where absolute tubercles could not be found injections produced the disease in guinea-pigs. Therefore he thought Dr. Hamburger was justified in saying that the great majority of children had latent tuberculosis by the time they reached the age of 14 years.

Dr. J. B. RONALDSON (Haddington) argued that insufficient attention had been given to the question of milk.

Dr. H. SCURFIELD (Sheffield) suggested that the insanitary condition of Glasgow and Edinburgh might be due to the flat system which would kill as many children as bad milk.

Mrs. ELKIN (London) described briefly the Charlottenburg scheme and the German forest schools. She urged that children should be given the benefit of the doubt and be put out in pure air before there were very positive symptoms of mischief.

Dr. SQUIRE then replied and closed the discussion. He declared that, were it possible, he would like outdoor treatment for everybody. He was not convinced as to the reliability of the tuberculin test. The most telling evidence was that of the post-mortem examinations. We ought also to investigate the plight of those who do not die. At one period there might be an infection of the lymphatic glands, but these were filters that stopped the intrusion of the disease. Therefore they were often invaded. Consequently he ventured to whisper to-day what to-morrow would be shouted on the house-tops—namely, that the tuberculin test was not reliable.

The Problem of State Intervention.

In the afternoon Mr. CHARLES GARLAND (London) brought forward the financial aspects of the question. It had been said that tuberculosis increased with the price of wheat, with the proportion of illegitimacy or of unemployment, and undoubtedly it was true that all cases tending to reduce the powers of vitality increased the prevalence of the disease. Therefore, if we hoped to prevent tuberculosis we had to hope for the more equal distribution of wealth. But short of this we could do good work. But we should always require money. We wanted to repeat what was now done at Edinburgh and at Paddington, but were paralysed for want of money. Then we had not enough sanatoriums. As far as he could ascertain, there were 350,000 tuberculous patients and some 60,000 new cases every year. Hospitals and sanatoriums disposed of 4000 beds, so that, if patients were treated on an average for four months, this provided for 12,000 patients. The Poor-law institutions had 3350 beds more for perhaps 10,000 patients per annum. The total might be set down at 7350 beds for 22,000 patients. The annual loss was estimated at £2,000,000 in wages or increased home expenses. If we were to attempt preventive treatment and to give full necessary treatment to the curable, we needed 30,000 more beds, besides establishing anti-tuberculous dispensaries in every town and village. These latter would cost at least £100,000. The sanatoriums would cost some £3,000,000 to erect, and their maintenance and the interest on loans some £2,000,000 per annum. The care of the families while the wage-earner was under treatment would amount to £1,250,000, or a total annual expenditure of £3,350,000 for curative and preventive treatment. The hospitals and infirmaries for the more advanced cases would cost £3,000,000. Could voluntary efforts provide £6,500,000 per annum? The speaker described the negotiations that had taken place with the benefit societies and the trade unions; the Postal Servants' Union alone had made a serious effort, and they provided 35 beds. The friendly societies could not act because the law did not sanction such action on their part. But if the laws were altered and these organisations did all they could, still this would not touch the population of 13,000,000 that lived on the poverty line. Therefore the State, and the State alone, must grapple with the problem. It was no use calling such action Socialism. In commerce and in various phases of human enterprise collectivism was replacing isolated individual effort. According to the calculations of Dr. Latham and himself the cost would amount to 3*s.* per annum per head of the population. Voluntary efforts had failed, the Poor-law was obnoxious, insurance companies had not done anything. There only remained State intervention. The speaker could say authoritatively that the working classes were willing to bear their share of the burden. He did not undervalue voluntary help, but its chief value was that of setting an example to the State.

Dr. T. D. LISTER (London) pointed out that friendly societies were at a disadvantage, because if they sent their members to sanatoriums they would lose their employment permanently. Under Government service only was there some good prospect of re-employment.

The Working Man in Relation to Tuberculosis.

Dr. JOHN C. MCVAIL (Glasgow), in a paper on the above subject, said: Whilst engaged in an investigation three years ago into Poor-law medical relief in England at the request of the Royal Commission on the Poor-laws, the importance of the phthisis problem in respect of the working man was brought before me more urgently and impressively than ever before. The question whether phthisis is a cause of pauperism or pauperism a cause of phthisis naturally made itself prominent from the beginning of the inquiry, and the answer, broadly speaking, is that phthisis causes pauperism in one generation, and pauperism causes phthisis in the next. The causes of tuberculosis in the working man include hereditary tendency, unhealthy occupations and workshops, irregular work, insufficient income, exposure, misconduct, especially alcoholic abuse affecting health and surroundings; bad housing conditions in respect of structure, for which the owner is responsible, and want of ventilation and cleanliness, for which the occupier is responsible; dirty skin and dirty clothing; dietary defective as to quality and quantity and cooking; and general ignorance and neglect of domestic economy. Having been impoverished in one or more of these ways, the working man comes under the charge of the Poor-law. I visited a large number of houses in which phthisical paupers were being treated at home. In many of them the conditions were such as to give phthisis all the opportunity possible for the operation of its infective

power. Precautions as to sputum might be attempted or neglected, and if attempted might be more perfunctory than thorough. Often, I am bound to say, a window was open, a most valuable measure, but dirty skins, clothing, furniture, and floors were common. The Poor-law authority provided the weekly dole through the relieving officer, who might either call with or send it, but even where the relieving officer called and saw conditions requiring remedy, he was not at that time in any proper correlation to the health authority, and the same remark applies to the district medical officer. That, I am glad to say, is largely altered now, as the Poor-law medical officer is required to intimate all cases to the medical officer of health. Such were often the conditions whilst the patient lived, and there was every opportunity for sowing the seeds of infection. When he died his widow and children were in no better plight. The Poor-law would give the widow an allowance of perhaps 2*s.* a week in respect of each of three children, and would tell her to work so as to eke out this income. The children would be left alone in a city slum. The house would be .dirty and unventilated, and the slops unemptied. The kitchen table would be littered with scraps of food, cold tea and bread and jam, and the like, left from the breakfast. The woman on her return at night would be too tired or too ignorant to prepare a dinner. The system is utterly unprofitable. The widow should be sent away from the city slum, and into the country with her children. She should be allowed enough money to feed them properly, and the local authority should make a point of seeing that the money is expended properly, and that the elements of cleanliness and wholesome dietary are attended to. Also, the children should come under periodical medical inspection so that their general health would be supervised, and disease, if possible, nipped in the bud. As regards the working man himself, the prevention of phthisis is infinitely more profitable and more practicable than the cure of phthisis. A few days ago the Chancellor of the Exchequer made in Parliament a pronouncement of the greatest possible significance as bearing on the possibilities of phthisis prevention. Next year he proposes to introduce a great scheme of invalidity insurance for the working classes. It is to be contributed to by the State, by the employer, and by the worker himself or herself. If this great scheme takes due cognisance not merely of relief during invalidity but of prevention of invalidity, a tremendous step will have been taken towards the eradication of consumption. The scheme will, of course, involve medical attendance during illness. It ought also to involve an annual or biennial visit by the medical attendant quite independently of illness. His duty should be to ascertain in this way the general conditions of health of those who are committed to his care, and he should advise them both as to restorative and as to preventive measures. The condition of the house as regards cleanliness and ventilation should be noted and the value of fresh air should be insisted on for the prevention and not merely for the treatment of consumption. Where required a warning should be given as to any bad features in the domestic régime so far as bearing on health. All this should be in supplement to the inspection of factories and workshops which is already being increasingly practised. Concerning isolation and cure of existing cases of the disease, I am of opinion that more attention should be given than at present to the boarding-out of suitable patients. In country cottages boarding-out of Poor-law children and of certain classes of the mentally defective is already practised with most admirable results. It could be well extended to many cases of phthisis. In speaking of the work done by the Poor-law, I should have mentioned that in large urban unions in England hundreds of cases of advanced phthisis are now removed to the union infirmaries, and in this way the spread of infection cannot but be diminished. Each case removed is a benefit to those that are left at home, as the risks of sputum infection are at once stopped, but the family home should not be left without supervision. The Poor-law medical officer should call periodically to see whether they remain well and their home conditions should be under systematic inspection, at the same time that the allowance made by the guardians should be adequate to provide them with proper food. On these lines a very decided advance can be made on the prevention and control of tuberculosis amongst the working classes.

Sir THOMAS OLIVER said: As we have been already told, this is a working man's question, for the working-classes form the greater part of the population, they are affected in larger numbers by tuberculosis, and when affected they have fewer chances of recovery. Tuberculosis also attacks the wealthy and the well-to-do, but they are provided with the means whereby health may be possibly regained, for if there is one disease for which money can accomplish much it is tuberculosis. Since statistics show that the working-classes are not all of them evenly affected it would appear as if the occupation followed as well as habits had something to do with the question. The dustier the occupation the higher is the mortality from pulmonary phthisis, hence 70 per cent. of deaths of steel grinders from pulmonary tuberculosis between the ages of 25 and 31, and 46 per cent. of metal workers, compared with 14 per cent. of agricultural labourers. It is perfectly true that the dusty atmosphere of a factory or workshop may contain few pathogenic organisms, but the dust itself acts as an irritant and predisposes to pulmonary disease, and besides if tuberculosis is present the appearance of other germs within the body often interferes with the successful treatment of tuberculosis. Experience shows that a smoky atmosphere creates a predisposition to pulmonary disease. The inhalation of coal-smoke not only causes small hæmorrhages in the lungs but weakens local resistance, so that animals which had previously inhaled smoke and were subsequently infected with tubercle died more rapidly and exhibited more serious lesions in their lungs than animals infected with tubercle but not previously exposed to smoke. To this circumstance as well as to overcrowding and the poverty which stalks in our large towns may be partly attributed the higher death-rate from pulmonary phthisis in towns than in the country. The commercial rise of Germany and the change which has taken place in the mortality returns of certain of her manufacturing towns confirm the relationship I have alluded to of coal-smoke and lung disease. For standard rates of mortality the agricultural classes are taken. Their percentage mortality from tuberculosis is small. This must be largely the result of their life in the open air, for in far too many instances the food of agricultural labourers is poor, their house accommodation bad, and their wages small. Masons follow their calling in the open air; they have better food, higher wages, and are better housed as a rule, and yet they die from tuberculosis in larger proportions than agricultural labourers, a circumstance which again suggests that occupation plays an important part in predisposing to the malady. 30 years ago when I went to Newcastle there were always in the infirmary wards a few coal-miners suffering from phthisis. At the present time it is extremely rare to find one. Compulsory ventilation of coal-mines has not transformed a dusty occupation into one which is less dusty, unless water-spraying is practised, but into one supplied with an excess of pure air, and by which it has been rendered healthier. Coal-miners in this country, except on rare occasions, no longer develop phthisis in consequence of their occupation; they become infected in their homes and elsewhere, so that if colliery proprietors would only give their workers better and more roomy house accommodation the women and children would be healthier than they are. That work in ill-ventilated and dusty mines is productive of serious harm I have on more than one occasion shown. It was in the pages of THE LANCET that I first drew attention to this subject. During the South African War and at its close I was frequently consulted by Northumberland miners who had just returned from the Transvaal. A few years prior to this these men, all young and in the prime of life, picked men in fact, had gone from their homes in the North of England to the gold mines near Johannesburg. Within five years several of them returned home to die. In consequence of the use of rock drills and working in an overheated as well as in a dusty atmosphere their lungs had become affected. I will not labour this point here as to whether the pulmonary disease of the Rand miners is tuberculous at its inception or not. It is the result of irritation by dust, and in many of the cases pulmonary tuberculosis is the sequel. With workers in pottery the circumstances are the reverse of those observed in coal-miners. The malady is contracted at work and the disease is carried to the home. Cessation of work for a period in a dusty trade is one of the means of preventing the disease getting a foothold. Nature has endowed the lining membrane of the respiratory tract with ciliated

epithelium, and by the activity of its ciliary processes the dust which has been inhaled is got rid of. Unless there is some special reason to the contrary, it is just a question whether in dusty trades the break for the midday meal should not be for two hours instead of one. There is a danger in pushing the infective theory of tuberculosis too far. It has already created an amount of public fear which the degree of infectiveness of the tubercle bacillus scarcely warrants, and which if pushed further will make it extremely difficult for working men who have been treated in sanatoriums and have practically recovered to obtain employment. All rational methods must be adopted to prevent the spread of the disease by infection, but the disease is something more than the incidence of the ubiquitous tubercle bacillus. There is the question of the soil upon which it falls. We must not, therefore, attach all the importance to the organism and ignore its environment. To us as medical men tuberculosis is also something more than the provision of sanatoriums. When wages are good the working classes have better food and they can be better housed, but as there are certain trades in which the tuberculosis mortality-rate is higher than in others, only strong and healthy men should take up these trades, and when following them they would be well advised if they submitted themselves periodically to medical examination. Mr. Garland has told us of the financial loss to the country caused by tuberculosis. It is a loss to industry as well. There is a value to be attached to trained work. The removal by death of a trained and skilful workman cannot be immediately replaced by an untrained man. There is therefore a loss industrially as well as financially, whilst socially the loss is also felt, since there may be left a widow and children to be supported by the rates. The prevention of the spread of tuberculosis is not enough. The malady must be attacked at its origin and traced if possible to its source—either the dusty atmosphere of mine, factory, or workshop, or the overcrowded home with scanty means of living. Factory inspection, medical examination of certain classes of workers and their surroundings, change of occupation of unskilled labourers from a dusty trade to outdoor employment would help to improve matters, but if there is one thing which should not be overlooked it is the potent power for harm of excessive indulgence in alcohol by persons employed in certain trades, for only by this means can be explained the higher percentage mortality-rate of phthisis, 38 in hotel- and inn-keepers, compared with half this rate in persons following healthier vocations which do not expose them to alcohol.

Dr. N. RAW (Liverpool) in 20 years had attended on some 3000 working men patients. He had come to the conclusion that the workman and his wife were utterly helpless. The application for medical advice was generally made too late because the individual did not want to leave his work. Tuberculosis cost the Poor-law £1,500,000 annually from the rates, and then they could not retain the patient, and he went home two or three times at the risk of infecting his family. The loss in wages amounted to £300,000 in Liverpool alone. This disease was the commonest cause of pauperism. Respectable and thrifty workers were made paupers by tuberculosis. Therefore, to reduce the prevalence of this disease was to reduce pauperism. But we could only do this collectively. We must have the right to levy the cost. He had carefully examined the working of compulsory insurance in Germany and felt that we must do something similar. By it the workman was educated to the possibility of prevention and willingly contributed a part of his earning for such a purpose when he found that the State and his employers were also ready to pay their full share.

Mr. WAREHAM, representing the friendly societies, from London, urged that voluntary effort was spasmodic and unreliable and did not come from the sufferers. Compulsion was necessary, because workmen mistrusted charity and abominated the Poor-law. The friendly societies only represented the aristocracy of labour and had no idea of dealing scientifically with the problem. Both from the business and the sentimental side the whole matter must be taken up by the State.

Dr. A. C. GRAY (London) admitted that the advocates of a complete State provision for the treatment and prevention of tuberculosis had the advantage of a fairly logical position. But an action, he said, which is apparently the logical outcome of a situation, is not always practically the best, and he desired to urge consideration of the question whether the methods proposed will really attain the object in the shortest time. "You cannot," he said, "both eat your cake and have it, and, if you insist on demanding a complete and all-embracing organisation at the expense of the State, you will most certainly check, if not stifle altogether, that voluntary effort. And in return what will you get? You will certainly not get complete all-embracing machinery. We do not have, and we need not expect to obtain, ask as we will, a central autocratic administration of public health measures. It will be in the hands of the local authorities; and the medical officers of health present can tell us what, in practice, that means. I might ask if it is their experience that local authorities are always prepared to remedy even the grossest defects reported to them. No, you will get no more than you are already obtaining by voluntary effort, with the additional delay incidental to public official action, and you will have thrown away a valuable existing asset. But that is by no means the only difficulty; I should like to point out a few of the others. The analogy with the specific fevers is incomplete and misleading. Tuberculosis in some forms is not infectious at all, and pulmonary tuberculosis is not infectious in the early stages in which treatment is most effective. No doubt it is true that to treat the non-infectious case is to remove a possible future focus of infection, but that argument would apply equally to a proposal that the State should place in completely satisfactory conditions every individual who, by reason of impaired vitality, might be thought likely to become infected, and that leads us to a *reductio ad absurdum*. The duration of the disease is indefinite and often lengthy; the individual patient may feel able to work, and if you are not prepared to have your elaborate machinery of control a farce, if the State is not prepared to stultify itself, compulsory powers of removal would be necessary. Few will be found to suggest that that is at present within the sphere of practical politics." On the question of material relief he pointed out that if the State undertakes the responsibility of the disease as a whole, it will absolutely and inevitably be driven to undertaking the responsibility of the maintenance both of the patient and his dependents; nor would that stop at provision for a paltry three or four months during treatment at a sanatorium. The cured case could not be permitted to return to unsuitable work or to unfavourable surroundings. Support while waiting for suitable work and nourishment to prevent the expenditure on treatment being thrown away would both be forthcoming, and a comparatively short time would serve to produce an army of phthisical pensioners, morally degenerate because of their loss of independence, and prone to relapse because deprived of the needful stimulus. Moreover, the public health authority has at present no power to give material relief; such powers would have to be obtained, after long delays, and the resulting confusion and overlapping with the Poor-law authorities would be a fresh difficulty, for whatever some people may choose to think, there is not the least chance of the total elimination of a special Poor-law authority for at least many years to come. "Then," he asked, "are we of the medical profession really so unanimous as to the requisites of treatment as to be prepared with a scheme for the whole country? Dr. Latham and Mr. Garland demand 60,000 sanatorium beds; Dr. Philip tells us that with an efficient dispensary system the amount of necessary sanatorium accommodation is comparatively limited, while a third authority maintains that sufficiently early treatment with tuberculin will render all sanatorium accommodation superfluous. With the elasticity and prudence of development of a voluntary system such difficulties do not exist. Local variation provides a series of useful experiments from which the most efficient means are evolved, and a voluntary system is necessarily, in a case like this, more efficient because it is more enthusiastic. It cannot come into being without enthusiasm, and with that cannot fail to be more effective. We know from the Chancellor's Budget speech we are within sight of a national system of invalidity insurance. The experience of the German scheme has been that the insurance institutions have found it profitable to invest surplus funds in the provision of hospitals and sanatoriums for the purpose of preventing permanent invalidity, and consequent charge on the funds. Till we know what form the insurance scheme is going to take in this country and what preventive developments are likely to ensue, it is surely premature to ask for

State-provided sanatoriums and, in any case, it is probable the demand would fall on deaf ears. Meanwhile there is plenty for the health authorities to do if they will continue to attend to the general sanitary measures."

Mr. DUCKWORTH (London) thought there would always be room for private effort.

Councillor MACPHERSON was anxious that all the local authorities should enforce compulsory notification.

The Resolution on State Intervention.

The discussion being now ended, the Conference was asked whether it would consider a resolution on the subject, and, having voted in favour of so doing,

Dr. A. K. CHALMERS, medical officer of health of Glasgow, moved:—

That this Conference, in view of the magnitude of the financial issues involved in any comprehensive scheme for the eradication of consumption—implying as it does the prolonged treatment of the consumptive, and when he is the bread-winner the maintenance of his family—recommends the Council of the National Association for the Prevention of Consumption to represent to His Majesty's Ministers the desirability of considering a scheme of national insurance against the disease.

Dr. J. C. MCVAIL moved, as an amendment, that the special attention of the Chancellor of the Exchequer, Government, and Parliament be called to the importance of giving the prevention and treatment of tuberculosis a prominent place in the proposed scheme of invalidity insurance.

After a brief discussion the amendment was adopted, the feeling being that we could not have special Acts of Parliament for each important disease.

This concluded the business of the Conference, which, after a few congratulatory words from the Chairman, Professor OSLER, finally adjourned.

THE METROPOLITAN ASYLUMS BOARD: THE ISOLATION OF MEASLES.

The Reception of Puerperal Fever.

ARISING mainly out of a report by Sir Arthur Downes for the Local Government Board, the Metropolitan Asylums Board on Saturday last, July 16th, decided to make a radical alteration in their hospital system. Briefly stated, the matter under consideration was whether the large margin of unoccupied beds which frequently exists in the fever and small-pox hospitals could be beneficially used for providing for additional classes of patients, and for meeting the growing demands on the children and imbeciles departments. A number of recommendations were brought up by a subcommittee who had gone exhaustively into the matter, and these were confirmed by the Board with unanimity and without discussion, save in one instance. The most important decision was "that the Local Government Board be informed that the managers are willing to arrange for the reception, tentatively, of measles and other approved diseases in their fever hospitals, provided the Local Government Board can empower them to admit selected cases from the poorer classes for which no accommodation is now available." This last part of the recommendation was due to the report of Dr. H. E. Cuff, the medical officer of the Board for general purposes, who states that there is adequate accommodation in the metropolitan workhouse infirmaries for pauper cases of measles. What is wanted is accommodation for cases from the poor classes, not necessarily paupers. As to the feasibility of treating measles and whooping-cough in the same hospital with other infectious fevers, Dr. Cuff thinks this can be done without any risk of interchange of infection between the different wards, adding that he considers the measures of disinfection required would be simple and inexpensive, while apparently the only alteration in the internal arrangements of the hospitals would be the allocation of separate receiving rooms. Dr. J. Kerr is quoted by Dr. Cuff, in his appendix to the committee's report, as stating that the isolation of measles in hospital can be more than justified as a means of saving the lives of the poor. In accordance with the desire of the subcommittee Dr. Cuff addressed a circular letter on the subject to the medical officers of health of 21 of the largest towns in England and Scotland. Of the replies he received in time for use in his report, 13 were in favour of isolation for measles and 5 against. Of these five only one—Mr. C. H. Tattersall of Salford—had seen the isolation of measles practised for a time and abandoned on account of its spreading to wards occupied by other diseases.

The Asylums Board also adopted a recommendation to make arrangements for the reception of cases of puerperal fever in their hospitals. The committee stated that it is advised that such cases can be safely admitted to the same hospital with other infectious diseases, and are in some hospitals treated in the same wards as cases of enteric fever, while there is no difficulty in the way of receiving non-pauper cases. It also stated that the weight of testimony is that the reception of these cases into hospitals is advantageous to the patients and removes a possible source of danger to others. On the subject of treating pulmonary tuberculosis the committee says it agrees with Sir Arthur Downes, who had given it as his opinion that the Asylums Board had no spare accommodation which could without serious difficulties be turned over to this class of case, either in the early or advanced stages.

Long Reach Hospital and the shore buildings adjacent to it are to be permanently reserved for small-pox cases, but the additional accommodation for these cases at the Joyce Green and Orchard hospitals is to be done away with. The committee says that experience has so fully established the fact that high numbers of small-pox correspond with low numbers of scarlet fever, and *vice versâ*, that it is safe to make use of this additional small-pox accommodation for fever purposes whenever the numbers under treatment so require. The Park hospital is to be reserved for sick and debilitated children. This was the only point on which there was a division of opinion among the members of the Board on Saturday, some holding that the Brook hospital was more suitable for the purpose. An amendment to this effect was, however, defeated by 20 votes to 15.

In his appendix to the report Dr. Cuff deals with a suggestion by Sir Arthur Downes that the length of stay in hospital by scarlet fever patients might be shortened. Dr. Cuff points out that during the last three years the average length of stay of these patients in the Board's hospitals has been 63 days, and compares this with other large hospitals as follows:—Leeds City Hospital, 63 days; Liverpool City Hospital, 49 to 56 days; Belvidere Hospital, Glasgow, 55·3 days; Ruchill Hospital, Glasgow, 54·4 days; Edinburgh Hospital, 48·6 days; and Monsall Fever Hospital, 56 days. At some of the smaller hospitals the period of detention is much less, and at Southampton during the last six years the average has been 30 days, while the "return" case-rate there was only 1·9 per cent., which is much lower than the same rate for the Asylums Board hospitals. No recommendation on this subject was, however, framed by the committtee.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8142 births and 3692 deaths were registered during the week ending July 16th. The annual rate of mortality in these towns, which had been so low as 11·0 per 1000 in each of the two preceding weeks, did not exceed 11·4 in the week under notice. During last quarter the annual death-rate in these towns averaged only 12·7 per 1000, and was 1·6 below the mean rate in these towns in the four preceding corresponding quarters. In London during last quarter the death-rate, calculated on the estimated population, did not exceed 12·2 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 4·4 in Willesden, 4·7 in Leyton, 4·9 in King's Norton, and 5·9 in York; the rates in the rest of the 77 towns ranged upwards to 15·8 in Rhondda, 17·7 in Merthyr Tydfil, 18·1 in Rotherham, and 21·3 in Barrow-in-Furness. In London the reported death-rate last week did not exceed 11·1 per 1000. The 3692 deaths registered last week in the 77 towns showed an increase of but 98 upon the low number in the previous week, and included 324 which were referred to the principal epidemic diseases, against 335 and 353 in the two preceding weeks; of these 324 deaths, 105 resulted from measles, 88 from whooping-cough, 68 from diarrhœa, 25 from diphtheria, 24 from scarlet fever, and 14 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was

equal to 1·0 per 1000, against 1·0 and 1·1 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Willesden, East Ham, Walthamstow, Brighton, or in 15 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·0 in Bootle, 4·2 in Grimsby, 4·7 in Rotherham, and 4·9 in Barrow-in-Furness. The fatal cases of measles in the 77 towns, which had been 94, 113, and 115 in the three previous weeks, declined again to 105 last week, the highest annual rates, being 1·3 in Merthyr Tydfil, 1·4 in Grimsby, and 4·1 in Barrow-in-Furness. The 88 deaths from whooping-cough showed a further decline of 21 from the numbers in recent weeks, but caused annual rates equal to 1·5 in Burnley, 2·8 in Grimsby, and 4·7 in Rotherham. The deaths attributed to diarrhœa, which had been 53 and 71 in the two previous weeks, declined again last week to 68, but was proportionally most fatal in St. Helen's and Bootle. The 25 deaths referred to diphtheria showed a decline of 3 from the number in the previous week; they included 10 in London and its suburban districts, and 2 each in Stoke-on-Trent, Nottingham, Birmingham, and Hull. The 24 fatal cases of scarlet fever also showed a decline; 4, however, occurred in London, in Liverpool, and in Manchester. The deaths referred to enteric fever, which had been but 7 in the previous week, were 14 last week, of which 3 were returned in Middlesbrough and 2 in Birmingham. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been 1353, 1378, and 1439 on the three preceding Saturdays, had further increased to 1530 at the end of last week; 249 new cases of this disease were admitted to these hospitals during last week, against 183 and 188 in the two preceding weeks. The Metropolitan Asylums still contained 3 small-pox patients on Saturday last. Of the 1036 deaths registered in London during last week 131 were referred to pneumonia and other diseases of the respiratory system, against 117 in the previous week, and exceeded by 14 the corrected average number in the corresponding week of the five years 1905–09. The causes of 32, or 0·9 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Leeds, Bristol, West Ham, Newcastle-on-Tyne, Hull, Nottingham, and in 48 other smaller towns; the 32 uncertified causes of death in the 77 towns last week included 4 in Birmingham and 2 each in Liverpool, Leicester, St. Helens, Preston, Bradford, and Sheffield.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 899 births and 449 deaths were registered during the week ending July 16th. The annual rate of mortality in these towns, which had declined in the six preceding weeks from 14·3 to 12·1 per 1000, was equal to 12·4 in the week under notice. During last quarter the death-rate in these towns averaged 15·4 per 1000, and exceeded by 2·7 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 10·0 and 11·2 in Paisley and Perth to 14·7 in Dundee and 22·0 in Greenock. The 449 deaths from all causes in the eight towns during last week showed an increase of 10 upon the number in the previous week, and included but 83 which were referred to the principal epidemic diseases, against 61, 48, and 44 in the three preceding weeks; of these 33 deaths, 13 resulted from diarrhœa, 6 from scarlet fever, 5 from diphtheria, 4 from measles, 3 from whooping-cough, and 2 from "fever," but not one from small pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to but 0·9 per 1000, and was slightly below the mean rate from the same diseases in the 77 English towns; the highest rate from these diseases in the Scotch towns last week was 2·1 in Greenock. The 13 deaths attributed to diarrhœa in the eight towns last week showed a decline of 6 from the number in the previous week, and included 6 in Glasgow, 3 in Dundee, and 2 in Edinburgh. Of the 6 fatal cases of scarlet fever, showing a slight increase upon the numbers in the two previous weeks, 2 occurred both in Glasgow and Greenock. The 5 deaths from diphtheria were fewer by 4 than those in the previous week, but included 2 in Glasgow and 2 in Aberdeen. The 4 fatal cases of measles showed a further considerable decline from recent weekly numbers; and the 3 deaths from whooping-cough included 2 in Glasgow. Of the 2 deaths from "fever," 1 from cerebro-spinal meningitis occurred in Glasgow and 1 of enteric fever in Dundee. The deaths referred to diseases of the respiratory system in the eight towns, which had been 55 and 66 in the two preceding weeks, declined last week to 49, and were 7 below the number in the corresponding week of last year. The causes of 19, or 4·2 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 686 births and 347 deaths were registered during the week ending July 16th. The mean annual rate of mortality in these towns, which had been equal to 16·1 and 17·0 per 1000 in the two preceding weeks, declined to 15·7 in the week under notice, and was lower than in any previous week of this year. During last quarter the annual death-rate in these Irish towns averaged 20·1 per 1000, whereas the mean rate during the same period did not exceed 12·7 in the 77 largest English towns and 15·4 in the eight principal Scotch towns. The annual death-rate during last week was equal to 14·8 in Dublin, 18·1 in Belfast, 18·5 in Cork, 6·0 in Londonderry, 12·3 in Limerick, and 19·5 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns did not exceed 14·2, and showed a further considerable decline. The 347 deaths from all causes in the 22 town districts last week showed a decline of 29 from the number in the previous week, and included 36 which were referred to the principal epidemic diseases, against 39 and 46 in the two previous weeks; these 36 deaths were equal to an annual rate of 1·6 per 1000, and in Belfast it was equal to 3·2; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·0, and in the eight Scotch towns 0·9 per 1000. The 36 deaths from these epidemic diseases in the Irish towns last week included 21 from measles, 5 from diarrhœa, 4 from "fever," 3 from diphtheria, 2 from whooping-cough, and 1 from scarlet fever, but not one from small-pox. The 21 fatal cases of measles showed a decline of 5 from the number returned in each of the two preceding weeks, and included 20 in Belfast. Of the 5 deaths from diarrhœa, 3 occurred in Dublin and 2 in Belfast. The 4 deaths referred to "fever" included 2 of enteric in Cork, 1 of enteric in Dublin, and a fatal case of typhus in Waterford. The deaths in Dublin included 1 each from scarlet fever, diphtheria, and whooping-cough, and those in Belfast 1 each from diphtheria and whooping-cough. The deaths in the 22 towns included 68 which were referred to pneumonia and other diseases of the respiratory system, against 43 and 61 in the two preceding weeks. The causes of 11, or 3·2 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent., and in the eight principal Scotch towns it was equal to 4·2 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Surgeons: A. A. Sanders to the *Indomitable*, and J. Barrett to the *Duncan*, on recommissioning; M. H. Langford to the *Collingwood*; N. B. V. Jacob to R.M. Depôt, Deal; E. D. Rutherford to the *Royal Arthur* and to the *Cadmus* on recommissioning; G. W. M. Custance to the *Royal Arthur* and to the *Clio*, on recommissioning; G. L. Buckeridge to the *Astræa*, on recommissioning; F. J. Gowans and H. M. Langdale to the *Royal Arthur*, for voyage home; W. W. D. Chilcott to the *Impregnable*; and A. B. Marsh to the *Hibernia*.

ROYAL ARMY MEDICAL CORPS.

Colonel L. E. Anderson, Principal Medical Officer of the Allahabad and Fyzabad Brigades, has been granted three months' leave. Brevet-Colonel F. J. Lambkin, from the Military Hospital, Rochester Row, has taken up duty in South Africa. Lieutenant-Colonel S. Powell has been transferred from Rawalpindi to the Burma Division and appointed to command the station hospital at Rangoon. Lieutenant-Colonel J. Meek, on relief by Brevet-Colonel R. H. Firth, appointed Sanitary Officer, Army Headquarters, Simla, has been posted to Quetta to command the station hospital. Lieutenant-Colonel H. P. G. Elkington, from Buttevant, has been posted to Queenstown. Lieutenant-Colonel B. M. Skinner, M.V.O., has arrived home on leave from India. Major H. I. Pocock, from Shahjehanpur, has joined the station hospital at Nowshera. Major J. D. Alexander has been transferred from Shwebo to Thayetmyo. Major T. McDermott, specialist in ophthalmology, on return home from Lucknow, has been posted to Woolwich. Major W. Tibbits has taken over duties at Chatham from Shoeburyness. Major F. F. Carroll and Major S. de C. O'Grady have arrived home on leave from Egypt. Captain W. Bennett has been appointed a Specialist in the Prevention of Disease in the Eighth (Lucknow) Division. Captain M. J. Cromie has been granted three months' extension of his leave from India on medical certificate. Captain H. S. Anderson, from Fermoy, has been posted to Buttevant. Captain C. R. Evans has been transferred from Halifax to Strensall. Captain W. MacD. MacDowall, from Okehampton, has joined at Devonport. Captain J. A. Turnbull, on return from India, has been posted to Piershill. An exchange on the foreign roster has been approved between Captain A. W. A. Irwin and Captain J. N. Spencer. Lieutenant C. A. T. Conyngham, from the Curragh Camp, has been posted to Quetta. Lieutenant J. W. Houston, Lieutenant W. J. Dunn, and Lieutenant F. B. Dalgliesh, on termination of a course of instruction in sanitation at Poona, have been posted to Belgaum, Kirkee, and Mhow respectively. Lieutenant D. F. Mackenzie, from Calcutta, has been posted to Dinapore.

INDIAN MEDICAL SERVICE.

The King has approved of the retirement of Colonel Walter Gawen King, C.I.E. (dated May 25th, 1910).

Lieutenant-Colonel C. M. Thompson has been posted for permanent duty under the Home Department to Madras Presidency. Lieutenant-Colonel R. E. S. Davis has been granted leave on medical certificate. Lieutenant-Colonel W. Vost, civil surgeon of Saharanpur, United Provinces, has been granted privilege leave for three months. Lieutenant-Colonel L. F. Childe, Lieutenant-Colonel H. Greany, Lieutenant-Colonel J. T. Daly, and Lieutenant-Colonel A. Street have arrived home on leave from India. Major C. R. Peare has been appointed to act as Civil Surgeon of Maymyo during the absence on leave of Major C. Duer. Major N. P. O'Gorman Lalor has returned to duty from leave. Major W. D. Hayard has been reverted temporarily to military employment. Major C. Milne, Major T. A. O. Langston, Major E. H. Sharman, and Major C. Thomson have arrived home on leave. The services of Captain G. P. T. Groube, Assistant Plague Medical Officer, Ferozopore, have been replaced at the disposal of the Home Department. Captain D. Cowin has been appointed to officiate as Civil Surgeon of Ferozopore in place of Lieutenant-Colonel J. R. Adie. Captain R. W. Anthony has been appointed Civil Surgeon of Hyderabad, Sind, vice Major V. B. Bennett, who has proceeded on leave. Captain M. S. Irani has been selected to act as Civil Surgeon of Ratnagiri, vice Captain R. W. Anthony. Captain H. A. Dougan has been posted to Meiktila as Civil Surgeon, vice Captain Saigol. Captain S. H. Lee Abbott, civil surgeon, of Dera Ghazi Khan, on relief by Captain A. K. Lauddie, has been transferred as Civil Surgeon of Dalhousie. The services of Captain H. W. Pierpoint have been placed temporarily at the disposal of the Chief Commissioner of the United Provinces, and those of Captain J. MacG. Skinner have been placed temporarily at the disposal of the Government of Madras. Captain H. Crossle has been posted as Agency Surgeon at Maskat. Captain W. D. A. Keys has been selected to act as Medical Officer to the Kathiawar Political Agency. Captain J. L. Lonham has been posted as Civil Surgeon of Surat. Captain A. M. Fleming, of Raipur, has been placed in medical charge of Bilaspur. The services of Captain H. B. Scott have been placed at the disposal of the Government of Burma for temporary plague duty, and he has been posted to Meiktila as special plague medical officer of the Meiktila Division. Captain R. S. Kennedy has been appointed to the medical charge of the 11th Rajputs vice Lieutenant-Colonel Spencer (retired), and Captain F. P. Wernicke to the medical charge of the 10th Jats vice Captain Lapsley, transferred permanently to the Civil Department. Captain J. W. Little, civil surgeon of Dera Ismail Khan, has been granted three months' privilege leave in India. Captain H. D. Peile, Bombay, Captain C. A. Sprawson, Bombay, Captain E. A. C. Matthews, and Captain J. E. Clements have arrived home from India on leave. Captain C. F. Weinman, Bombay, has had his leave extended by three months on medical certificate. Lieutenant S. Sarkar has been appointed to the civil medical charge of Buxa Duar. Lieutenant V. B. Green-Armytage has been granted six months' leave out of India.

TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd Lowland Field Ambulance: Lieutenant David G. Davidson to be Captain (dated June 22nd, 1910).

APPOINTMENTS TO THE NAVAL MEDICAL CONSULTATIVE AND EXAMINING BOARDS.

In connexion with the reconstruction of the Medical Consultative Board and the Medical Examining Board the following appointments have been made:—

Medical Consultative Board.—President: The Medical Director-General of the Navy. Civilian Members: Sir W. Watson Cheyne, Sir Dyce Duckworth, and Professor W. J. R. Simpson. Naval Member: Inspector-General Howard Todd.

Medical Examining Board.—President: The Medical Director-General of the Navy. Members: Dr. James Galloway, Dr. H. D. Rolleston, Mr. G. L. Cheatle, and Mr. L. A. Dunn. Secretary: Fleet-Surgeon J. L. Smith.

DEATHS IN THE SERVICES.

Inspector-General of Hospitals and Fleets Robert Grant, C.B., at Ruthven, Ballindalloch, Banffshire, on July 14th, aged 68 years. He entered the Royal Navy as surgeon in 1868, became staff-surgeon in 1879, fleet-surgeon in 1888, deputy-inspector-general in 1897, and inspector-general in 1901. He retired in 1902. He was surgeon on the *Flora* and served on shore with the 88th Regiment during the Kaffir War of 1877. He was specially promoted for services when in charge of small-pox patients on the *Boadicea*, 1879. As staff-surgeon he landed during the Zulu War, accompanied the Naval Brigade to Port Durnford (mentioned in despatches, Zulu medal); served during the naval and military operations in the Eastern Soudan, 1884, in the *Orontes*. He was medical officer in charge of transports and accompanied the Royal Marine Battalion in action at Tamaniel (mentioned in despatches for his admirable arrangements for the sick and wounded, Suakin clasp).

THE ROYAL VISIT TO ALDERSHOT.

In connexion with their Majesties' visit to Aldershot last week the King and Queen made an inspection of the hospital arrangements at the camp and evinced considerable interest in the open-air treatment of pulmonary tuberculosis. Surgeon-General Sir T. J. Gallwey, the principal medical officer at Aldershot, had the honour of dining with their Majesties on July 12th.

EXAMINATION FOR STAFF-SURGEON.

On August 2nd and 3rd an examination for the rank of Staff-Surgeon will be held at the Royal Naval Hospital, Stonehouse, Plymouth. The examination will be from 10 A.M. to 12 noon and from 2 P.M. to 4 P.M.

TERRITORIAL TRAINING.

The 4th Southern General Hospital (Territorial Force) (commanded by Lieutenant-Colonel C. E. R. Rendle), Major H. W. Webber, Quartermaster and Hon. Lieutenant W. H. Scrave, and 44 non-commissioned officers and men commenced a course of 14 days' training at the Military House, Devonport, Plymouth, on July 9th.

DONATIONS AND BEQUESTS.—The Royal Surrey County Hospital, Guildford, has received a gift of £1000 by Miss Helen Crooke, in memory of her father, a former mayor of the town.

Correspondence.

"Audi alteram partem."

THE SUPPRESSION OF QUACKERY.

To the Editor of THE LANCET.

SIR,—Last May I forwarded to the President of the General Medical Council a letter, signed by several medical practitioners, praying the Council to take measures against a certain notorious advertising quack for repeated transgressions of the Medical Act. The letter was acknowledged by the President, who said that it had been sent on to counsel for advice. The May session of the Council is long past, but we still remain without any further reply to our letter, and, worse still, without any steps whatever (so far as we are aware) having been taken to remedy the crying scandal of which we complain.

Long experience teaches that the General Medical Council is of no service to the profession whose interests it is supposed to safeguard and whose registration fee it gladly pockets. Surely, Sir, it is time that the profession took into their own hands the suppression of notorious quacks who advertise daily in respectable papers and head their advertisements with such sentences as "Scene in a West-End Doctor's Consulting-room!" It is my intention, after the Long Vacation, to endeavour to found a Society for the Suppression of Quack Advertisements, and I shall be glad to hear from any members of the profession who will support me in this work.

I am, Sir, yours faithfully,

MACLEOD YEARSLEY.

59, Queen Anne-street, Cavendish-square, W., July 15th, 1910.

*** We shall support with pleasure any organised movement against the gross and dangerous abuse of the public credulity exhibited in quack advertisements. Our correspondent, however, will find that the powers of the General Medical Council are defined and limited by the Medical Acts; it is these which require reformation, for they often leave the Council powerless to do anything in directions where it would like to be active.—ED. L.

A PRELIMINARY NOTE ON THE TREATMENT OF RODENT ULCER BY SOLID CARBON DIOXIDE.

To the Editor of THE LANCET.

SIR,—I am sorry Dr. McCulloch has had a fruitless search for my theory which seems to have disturbed him so much; this is partly my fault, as I find that I inadvertently gave the wrong reference to a previous paper. It should have been the *Clinical Journal*, Jan. 5th, 1910. But if Dr. McCulloch is expecting to find a "Morton's theory" couched in profoundly scientific and polysyllabic language I am sorry to disappoint him. Perhaps I was wrong in using the word "theory" as being too pretentious a term, and a simpler one such as "idea" would meet with his approval better. If he will kindly re-read the second sentence (which, by the way, he has quoted only partially and inaccurately) of the third paragraph of my letter substituting the word "idea" for "theory," he will perhaps find all I meant to say about my "theory."

Dr. McCulloch has not told us how great has been his experience in the use of solid carbon dioxide, and in the absence of any information on this point he must not be offended if I assume from the statements in the second paragraph of his letter that it cannot be very extensive; otherwise I do not see how he could commit himself to what he has said there. Stripped of unnecessary verbiage, he asserts that while refrigeration is bound to bring about a wholesale destruction of both normal and abnormal cells only the latter are caused to disappear by one or other of the different forms of irradiation.

It is generally admitted that the abnormal cell succumbs to the influence of the X rays or other physical force more readily than a healthy cell, because of its lower vitality, hence the so-called "selective" action of these radiations. In view of this fact it is not easy to see why Dr. McCulloch should deny the existence of a higher resisting power of the normal cells to freezing than is possessed by the abnormal ones. He offers no further proof of this extraordinary assertion than his own statement, which is insufficient as well as illogical. If his theory were correct, it would mean that every application of solid carbon dioxide would be followed by necrosis and sloughing. Such a result will follow an overdose of carbon dioxide, and the same thing will follow a similar abuse of radium or the X rays.

Accuracy of dosage is of the first importance with carbon dioxide as with any other physical or chemical therapeutic agent, and every degree of reaction, from a simple passing hyperæmia to a complete necrosis, is possible to one who has overcome the difficulties of the proper time and pressure to be employed in any given case. Dr. McCulloch fears for "the histological and cosmetic result." If he will attend the Dermatological Section at the annual meeting of the British Medical Association on July 28th, at 9.30 A.M., I shall be pleased to draw his attention to at least one case in which the result is as good as anything likely to be achieved by radium under similar conditions.

I am, Sir, yours faithfully,

REGINALD MORTON.

Upper Wimple-street, Cavendish-square, W., July 16th, 1910.

THE USE OF FILTHY FLOCK FOR BEDDING.

To the Editor of THE LANCET.

SIR,—As you are no doubt aware, I have for the past eight or ten years taken a very keen interest in all that appertains to the manufacture of flock, and on my advice one large firm at any rate has installed apparatus for the efficient sterilisation of its material used in the manufacture. As I have many times stated, I am strongly of opinion that it is essential that all the material used in the production of woollen rag-flock for beds, mattresses, upholstery, &c., should be sterilised prior to manufacture, and that the only practical process for this purpose involves the use of high-pressure super-heated steam. Washing in cold or tepid water, whilst removing the impurities ordinarily designated by the word "dirt," neither destroys infective germs nor their spores; nor does any ordinary drying process attain that end. I consider the report of the Local Government Board an exceedingly half-hearted attempt to deal with what is, to my mind, a very important question. So impressed am I with the importance of dealing seriously with this matter that the authorities at Guy's Hospital have on my suggestion fitted up a room for the effective disinfection (not necessarily sterilisation) of the mattresses of the beds between their use by successive patients. If I consider this necessary in a well-organised and cleanly institution, my opinion of the value of merely washing the filthy material that is converted into flock, including, as it sometimes does, bandages and dressings in all degrees of filthiness, may readily be inferred.

I am, Sir, yours faithfully,

JNO. EYRE.

The Bacteriological Laboratories, Guy's Hospital, S.E., July 2nd, 1910.

REBATE ON PETROL DUTY TO MEDICAL PRACTITIONERS.

To the Editor of THE LANCET.

SIR,—I should be glad to learn through the medium of your columns if any medical practitioner owning and using a motor car has obtained any return of money for rebate on petrol duty. I have filled in all forms, signed them in the presence of, and left them with, the revenue officer, and there the matter has rested for months.—I am, Sir, yours faithfully,

July 6th, 1910. 8 H.P.

GOLF AT BRISTOL.—An interesting match was recently played at Long Ashton, near Bristol, between the members of the clerical and medical professions in Bristol and district, victory remaining with the latter team.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

University of Bristol.

AT a recent meeting of the University Council Dr. Walter C. Swayne, professor of obstetrics and gynæcology, presented to the Council on behalf of the Misses Caroline and Frances Swayne two bedell's staves, each about 5 feet in length, of solid ebony, and mounted with silver. At the head of one is displayed an open book, the recognised badge of a university; at the head of the other, the sun in splendour, one of the armorial bearings of the Wills family. Regulations were adopted by which the evening instruction offered by the University may be had free by persons recommended for that purpose by the city education committee, by the Workers' Educational Association, or by a recognised trade union, the University retaining the right of requiring a test of educational fitness for attendance. Ordinances were passed for the association of the Royal Agricultural College, Cirencester, with the University, for the purpose of university instruction in practical agriculture and forestry (research in such subjects being provided for in Bristol itself); also for similar association of two theological colleges in Bristol for the purpose of instruction in theological subjects accepted for the B.A. degree. Of these, the Western College has excellent buildings not far from the main block of University buildings; while the Baptist College, at present in the city, is to be rebuilt on a site separated only by a road from the large block of chemical and physiological buildings at present in course of erection. The proposals of the education committee for the administration of city scholarships to the University have been accepted by the city council.

The M.B., Ch.B. Bristol.

The final examination for the M.B., Ch.B. Bristol has just been held for the first time. There were 14 candidates, all of them already holding other qualifications, and almost all of them old students of the Bristol Medical School; of these, eight qualified for the degree and one passed in Part I. of the examination. The external examiners were as follows: Medicine, Dr. T. R. Glynn; surgery, Mr. A. Pearce Gould; obstetrics, Sir William J. Smyly; forensic medicine and toxicology, Dr. R. B. Wild; materia medica and pharmacology, Dr. R. B. Wild; pathology, Professor G. Sims Woodhead.

The Pathological Society of Great Britain and Ireland.

On July 8th and 9th, the Pathological Society of Great Britain and Ireland held its annual meeting in the University premises. There was an attendance of about 40 members, Professor I. Walker Hall presiding. Many interesting and important communications were made, and an admirable collection of specimens was on view. The society dined on the 8th at the Clifton Down Hotel and spent a pleasant evening; and on the 9th, luncheon was provided at the Queen's Hotel by members of the General Hospital and Royal Infirmary staffs.

Lady Greville Smyth and the Bristol Museum.

Some months ago reference was made in these columns to the munificence of Lady Greville Smyth, who gave the late Sir Greville Smyth's valuable entomological collections to the Bristol Museum, together with £2000 for the equipment of a room to house them. This gift has been followed by the offer of £1500 for the furnishing of a room adjoining the Greville Smyth room in which the entomological specimens are arranged for the display of botanical specimens, showing various diseased conditions of plants and their causes, as well as for the setting out of natural history specimens for which no adequate space exists at present. As was explained before, the museum adjoins the University buildings, where agricultural research is carried on, so that the "Dame Emily Smyth" room of botany and economic biology will be readily accessible to those who are investigating such matters, and will thus increase the efficiency of the agricultural research department of the University.

The Lord Mayor of Bristol's Hospital Sunday Fund.

The final distribution of this fund was recently made, the total distributed being £1800, a sum which has only twice been exceeded. A small balance was carried forward to 1911.

The City Fever Hospital, Ham Green.

The Lord Mayor, the Lady Mayoress, the Sheriff, and various members of the city council were recently invited by the health committee to visit and inspect the city fever hospital at Ham Green, which lies several miles below the city itself on the south bank of the Avon. The hospital (the work of which is supplemented by other smaller ones in the city and its outskirts) holds 135 beds, allowing 2000 cubic feet of air space per bed; but, as Mr. Colston Wintle, the chairman of the health committee, told the visitors, the pressure is such that 200 patients have to be accommodated sometimes, while the average for the last two or three years has been 150.

Medical Inspection of Schools in Bristol.

A change in the administration of medical inspection of school children in Bristol has received the sanction of the city council. It represents a compromise between the wishes of the Board of Education and those of the local authorities, the former asking for alteration in one particular of the scheme hitherto in use, which, in the opinion of the city education committee, has worked satisfactorily. Till now there have been five medical men giving part of their time to the work; in future also there will be five, but one will give rather more time than the others, and will be called "school medical officer." He will superintend the whole scheme and be responsible for annual and other reports, the proposed salary being £200 a year. The change will cost £70 a year more than heretofore.

Midwives in Cornwall.

At the last meeting of the midwives committee of the Cornwall county council held at Truro under the chairmanship of Sir A. Quiller Couch, Mr. J. M. Nicholls, M.R.C.S. Eng., J.P., was elected chairman. It was stated that there were districts in the county quite destitute of midwives, and that several women were acting illegally and were liable to punishment under the Act. After some discussion it was resolved to make more inquiries of medical officers in reference to the Midwives Act, the chairman remarking that anyone who examined the books of the medical officers could see there was no real system of inspection carried out.

The Part-time Medical Officers of Health.

At the conference of the Urban District Councils Association held at Ilfracombe last week under the presidency of Sir Thomas Roe, M.P., it was resolved:—

That in the opinion of this conference the policy of appointing part-time medical officers of health is temporarily necessary in those districts whose population and area do not justify the appointment of a whole-time officer.

Exeter City Asylum.

At a recent meeting of the Exeter city council it was reported that the sum of £472 had been paid into the borough fund as the result of the working of the city asylum for 1909. This amount was less than it has been for some years. Since the asylum was opened, about 23 years ago, the borough fund has received £43,000 from the institution.

July 19th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Health of the City.

THERE has been recently a remarkably low rate of mortality. Until last month a death-rate below 10 per 1000 had never been recorded, but for the week ending June 11th the return was 9·7. This record, however, was broken for the week ending July 9th, when the rate was 8·8 per 1000. The death-rate for the half-year ending June 30th was 14·3 per 1000, the lowest ever recorded in the first half-year, the average for the previous ten years being 18·4. The birth-rate has continued to decline, having been 27·0 as compared with 27·8 last year, the mean rate in the ten preceding years being 31·1.

Sanatorium Treatment of Consumptives.

The number of patients treated at the municipal sanatorium at Salterley Grange during the half-year ended June 30th was as follow: Under treatment at beginning of half-year, 29; admitted during half-year, 42; discharged,

36; remaining under treatment, 35. Dr. J. D. Stanley has examined 31 of the discharged patients during the quarter ended June 30th. Of these, 11 were recent discharges and 20 had been examined one or more times. Four were classed as "very greatly improved," there being increase of weight, no, or only occasional, cough, and all were at work or ready for employment. Two out of three men were on full wages. Fourteen were classed as "much improved." In all cases the difference due to treatment was very great. Two men were receiving more wages than before; some were back at the same rate of pay. With one exception all stated that they were able to work. Six were classed as "improved." In these cases cough and other symptoms were less marked than before treatment, but three had lost weight. One case was found to be stationary and unable to resume work. Six cases were "not improved." In all there was loss of weight with increase of symptoms. Their unsatisfactory condition was attributable to bad home conditions or work. Several of the patients were brass-casters or engaged in similar dusty trades, and on their return they find it almost impossible to obtain suitable employment. Some have been ont of work for considerable periods.—Since the council sanctioned the use of the Yardley-road emergency hospital for use as an institution for the educational treatment of consumption the necessary alterations have been put in hand, and it is hoped that patients will be admitted in October.—The Hospital Saturday Committee announces that the site of the proposed Sir William Cook Memorial Sanatorium has been chosen. It is situated on Romsley Hill, between the Lickey and Clent hills, at a point ten miles from the city. The site is from 700 to 800 feet high, faces south, commands beautiful views, and is in every way ideal. The area of the site is 25 acres, and it has been presented free by an anonymous friend. It is intended to provide for 50 beds.

Care of the Feeble-Minded.

The Birmingham, Aston, and King's Norton Joint Poor-law Establishment Committee has issued a report containing the second year's experience of the Monyhull Colony for Epileptics and Feeble-Minded. The object of establishing the colony was to provide an institution where proper and adequate classification could be secured for certain classes of epileptic and feeble-minded persons, and where special treatment could be provided. The committee claims that after two years the colony has passed out of the experimental stage, and has reached a position of efficiency. From the outset the colonists have been usefully employed. The male colonists have been employed as follows: on the lawns and greenhouses, 3; in orchard and kitchen garden, 10; in cowsheds and yard, 4; with carpenter, 2; with hedger, 1; on the grounds, 10; on the farm and wood-chopping, 14; total 48. The female colonists are employed as follows: sewing-room, 25; laundry, 21; general work, 34; poultry, 3; housemaid's work, 5; cooking, 8; total, 96. After working hours the colonists have outdoor games—cricket and football for men, skipping and round games for women. In the winter they are instructed in reading, singing, physical drill, frame-making, and fretwork. A weekly concert is also given. The average cost per week per colonist works out at 12*s.* 2¾*d.* In the original scheme children were excluded from the colony, but steps are being taken now to provide accommodation for them. The report of Dr. B. F. Jordan, the medical officer, upon the physical and mental condition of the inmates is highly encouraging.

Health of Warwickshire School Children.

Dr. Bostock Hill, the medical officer to the Warwickshire education committee, has issued his report for 1909. Of 9388 children, the clothing in 332 cases is described as "bad," by which is meant insufficient, for its purpose. In 1101 it was "passable," and in 7955 it was considered to be all that was necessary. As regards nutrition, 1527 children were described as thin, but there is no material evidence that, except in very few instances, the children were suffering from insufficient food, though many of them did not receive suitable food, but that there is an inability to supply children with sufficient nourishment to a marked extent has, he thinks, been disproved. In 287 cases more than 7 teeth were carious, in 1513 4 to 7 teeth were carious, and in 3413 cases 1 to 3 teeth required dental aid. The number of bad teeth found in the southern division of the county was much larger than in the northern, especially among the boys. As regards intelligence, 152 children were described as "medium," 341 as "dull," and 57 as "defective"; the bulk of these were found among what are termed special cases, the children having been found by the teachers difficult to educate. 543 children were found to be a danger to others or incapable of receiving education and were excluded from school. More than half of these, 342, were suffering from ringworm, 34 had impetigo, and 44 scabies. 58 were excluded owing to the verminous condition of the head or body.

University of Birmingham.

The annual degree congregation was held on July 9th in the great hall of the new buildings at Edgbaston opened a year ago by King Edward. Official degrees of M.D. were conferred on Sir Robert Simon, professor of therapeutics, and Dr. Peter Thompson, professor of anatomy. The degrees of Bachelor of Medicine and Bachelor of Surgery were conferred upon seven recipients. Professor R. Saundby has been elected to represent the University on the General Medical Council for another period of five years. Dr. Thomas Wilson has been appointed Lecturer in Midwifery and Diseases of Women, and Professor Bostock Hill has been appointed to represent the University at the Conference on School Hygiene to be held in Paris on August 7th.

July 19th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Health of Liverpool.

Dr. E. W. Hope, medical officer of health, informed the health committee on July 14th that the first half of the current year disclosed the lowest rate of mortality in the history of the city. He added that if this gratifying state of things continued for the remainder of the year the 12 months would be memorable from a hygienic point of view. Last week the death-rate of the city fell as low as 14·2 per 1000.

New St. Paul's Eye Hospital and George Edward Walker Memorial.

The foundation-stone of the new St. Paul's Eye Hospital and George Edward Walker Memorial, to be erected at the junction of Oldhall-street and King Edward-street, will be laid on July 20th by the Earl of Derby. The new hospital will take the place of the present building in St. Paul's-square, which is both out of date and too small for the demands upon it. It will also form a fitting memorial of the late Mr. George Edward Walker, who gave so many years of devoted labour to the institution, of which he was also one of the fonnders.

Lancashire Education Authority and Unhealthy Children.

At a meeting of the Lancashire education authority held on July 18th, it transpired that 160,000 children attended the Lancashire elementary schools; of 60,000 examined comparatively few were absolutely sound. 12,000 suffered from skin diseases alone; 11,000 suffered from defective vision, many of whom were unprovided with spectacles. The elementary committee proposed that the medical inspectors should be instructed to prescribe spectacles for children suffering from defective vision, and thus enable them to go to certified opticians and obtain the right spectacles. It was proposed also to recommend certain opticians in the county, and to make arrangements for provision of spectacles at a reasonable cost. The committee, however, gave the opticians clearly to understand that it would not undertake any responsibility for payment of the cost of the spectacles. Assuming that the parents are unable to pay for the cost of the spectacles, how are the recommendations of the elementary committee to be carried out?

The Health Congress at Birkenhead.

The annual congress of the Royal Institute of Public Health was inaugurated in the Birkenhead town hall on July 18th, where, after a reception by the chairman of the health committee, the delegates gathered in the assembly room. Amongst those present were the Mayor of Birkenhead (who presided at the outset), the President of the Congress (Mr. W. H. Lever), the Earl of Meath, Mr. Henry Vivian, M.P., Sir Lauder Brunton, the High Sheriff of Cheshire, Sir William Ramsay, Sir Alexander Binnie, Sir

John M'Fadyean, Sir Thomas Oliver, Mr. J. W. Alsop, the Pro-Chancellor of the University of Liverpool, Sir John Moore (Dublin), Sir James Barr (Liverpool), Sir Willliam Baxter, Surgeon-General G. J. H. Evatt, Professor Letts, Professor Adshead, Professor Geddes, Professor E. W. Hope, the Rev. Canon Knox, Vicar of Birkenhead, and Dr. R. S. Marsden (general secretary). Professor W. R. Smith, principal of the Royal Institute, then installed Mr. W. H. Lever as President of the Congress. In the course of his address on the relation of health, work, and life, Mr. Lever said that every diligent employee had a moral and indisputable right out of the product of his labour to live in a decent home, and to possess the opportunity to bring up his children in decent environment. It was as inexpedient from a business standpoint as it was wrong from a purely moral standpoint for capital and management to fail to discharge their obligations to an employee. An industrial system stood self-condemned when one-ninth of the population enjoyed one-half of the total income and possessed more than nine-tenths of the accumulated wealth of the country. The lifting of the employee from the lower level of the wage-drawer to the higher level of the profit-earner improved his efficiency, increased his capacity for intelligent and profitable employment, and was found to relieve the excessive strain of modern competition, now wholly borne by the employer. The conference is divided into the following sections: preventive medicine and vital statistics; chemistry, bacteriology, and meteorology; industrial and school hygiene; municipal and county engineering; comparative pathology; veterinary hygiene; and town-planning and municipal architecture. Sir Lauder Brunton, president of the first section, pointed out in his presidential address the larger place that bio-chemistry was taking in pathological inquiry. Professor Hope will advocate a quinquennial census and Professor Benjamin Moore will discuss the nationalisation of the public health service. Mr. and Mrs. Lever will give a garden party at Thornton Manor, followed in the evening by a mayoral reception at the town hall of Birkenhead. River trips by the corporation steamers are also offered.

July 20th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Annual Report of the Medical Officer of Health of Edinburgh.

THE annual report of the public health department of the city of Edinburgh for the year 1909 shows the death-rate at the satisfactorily low figure of 13·4 per 1000, as compared with 13·3 in 1908. When there are included the deaths of persons belonging to the city who have died elsewhere, as is now required by the Local Government Board, the death-rate amounts to 14·3 per 1000. The deaths from infectious diseases numbered 2216, as against 2743 in 1908. The deaths from scarlet fever, diphtheria, and typhoid fever showed a marked diminution, the total cases of typhoid fever numbering only 39, five of which were fatal. There was a slight increase in the number of deaths from whooping-cough, but the death-rate for that disease is considerably below the average for Scotland during the past 30 years. Deaths from measles amounted to 57, as compared with 78 in 1908 and 164 in 1907. An effort was made to accommodate as many cases of measles as possible in the city hospital. Cerebro-spinal fever accounted for a few deaths, but the disease has almost disappeared from the city. The death-rate from phthisis, which became a notifiable disease in March, 1907, was the lowest yet recorded. The prevention of the spread of phthisis is being actively taken in hand and it is expected that marked results will shortly become apparent.

Medical Officer for the County of Fife.

Mr. Hugh A. Macewen, M.B., Ch.B. Glasg., D P.H. Lond., D.P.H. Camb., assistant medical officer for Cumberland, has been appointed medical officer of health for the county of Fife, in succession to Dr. T. F. Dewar, who has received an appointment under the Local Government Board. The appointment was unanimous. The salary attaching to the office is £611. Dr. Macewen is a son of Sir William Macewen of the University of Glasgow.

The Salary of the Medical Officer of Health of Aberdeen.

At a meeting of the public health committee of the Aberdeen town council held on July 13th there was under consideration a report by a subcommittee recommending an increase of £100 in the salary of Dr. Matthew Hay, the medical officer of health, in consequence of the increase which has taken place in his duties. It was agreed to defer consideration of the matter to a special meeting of the committee to be held this week.

Aberdeen University Court and the Medical Ordinance.

The Aberdeen University Court met on July 11th. Professor Matthew Hay said that when the new ordinance in medicine was before them three months ago they took objection to the power proposed to be included in it for the first time by the University of St. Andrews to reduce the number of attendances in connexion with the various departments of study. They, acting in common with other Scottish Universities, took objection to that, and the University of St. Andrews seemed to be satisfied with the propriety of their objections, and had now resolved to alter the ordinance, and had submitted to them that day an ordinance which contained that alteration. In other words, the power to diminish the number of attendances had been omitted, and he now proposed that the University Court should withdraw any objections it formerly took to the ordinance. This was agreed to. The following were appointed additional examiners:—Botany: Otto V. Darbishire, B.A., Ph.D., lecturer in botany, Armstrong College, Newcastle-on-Tyne. Zoology: E. W. McBride, M.A., D.Sc., LL.D., F.R.S., professor of zoology, Imperial College of Science, South Kensington. Chemistry: S. J. Shand, B.Sc., officer in charge of the geological department, Royal Scottish Museum, Edinburgh. Medicine: Harry Rainy, M.A., M.D. Edin., of Edinburgh. Midwifery: Harry O. Nicholson, M.D. Aberd., of Edinburgh. Medical Jurisprudence and Public Health: John Wright Mason, M.D. Aberd., medical officer of health, Hull. Diploma in Public Health: John J. Buchan, M.D. Glasg., medical officer of health, St. Helens.

The University of Aberdeen: Summer Graduation.

The summer graduation at the University of Aberdeen took place in the Mitchell Hall, Marischal College, on July 13th. Seven gentlemen received the degree of M.D., 19 those of M.B., Ch.B., and 6 the Diploma in Public Health. The Struthers gold medal in anatomy was awarded to Mr. John Douglas Fiddes, M.A., B.Sc., M.B., Ch.B. The John Murray medal and scholarship in medicine was awarded to Mr. Robert Richards, M.A., M.B., Ch.B., as the most distinguished graduate in medicine of the year.

July 19th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal College of Physicians of Ireland.

AT a special business meeting of the President and Fellows of the Royal College of Physicians of Ireland the following resolution has been unanimously adopted:—

That the College cannot permit Dr. J. Magee Finny to retire from the King's Professorship of the Practice of Medicine without expressing their warm sense of the zeal and ability with which Dr. Finny discharged the duties of the professorship, including that of physician to Sir Patrick Dun's Hospital, for a period of 28 years.

Before the meeting concluded Dr. James Craig was, as was stated in THE LANCET last week, elected King's Professor of the Practice of Medicine in succession to Dr. Finny.

Old Age Pensions and the Poor Rates.

Local authorities all over the country are making strong protest against the recent proposal of Mr. Lloyd George to make the poor-rates pay part of the expense of old age pensions. It was announced some time ago that the Government intended to remove the pauper disqualification clause from the Old Age Pensions Act, so that those who are debarred at present by being inmates of workhouses or in receipt of out-door relief, would be enabled to enjoy pensions. This decision was warmly welcomed, but the Chancellor of the Exchequer more recently made a statement which has roused alarm. He announced that boards of guardians will be called on to pay a corresponding amount to what they now expend in out-door relief to, and maintenance

in workhouses of, paupers over 70 years of age who become entitled to pensions on Jan. 1st, 1911. It is pointed out that by this means the local bodies will be subjected to a perpetual charge without revision, and probably considerably in excess of what they would have to pay as time goes on if things took their natural course. The number of old people in Ireland is proportionally large, but it is progressively diminishing, and the expenditure of boards of guardians on persons over 70 would become less year by year, both because of this diminution and because in the future many would enjoy old age pensions, who, but for the Act, might have come on the rates for maintenance. In passing the Old Age Pensions Act Parliament pledged itself that the expenses of the Act were to come from the Imperial Exchequer. Local bodies in Ireland regard Mr. Lloyd George's new scheme as a plan to make the rates contribute a large proportion of the expense.

Notification of Births Act in Dublin.

At a recent meeting of the Dublin corporation a motion to adopt the Notification of Births Act of 1907 was proposed and carried. Alderman Dr. J. C. McWalter opposed the motion, maintaining that the Act would be unworkable and that it dealt with an evil which did not exist in Dublin. The Act will place a new unpaid duty on the shoulders of medical men, and there is no reason to suppose that the municipal authorities will make any use of the information supplied them for the purpose of taking any action directed towards diminishing infant mortality.

Presentation to Sir G. P. O'Farrell.

In the Privy Council Chamber, Dublin Castle, Sir G. P. O'Farrell, M.D., on his retirement from the post of Inspector of Lunatics, was presented by his fellow-workers in the public service with a handsome eighteenth-century half-oval Sheraton satinwood table, and a silver inkstand and candlesticks, as a mark of their appreciation of his efficiency and humanity as a lunacy administrator, as well as of his private worth. The Lord Chancellor, who presided and presented the gifts, referred to the great changes that had been effected during the past 20 years in the care and treatment of lunatics, whereby a largely increased amount of comfort—it might be said of happiness—had been brought into the lives even of those whose mental conditions did not admit of cure. These had been brought about largely by the joint efforts of Sir George O'Farrell and his colleague, Dr. E. M. Courtenay, whose term of office was, he said, happily not yet terminated.

The Belfast Measles Epidemic.

The epidemic of measles in Belfast still continues with a very large mortality. During the week ending July 9th (the latest official return from the Registrar-General) 24 deaths from measles occurred in Belfast, while in the rest of Ireland during the same period there were two only deaths—one in Dublin, the other in Londonderry.

Sanitary Congress in Belfast.

The public health committee of Belfast has recommended the city council to extend an invitation to the Royal Sanitary Institute to hold its annual meeting in Belfast in 1911. The invitation is to be presented at Brighton, where the institute meets this year. Dr. Samuel Agnew, medical officer of health of Lurgan, has written to the daily press urging that, following the example of Leeds, the city council of Belfast should endeavour to bring about a joint congress in which both the Royal Sanitary Institute and the Royal Institute of Public Health should coöperate. In this way they would really have a thoroughly representative single congress in one place instead of two smaller meetings at different parts of the United Kingdom.

July 19th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Congress of German Scientists and Medical Men.

THE Eighty-second Congress of German Scientists and Medical Men will meet at Königsberg in East Prussia from Sept. 18th to 24th. There will be two general meetings, held respectively on the 19th and 20th. Addresses will be delivered in the general meetings by Professor Külpe of Bonn on the Theory of Perception Applied to Natural Science, by Professor Cramer of Göttingen on Puberty and School Education, by Dr. Tornquist of Königsberg on the Geology of East Prussia, by Professor Planck of Berlin on the Connexion between Modern Physics and the Mechanic Theory of Nature, and by Professor von Monakow of Zürich on the Localisation of Cerebral Function. A joint meeting of the medical and naturalist section will be held on Sept. 22nd, when papers will be rea by Dr. Ach of Königsberg on the Will, and by D Zenneck of Ludwigshafen on the Extraction of Nitroge from the Air and its Practical Use. The medical sectio of the Congress will include 18 subsections dealin with the different branches of medicine. The social ente tainments will include trips to the Baltic Sea, to the Castl of the German Knights at Marienburg, and to Danzig to visi the new Technical College. Previously to the Congress th tourist committee will arrange a fortnight's trip by steame starting from Swinemünde, and touching at Wisby, Stock holm, Helsingfors, Wiborg, St. Petersburg, Riga, and finall at Pillau, from which the members will proceed by specia train to Königsberg. English medical men having som weeks to spend at that time would probably find much t interest them at the meeting. Königsberg is a very fine ol place with beautiful surroundings, and not far from the Baltic The lakes and pine forests of East Prussia are famous an form an attractive feature of this district, which is unfor tunately out of the way of the average tourist. Furthe particulars will be given on application by the office of th Congress at 25, Drummstrasse, Königsberg, East Prussia.

The Virchow Monument.

A monument of the late Professor Virchow was unveiled a few days ago on the Carlsplatz in the centre of the medica quarter of Berlin and a few steps from the Charité Hospital where the deceased had carried on his important pathologica studies. The monument previously to its erection had been an object of controversy because the artist, Herr Klimsch, had declined to represent Professor Virchow in the usual manner—wearing a frock-coat and holding some medical instrument in his hand. He had designed a group representing Hercules defeating a monster in order to compare the work of the deceased with that of Hercules. This proposal did not satisfy the committee because there was no personal allusion to the man who was to be commemorated, and notwithstanding their previous agreement they declined to erect it. Finally, another agreement was entered into by which the original group was left unaltered, but two reliefs were to be placed on the pedestal, one being a portrait of Professor Virchow, and the other representing him lecturing. The unveiling ceremony was very impressive, the widow and family being present, together with representatives of the Government, the city, Parliament, the Army Medical Corps, and the medical societies, including the Anglo-American Association of Berlin; a great many medical men also attended. Professor Waldeyer, in the name of the committee, the University, and the Royal Academy of Science, delivered an address in which he eulogised Virchow as a physician, as a biologist, and as a citizen. The Mayor of Berlin then expressed the thanks of the municipality for the beautiful monument by which that part of the city was so greatly embellished. Many wreaths were sent by the various bodies represented at the ceremony.

The New Army Medical College.

The new premises of the Army Medical College were recently opened amid great military display in the presence of the Emperor, who made a speech expressing his satisfaction with the work of the Army Medical Corps. After inaugural addresses by the Minister of War and the chief of the Army Medical Corps, General Staff-Surgeon Dr. von Schjerning, the Imperial party, including the Emperor, was shown over the premises by the Minister and the general staff-surgeon. The new college is described by the *Deutsche Medicinische Wochenschrift* as the finest medical building in Berlin, combining an architectural grace with every requisite for practical utility. It contains rooms for 300 army medical students and for resident army medical officers, as well as accommodation for the general staff-surgeon. The valuable collections of the Army Medical College will now have adequate storage room, which was not the case in the old premises of the college dating from the beginning of the nineteenth century. They include a most complete collection of surgical instruments from early times to the present day, an anatomical and physical collection, a collection of

sing appliances, and a collection showing the action of lern projectiles on the human hody. The lihrary of the ege is one of the largest medical lihraries, including actually 700 hooks and receiving annually an addition of ahout 0 volumes. It is open not only to army medical officers students hut also to civilian medical men-students on lication to the director of the college. The statistical artment of the college issues various puhlications, luding annual reports on the health of the army and on hodily condition of recruits, hoth of which are very uahle. The staff of the college includes one surgeon-ieral as director, 49 army medical officers of different ks, one pharmaceutical chemist, and three administrative cials. The students attend classes at the University ether with the civilian students, the professors of the Uni-sity heing at the same time professors at the Army Medical llege. Special courses in army medical matters are ivered for them hy army medical officers. Post-graduate tures of four weeks' duration for memhers of the Army dical Corps have for a long time been given in the college, l it is worth mentioning that these courses, for attend-ce on which army medical officers have to come to Berlin m every part of Germany, were the first experiment in st-graduate study in this country ; post-graduate study for ilian practitioners was instituted many years later. Many ehrated medical men and *savants* have been trained in the llege and suhsequently resigned their positions in the Army dical Corps ; the late Professor Helmholtz, the late Pro-sor Virchow, Professor Leyden, Professor Behring, Pro-sor Löffler, Professor Gaffky, and Professor Gärtner were mer students in the Army Medical College.

Failures of Wassermann's Reaction for Syphilis.

At a recent meeting of the Medical Society Dr. Freudenherg ad a paper on Some Failures of Wassermann's Reactions in philis. He described two cases, the first heing that of a an who had contracted syphilis in 1897, and after energetic tisyphilitic treatment had married in 1902 and had three althy children. In 1908 he complained of severe headache, d in January, 1909, he had a Wassermann test applied hich proved absolutely negative. The reaction was repeated April, 1909, at another lahoratory and proved positive. hen the patient showed marked symptoms of cerebral philis samples of his hlood were sent to three different boratories, of which two reported a positive and one a gative result. The second case was that of a young man whom a large ulcer had developed ahout a fort-ght after coition ; this ulcer, however, healed promptly ter an operation for phimosis was performed. A Wasser-ann reaction was then made on Oct. 26th, the result heing sitive, and on Oct. 29th the same heing negative. On ov. 4th samples of his hlood were sent to four different horatories, of which two reported a negative, one a sitive, and one a douhtful result. The patient did not ow symptoms of syphilis, hut was now quite healthy eight onths after the infection. Dr. Freudenherg warned his earers against neglecting the clinical symptoms and relying xclusively on the results of the Wassermann reaction. n the discussion, which was continued during two meet-ngs of the society, Dr. Wossidlu stated that of 20 cases n which the reaction had been performed simultaneously n three different lahoratories in seven only the results ad heen in accordance with each other ; in the remainder lifferent results were reported in the same blood hy he different lahoratories. Dr. Mühram said that the roduction of antihodies varied sometimes. Dr. Cohn nentioned cases of tumour in the hrain, where, the re-ction heing positive, the presence of syphilis was suggested nd operation was therefore postponed till it hecame too ate. Professor Blaschko said that it was sometimes difficult o decide whether a test was positive or negative. A well-marked reaction only estahlished the presence of syphilis. Professor Wassermann said that many lahoratories worked not according to his method hut according to a modification of it, and that he declined to he held responsihle for them. Of 1000 cases in which the reaction had been made in the manner recommended hy him in 98 per cent. the results had heen in accordance with the clinical symptoms. The mistakes were not due to the method itself, hut to defective systems of applying it ; he recommended the estahlishment of a central institute which might provide lahoratories with standard antigens

July 18th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Vital Statistics.

THE Commonwealth Statistician has issued an official year-hook for 1910. The estimated population was 4,275,306. The proportion of males to females was 111 to 100. Except New Zealand, this is the highest in the world. The hirth-rate was 26·35 per 1000. The death-rate was 11. Of the various States New South Wales shows the lowest death-rate and Tasmania the highest. There were 17 centenarians and one death at 111 years. There were 497 suicides, of whom 413 were men.

Prosecution of a Ship's Surgeon.

The surgeon in charge of R.M.S. *Otway* on the last inward voyage was proceeded against in the magistrates' court at Fremantle hy the Commonwealth Federal quarantine authorities, the allegation being that as ship's surgeon he had supplied incorrect information to the port health officer as to a case of illness under his care. A hoy who had joined the ship at Colombo became ill on the voyage to Fremantle, and his illness was diagnosed as "sun fever," and this view was concurred in hy two medical men who were passengers. Before arrival a rash developed and the hoy and his mother were isolated. The case was described as tropical fever, hut the port health officer diagnosed it as small-pox. Suhsequently a numher of other cases developed. The ship's surgeon was committed for trial.

The Dangers of Chloroform Anæsthesia.

In a recent discussion on this suhject Dr. C. H. Mollison contrihuted a personal pathological experience of necropsies upon 36 cases of deaths under anæsthetics. Dr. Mollison said that from this material he concluded chloroform was exceedingly dangerous in the following conditions : 1. Cases in which there is any inflammatory swelling in the neck and throat. 2. Cases where there has heen a high temperature for some little time. The heart muscle is in a condition of cloudy swelling and is peculiarly susceptihle to $CHCl_3$. These are the cases that frequently die before they are properly anæsthetised. 3. Cases where the heart is seriously emharrassed hy internal tension or ahdominal pressure. 4. Cases where there has been persistent vomiting. 5. Cases where there is marked dilatation of the heart or undermining of the muscle from degenerative changes. 6. Exophthalmic goitre.

Plague in Sydney.

The past autumn has not been marked by any recrudescence of plague in Sydney. From June, 1909, to April, 1910, the city was quite free from any sign of the disease. Four plague-infected rats were discovered during the last week of April. All four came from within a very limited area, and no cases in human heings have come to light.

Consumption among School Teachers.

Some time ago, in Victoria, sensational statements were made hy several shire councillors as to the action of the Education Department in employing consumptive school teachers. The Director of Education points out that among 5000 teachers only 11 have heen registered as suffering from the disease, and of these eight are on leave and three have returned to work on the certificate of the Government health officer.

Intermediate Home for Consumptives.

The assistant medical officer to the Victorian Board of Health considers that pressing need is manifest for an institution in which consumptive patients not suitahle for early sanatorium treatment and not sufficiently advanced for incurahle homes could be accommodated. He suggests a Government farm colony, at which the inmates might grow vegetahles and raise poultry, and so become to some extent self-supporting. At present the Government possesses a sanatorium at Greenvale capahle of accommodating 80 early cases, and the Austin Hospital for Incurahles admits hopeless cases, hut there is nothing hetween these extremes of care except the general hospitals, and these institutions cannot be expected to permit patients to remain indefinitely.

June 11th.

Obituary.

JOHN BART ROUS, M.B., B.S. LOND., L.R.C.P. LOND., M.R.C.S. ENG.

John Bart Rous was born in October, 1878, the only son of Mr. Bart Rous, an architect. He was educated at Felsted School, and having matriculated at the University of London he entered as a student at St. Mary's Hospital in 1896. During his student's career the state of his health necessitated a voyage to Australia, but on his return he settled down immediately to hard work. He obtained the joint diploma of the Colleges in 1903, and took a post as resident in a provincial hospital. In 1905 he obtained his medical degree at the University of London, being placed in the Honours division with distinction in medicine. He served as house physician in his own hospital, and held a few residential posts elsewhere, after which, forsaking the paths of clinical medicine, he became a member of the editorial staff of THE LANCET. We may insert here an impression of Dr. Rous, made as a student upon the hospital to which he was so much attached. Dr. W. H. Willcox writes:—"John Bart Rous was one of the best students of his year at St. Mary's, while he showed himself from the first a man of wide interests and great public spirit. He was extremely able at his clinical work and keenly interested in it, so that most surely had he taken up almost any line of practice he would have been very successful. His temperament was essentially the physician's. He was a man of most kindly nature and loveable disposition, and his deserved popularity amongst his fellow students and colleagues foreshadowed the wide esteem in which he would inevitably have been held in a larger world. He was always the first to lend a helping hand to a friend in trouble, and to one such instance I must allude. It was not a little through Rous's tact and forethought that such steps were taken as resulted in the widow and children of his friend, Dr. J. H. Wells, being provided for, the magnificent response which followed the appeal in THE LANCET to the Wells Testimonial Fund having a direct connexion with the energies of the secretaries, Lord Denbigh and Mr. Lousada, and Rous's proselytising zeal. Rous was always very devoted to his old medical school and was keenly interested in any work which emanated from St. Mary's, so that it is no wonder that he was really loved by those of us who knew him here, while he was regarded by the staff as one of the most brilliant men among us of recent years." Dr. Willcox adds: "It is a very great personal grief to me to have lost such a dear and valued friend, and I am quite sure that this feeling is shared by all the staff at St. Mary's Hospital and by all the fellow students of our dear friend."

In 1907 Rous definitely decided that he would adopt literature as a career, and although he resigned the idea of the active pursuit of his profession with great reluctance, for, modest as he was, he knew that he had it in him to succeed in practice, he threw himself into the life of the journalist with full delight. From a boy he had been fond of all forms of literature. At Felsted he edited the school journal. At St. Mary's Hospital he was connected with the *St. Mary's Hospital Gazette* for a period of four years, at first as sub-editor and later as editor. In this post—a small, but in its way a difficult and important, one—he showed most conspicuous ability, and first proved his peculiar aptitude for a literary career. We are permitted by the courtesy of the editor of the *St. Mary's Hospital Gazette* to quote here from the editorial article which will appear in the next number of the *Gazette*. The words are exactly those that we should ourselves have used, and we are glad that they should be put into our mouths. "For four years he was connected with the *Gazette*, first as sub-editor and later as editor; he served its interests with characteristic energy and a very full measure of success. After a brief regret at his separation from practical medicine his connexion with THE LANCET became a source of great joy and pride to him. He had an intense delight in his work, loving to do even the hack-work to the best of his ability. He grew to reverence, as the true journalist must, the impersonal being of 'the paper,' and to delight to sink his own identity in listening to its voice. He did not live to weary of the romance of journalism, if, indeed, for him it would ever have lost its charm. The laws and life of the journalistic world were a source of pleasure to him; that whatever happened the pa must appear, that its policy must be correct, its word abo suspicion, its authority unquestioned, these thoughts w dear to him, and under their rule he faithfully served to t fullest of his powers."

Rous had read much and appreciated authors differi widely in style, while he had a good critical taste literature and other forms of art. His own verses, most which were published in the *St. Mary's Hospital Gazet* were written in a Gilbertian style and were full of humo showing a quaintness of idea and a neatness of rhyme a rhythm which were often of a remarkable excellence. He co tributed on one occasion some verses to *Punch*, and w gratified to receive a request for more. In his prose he h a sound clear style, entirely free from all affectatio and so well under his control that he could turn wi readiness from grave to gay. Our pages, during the pa two years in particular, contain many examples of his wi range and of his literary charm and dexterity, while a pri story and an extravaganza which he recently wrote be witness to his versatility. The loss of such a man from t inner circle of a newspaper is, we need hardly say, a serio one, but Rous has left behind him at THE LANCET a sen of deep personal deprivation due to other than h great literary qualities. His connexion with us w a success from the beginning. Within a few week of his joining our staff we confided an importa commission abroad to him, and from that day onwards h steadily rose in the affection and esteem of all of us. As w were made aware in the frankest way of his delicacy we di our utmost to prevent him from overworking himself, but was the very essence of him to labour at full speed an maximum pressure combined, and such steps as we were abl to take to lessen the strain upon him were always defeate by his enthusiastic engagement in strenuous interest without. He revelled in work, literary work, our work and other work, and no remonstrance, while time re mained for useful counsel, was ever of the least effect The imprint which he has made upon his colleagues by hi knowledge, energy, capacity, and, above all, highminded ness will never be obliterated from our memories.

Throughout his medical career his health was far fro strong. He was subject to attacks of neurasthenia whic on three or four occasions necessitated his resting fro work for a time. With increasing responsibilities his un certain health became a matter of great anxiety to him although with truest bravery and his innate optimism he succeeded in throwing off gloomy anticipations During his last illness, however, symptoms of greate severity than he had ever suffered from before made thei appearance, and led to his death at Westgate-on-Sea where he had gone to seek his lost health. On July 15th he was laid to rest at Birchington.

WILLIAM JAMES TIVY, F.R.C.P., F.R.C.S. EDIN.

Mr. W. J. Tivy died at his residence, 5, Victoria-square, Clifton, Bristol, on July 12th, in his sixtieth year. The deceased was the son of the late Mr. H. Tivy, of Cork, where he was born. He was educated at Queen's College, Cork, and became a scholar of that college. He also studied at Dublin, Edinburgh, and London. Mr. Tivy took the L.R.C.P., L.R.C.S., L.M. of Edinburgh in 1873, and in 1882 was admitted M.R.C.P. of Edinburgh. He served for a time in the navy, and obtained the F.R.C.S. of Edinburgh in 1879, and in 1884 the F.R.C.P. of Edinburgh. He was the author of a work on "The Pathology and Treatment of Lateral Curvature of the Spine," and contributed several articles to the medical journals. He was for many years an active member of the Bristol Royal Naval Volunteers, to which he acted as surgeon, and was extremely popular with the members. He took great interest in ambulance work and delivered several lectures to the Clifton division of the St. John Ambulance. He leaves a widow and four children, for whom much sympathy is felt.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Wm. H. Seaman, professor of chemistry and toxicology in Howard University, Washington.—Dr. Bamberger, formerly deputy for the Seine.—Dr. Henri Toupet, physician to the Paris hospitals.

MPERIAL CANCER RESEARCH FUND.

THE annual meeting of the General Committee of the mperial Cancer Research Fund was held on Wednesday, ly 20th, at the Royal College of Surgeons of England, ncoln's Inn-fields, when the Right Hon. A. J. BALFOUR, ice-President of the Fund, occupied the chair.

Amongst those present were: Sir William Church, Bart., r R. Douglas Powell, Bart., Sir Henry Morris, Bart., Lord romer, Sir Henry Howse, Sir Charles Morrison Bell, Bart., r. A. Pearce Gould, Professor G. Sims Woodhead, Dr. rthur Newsholme, Mr. H. T. Butlin, President of the Royal ollege of Surgeons of England, Mr. J. A. Mullens, Mr. dmund Owen, Sir Francis Lovell, Dr. F. W. Andrewes, Dr. H. C. Stevenson, Mr. Gerard Fiennes, Mr. S. Leeke, Mrs. ates, Mr. G. Maudsley Williams, Mr. S. G. Shattock, Miss rimes, Dr. J. A. Murray, Dr. M. Haaland, Dr. Woglom, rofessor Higuchi, Dr. H. Takaki, Dr. Snapper, Dr. osenthal, Mr. S. F. Cowell, Dr. E. F. Bashford (General uperintendent), and Mr. F. G. Hallett (Secretary).

Sir WILLIAM CHURCH moved the adoption in a short peech of the annual report, which follows in full, his speech eing a very able abstract of the salient points:—

EIGHTH ANNUAL REPORT.

Report of Executive Committee.

On July 9th, 1909, H.R.H. the Prince of Wales presided at the eighth ieeting of the General Committee of the Imperial Cancer Research 'und at Marlborough House, when the annual report presented by ir William Church, Bart., K.C.B., chairman of the Executive Com- ittee, was unanimously adopted. Professor G. Sims Woodhead was e-elected a representative of the General Committee on the Executive Committee, and a resolution was adopted vesting in the Royal Colleges f Physicians and of Surgeons the appointment of two representatives n the Executive Committee in lieu of those formerly appointed by the oint Laboratories' Committee of the Royal Colleges, a body which has eased to exist. In reply to a resolution, moved by Sir John Tweedy, econded by Sir John McFadyean, and unanimously adopted, express- ng the thanks of the General Committee to H.R.H. the Prince of Vales for presiding, the President expressed his satisfaction at he progress made during the year and thanked the chairman nd members of the various committees, the general superintendent, is colleagues, and the officers of the Fund for their services. Shortly after the meeting the general superintendent, Dr. Bashford, isited some of the laboratories on the Continent and discussed with nany of the prominent scientific investigators various problems involved n cancer research. At the Sixteenth International Congress of Medicine at Budapest Dr. Bashford, as the representative of British Medicine, delivered an address, and later opened the discussion on cancer at the Ninth International Veterinary Congress at the Hague. During the year we have had to deplore the loss by death of several valued sup- porters, amongst whom may be mentioned Lady Glen-Coats, who was one of the first to contribute to the Fund, and Mr. Robert C. Ponsonby, both members of the General Committee. From the Executive Com- mittee we have lost through death the valued services of Mr. H. H. Clutton. With great regret the committee accepted the resignation of Dr. Pye-Smith owing to continued ill-health, whilst with the termina- tion of his period of office as President of the Royal College of Physi- cians Sir Richard Douglas Powell ceased to be a member of the Executive Committee. To these gentlemen the committee are greatly indebted for their constant and valuable services. Sir Richard Douglas Powell as trustee of the Fund still gives in another direction his active support.

The irreparable loss sustained by the whole Empire in the death of His late Majesty King Edward the Seventh deprived the Imperial Cancer Research Fund of its gracious Patron, and it is only fitting that the Executive Committee should place on record their humble appreciation of the sympathy shown by His late Majesty in the difficult problem with which the Fund has to deal. It was at the International Congress on Tuberculosis in July, 1901, that His late Majesty said: "There is still one other terrible disease which has up till now baffled the scientific and medical men of the world, and that is cancer. God grant that before long you may be able to find a cure for it or check it in its course; and I think that to him who makes the discovery a statue should be erected in all the capitals of the world." These words have been quoted throughout the world and to them may surely be attri- buted much of the encouragement given to the movement for laboratory investigation. It is with genuine satisfaction and gratitude that the committee have learnt that His Majesty the King, our former President, has been graciously pleased to become Patron of the Fund.

Mr. Henry T. Butlin, as President of the Royal College of Surgeons, became in July last an *ex officio* member of the committee. Sir Henry Morris, Bart., was re-elected a member of the committee on ceasing to be an *ex officio* member on his retirement from the Presidency of the College. Dr. Arthur Newsholme, chief medical officer of the Local Government Board, was appointed by the Royal College of Physicians in succession to Dr. Pye-Smith, and Mr. Pearce Gould was elected to repre- sent the Royal College of Surgeons in the vacancy caused by the death of Mr. Clutton. Dr. T. H. Craig Stevenson, superintendent of medical statistics in the General Register Office, has accepted the invitation extended to him to join the Statistical Subcommittee. The committee are much indebted to Sir Richard Havelock Charles, K.C.V.O., for a comprehensive series of photographs illustrating the occurrence of cancer in various native races of India and its North-West Frontier. A request by Professor Courmont and Dr. Cotnamin of Lyons to be allowed to translate articles from the Third Scientific Report of the Fund into French has been granted, together with permission to repro- duce many of the illustrations of these articles. The very important question of the provision of future laboratory accommodation has engaged the attention of the committee. There is now, it is satisfactory to report, considerable hope that the Royal Colleges may be able to provide adequate and suitable laboratories in their new Examination Hall for the use of the Fund, and the committee feel sure that the great advantage to the Fund of continuing to conduct the investigations in premises under the immediate control of the Royal Colleges will be thoroughly appreciated by all who are interested in the work. Whilst it is not to be expected that this new accommodation will be provided free of all expense, it will be gratefully recognised that this generous action of the Royal Colleges, so thoroughly in accord with their general policy of advancement of scientific research, will involve the Fund in a comparatively small expenditure. The cost of the equipment of the new laboratories as well as the expense of moving will, however, be considerable, and will have to be provided for during the next two years. The details of the arrangement have been referred to the con- sideration of the Pathological Subcommittee.

It is with unfeigned regret that the committee have learned that they are about to lose the services of a member of the staff who has very materially assisted Dr. Bashford in maintaining the standard of pro- ficiency and the reputation for genuine scientific progress generally accorded to the laboratory researches. Dr. Magnus Haaland has been appointed to the important post of Director of the Pathological Institute at Bergen and will leave us at the end of the year, and the committee have every hope that his future career will enhance the scientific reputation he has already attained. The committee also regret that two voluntary workers under Dr. Bashford have terminated their connexion with the laboratories, but it is with much satisfaction that the com- mittee have heard that they have received the recognition of their work by being invited to fulfil important appointments; Dr. Medigreceanu was offered an appointment in Bucarest, but has preferred to accept another appointment in New York; whilst Dr. Da Fano has been appointed first assistant in the Pathological Insti- tute at Groningen, Holland. Mr. A. G. Wells has been ap- pointed assistant in the laboratories in place of Mr. Bowen, resigned. Professor Shigeji Higuchi of Tokio, Dr. Snapper of Amsterdam, and Dr. Rosenthal of Budapest have been given places and have already com- menced their investigations. The Director has also been able to find a place for Dr. Woglom, of the Crocker Cancer Research Fund of Columbia University, who has resumed his work in our laboratories after an absence of five months. These gentlemen devote the whole of their time to their researches, as was the case with Dr. Da Fano and Dr. Medigreceanu, and such assistants are of infinitely greater value to the investigations pursued in the laboratories than those who are able to devote only a few hours daily to such work. Dr. Sluys of Brussels and Mr. Takaki of Tokio are waiting for vacancies, but it has been impossible to admit all applicants who desire to study the methods employed in our laboratories. On this account it is to be regretted that an applicant arrives in this country without having previously made arrangements with the Director. The Executive Committee are anxious to encourage this practical form of international laboratory intercourse, for it is in this way that the Imperial Cancer Research Fund can usefully influ- ence the investigations both at home and abroad. Mr. Shattock and Mr. Handley, both of whom have received grants from the Fund in aid of their investigations, have published papers embodying their results. The Lord President of the Privy Council having requested the Executive Committee to recommend a fit and proper person to re- present His Majesty's Government at the International Conference on Cancer Research to be held in Paris in October next, Dr. Bashford was unanimously recommended for this office, and the committee have learnt with satisfaction that His Majesty's Government have accepted the nomination.

During the year tumours and other material for investigation have been distributed to the following: Dr. Cramer, Physiological Depart- ment, University of Edinburgh; Dr. Leitch, Cancer Research Depart- ment, Royal Infirmary, Dundee; Professor Benjamin Moore, Bio- Chemical Department, University of Liverpool; Professor Grünbaum, University of Leeds; Dr. Twort, Brown Institution, London; Mr. Shattock and Dr. Dudgeon, St. Thomas's Hospital; Dr. Beckton, Middlesex Hospital; Mr. G. P. Mills, Birmingham University; Pro- fessor Dean, Pathological Department, University of Aberdeen; Dr. Powell White, University of Manchester; Professor Abderhalden, Berlin; Professor Landsteiner, Vienna; Professors Bergell and Sticker, Berlin; Professor Tschitchkine, Moscow; and Dr. Cotnamin of Lyons. Numerous papers and communications have been issued from our laboratories during the year, and in addition addresses, lectures, and demonstrations have been given by invitation at the University of Utrecht, before the Dutch Cancer Committee, at the London Hospital, the Polyclinic, and elsewhere.

FREDERIC G. HALLETT, Secretary.

Report of the General Superintendent.

The more general aspects of the study of cancer have continued to receive attention, although the period when such investigations chiefly occupied our energies ended with the publication of the Second Scientific Report. Since then specialised studies have been under- taken and continued during the past year. In addition, investigations carried out elsewhere have required repetition, followed up by further experimentation; consequently a very large number of distinct problems have been attacked. Many of these inquiries must have been postponed had it not been for the number of voluntary assistants in the laboratory. It will be most convenient to refer to these specialised investigations *seriatim*. Without departing from the precise and guarded language suited to the description of such complicated investi- gations it is necessarily difficult to bring home to the layman their bearings upon the direct questions he wants answered. Substantial progress is, however, to be recorded.

Statistics.—An account of the more salient features of statistics tabulated from the data of 13,000 cases of cancer collected from hospitals has been published; attention has been directed to the bearing of the statistics upon the diagnosis of the disease, upon the interpretation of mortality statistics and upon the alleged increase of cancer, as well as upon the anatomical distribution of the disease and its association with irritation. With the continued support of the Foreign, India, and Colonial Offices further information has been obtained on the occur- rence of cancer in native races in outlying parts of the Empire. In this connexion the importance of the association of chronic irritants with cancer has continued to claim chief attention.

Importance of cancer of tongue.—Cancer of the tongue in the human subject is important because of the minute size of the lesions which can

be recognised. A plaque on the surface of the tongue, not more than a twentieth of an inch in its longest axis, may exhibit all the features of malignant new growths; with plaques not more than a fourth of an inch in longest axis extensive infiltration of the walls of the veins and muscles of the tongue also may be present. The histological examination of these early lesions, and also of others that had been neglected or "under observation" till they had become of very much greater size, has convinced us that any local lesion of the tongue in an elderly person, the cancerous nature of which cannot be definitely excluded, should be removed and submitted to microscopical examination. This examination should be made by sectioning the entire growth and examining all the sections in order. A single section is quite valueless for diagnosis when picked out haphazard unless it gives a positive result.

Serum diagnosis.—The methods suggested during the past year by various workers for the serum diagnosis of cancer have not yielded positive results in our hands and reliance must continue to be placed on the examination of the anatomical lesion.

Cancer in vertebrates.—Much additional information has been obtained on the occurrence of cancer in lower vertebrates. It is gratifying to record that the systematic investigation of cancer in the animal kingdom has found numerous adherents both at home and abroad. Particular attention has been devoted to the incidence of the disease in cattle and in mice. While in mice the phenomena are presented in miniature even in their most advanced stages, in cattle they are demonstrated on a magnified scale as compared with man although the universal minuteness of the early stages is independent of the size of the animal. In the course of the past six months 90 cases of malignant new growths in cattle were obtained from a single abattoir. The histological types comprise the majority of the forms met with in man. The frequency of primary carcinoma of the liver associated with cirrhosis, and of primary malignant growths of the suprarenals is of interest. The study of these growths has thrown light on the circumscribed origin of malignant new growths, their occasional multiplicity, and on the phenomena of dissemination.

Spontaneous tumours in mice.—During the year 166 mice bearing spontaneous tumours have been examined, 139 of which had malignant new growths. It has been demonstrated that practically all mammary carcinomata of the mouse can be transplanted; therefore, of the 139 malignant tumours only 22 were transplanted, and these were selected because microscopical examination had shown them to be of exceptional nature. The tumours comprise carcinomata of the preputial and sebaceous glands, eight cancroids, a hypernephroma, a spindle-cell sarcoma, and five lymphomata, of which two were accompanied by leucæmia. Two squamous-celled carcinomata involved the jaw, invading it extensively. Other tumours of interest have been found in the uterus, ovary, liver, lungs, and heart.

Breeding experiments bearing on heredity and contagion.—The advantages of using short-lived animals for studying the possible influence of heredity was pointed out in 1903. The breeding experiments, which have been in progress for five years, have yielded a material of nearly 2000 animals of known age and ancestry. Of these, 700 females attained the age of six months or over. In them 75 cases of cancer of the mamma have appeared spontaneously. This material is very complete as regards diagnosis of the disease, age, pedigree, and other important data, and it is now sufficiently large to permit of the most exact analysis of the influence of ancestral constitution on the liability of mice to spontaneous cancer of the breast. Analysed so as to bring out the liability to cancer according as the young were born before or after it appeared in the mother, the figures show a higher incidence in those born before the mother developed the disease. Since the conditions necessary for contagion were present the opposite result would have been obtained had any analogy existed between cancer and the recognised infective diseases.

Number of tumours propagated.—A diminution has been effected in the number of mammary growths propagated in the laboratory. Only 45 mammary carcinomata are being propagated as against 60 last year. Of others remaining under propagation, six exhibit horny changes in varying degrees, two are adeno-carcinomata of sebaceous glands; in addition there is an adenoma of the preputial glands, an osteo-chondro-sarcoma, a spindle-celled sarcoma, and a round-celled sarcoma. Several strains of spindle- and polymorphous-celled sarcoma that have arisen under experimental conditions are being propagated. A carcinoma and sarcoma of the rat are being propagated. Tumours of the guinea-pig, dog, and frog are also under observation. The general results of the study of the large number of tumours which have been under observation may be summarised as follows. Three years and four months represents the maximum length of life observed for mice kept in our laboratory. One tumour-strain has been growing for nine years and has now passed through 166 successive batches of mice, and 16 tumour-strains are still growing freely after three years. It is thus demonstrated that the duration of the growth of cancer has no limitations set to it comparable to the length of life of the animal in which it arose.

Deviations in structure and growth.—The majority of the propagable tumours exhibit marked deviations from the normal histological structure of the tissues from which they have arisen. Nevertheless, the purely glandular structure of several adenomata affords evidence that the capability for propagation is not necessarily dependent upon, nor accompanied by, marked changes of histological structure. Besides adenomata of the mamma this capability for propagation is especially exhibited by those of the sebaceous and preputial glands which retain their characteristic secretory functions. It has thus been demonstrated that tumours which under the microscope are with difficulty distinguishable from the normal mother-tissue from which they arose, are also capable of unlimited propagation. In this respect the extreme contrast between the structure of the most undifferentiated malignant new growths and normal tissue has been bridged over, and it is demonstrated that loss of differentiation is not necessarily associated with malignant growth. The contrast between the unlimited amount of growth presented by the most rapidly proliferating tumours, and the restricted growth of normal tissues when transplanted, has also been bridged over by a series of tumours exhibiting, on transplantation, all gradations of growth-energy down to tumours whose powers of growth are little more than those of normal tissues. The conception of what constitutes a malignant new growth is thereby greatly simplified, and together with what will be said below regarding the relative constancy and variability of tumour cells, marks a most important advance in knowledge.

Relation of tumour to organism.—The relations of a tumour to the organism primarily attacked and the nature of cancer have been further elucidated by the following experiments. The transplantation of a spontaneous tumour into the same animal either subcutaneously or intraperitoneally is almost invariably successful, although transplantation into other animals of the same species may fail in extreme cases in as many as 500 attempts. This difference obtains whether the other animals are normal (young or old), or are exactly comparable by being naturally cancerous and of the same stock, and same age. Thus of 55 re-inoculations of animals with their own tumours 54 were positive, whereas of 77 inoculations of spontaneous tumours in other spontaneously affected mice only 5 were positive. If transplantation of a spontaneous tumour be practised under the most favourable conditions, as described in published papers, the percentage of success rarely reaches 30 per cent. and on the average is only 12 per cent. From such observations we must conclude that animals naturally the subject of cancer do not suffer from it because they present a soil uniformly favourable to the disease. On the contrary, the circumstances associated with the appearance and the growth of cancer are in each case peculiar to the individual attacked, and need not be similar to that obtaining in any other individual. Further, these experiments would go a long way to prove that the cancer cell, although highly dangerous to the individual in which it arises, is relatively innocuous to other individuals. This conclusion is not vitiated by the case with which other tumours after artificial adaptation to propagation, can be made to grow in all mice inoculated. In their case also it has been demonstrated that the risk of natural transference is non-existent.

Influence of age.—Both for spontaneous tumours and for propagable tumours it has been shown that young animals afford a more suitable soil for transplantation than do old animals, although the latter are much the more prone to the natural development of cancer. The fact that transplantation is more readily successful in young than in old animals shows that although senescence is intimately bound up with the origin of cancer, it is inimical to its continued growth. In each case of spontaneous cancer this inimical influence is neutralised by the perfect adaptation of the cells to their parent and host. The view which has been widely accepted that cancer arises in old animals in parts of the body which retain the normal avidity for food, while that of the rest of the body is diminishing, has been disproved by the results of elaborate cross inoculations of spontaneous tumours into the animals in which they arose and into other cancerous and normal animals, as well as by transplanting propagable tumours in cancerous and normal animals.

Constancy and variability of tumour cells.—Tumours growing in a living animal can be protected from all outside influences, and, when propagated in large numbers of young mice of the same strain, the conditions are as constant as it is possible to provide. Under these circumstances it would not be surprising, on the one hand, if tumours showed little or no departure from the features they exhibited at the outset of propagation; on the other hand, it would not have been surprising if tumours widely different in character had tended all to approximate to a common type, in response to the unvarying nature of their environment. What has actually come out is both interesting and instructive, in that it shows that the tumour cells possess a relative constancy in their general biological properties, but at the same time exhibit an inherent tendency to vary in spite of the constancy of the environment, and therefore apparently for reasons independent of it. Each tumour preserves its individual features, and if there be variations then the variations likewise are individual. The constancy may be very perfect, so that strains of the same tumour propagated separately for three or four years remain indistinguishable in all their properties. On the other hand, the variations arising may be so great and of such constancy, that strains propagated separately from the same mother-material would not be suspected to have any relation to one another if submitted to one ignorant of their life-history.

In former years we have pointed out that an increase in the rate of growth, or in the percentage of successful inoculations does not necessarily imply a fundamental biological alteration finding expression in an accelerated rate of proliferation of the tumour cells, but may be explained by the selection of particular cells adapted to the conditions of growth, and, consequently, the survival and proliferation of a larger number of such cells. That is to say, these two phenomena may be explained by an increase in the dose of the cells able to grow. The evidence for the acquirement of new properties by tumour cells is very much stronger when one observes the occurrence of morphological alterations which become of relative constancy, such as the disappearance—or latency—of their typical characteristics in the case of squamous-celled carcinoma, the disappearance of acinous structure in the case of glandular carcinoma, the derivation from cubical epithelium of epithelial cells which, if their previous history had not been known, could not have been distinguished from those of a spindle-celled sarcoma. In other cases, the change is made manifest by the alterations taking place in the supporting connective tissue and blood-vessels, so that tumours which at one time exhibited dilated blood-vessels lose this character. Biological alterations occur without evident morphological expression—e.g., some tumours at the commencement of propagation, after an initial exuberant growth, disappear in a large proportion of cases; whereas, after the propagation is prolonged a large percentage of the implantations grow progressively. The opposite phenomenon may also be observed, and tumour strains which grow progressively at the outset of propagation may later be found very liable to disappearance. A tumour which grows well only by the implantation of intact grafts—i.e., if the tissue structure is preserved—can be adapted to transplantation as a cell emulsion and again brought back to its original condition. Of the 29 tumours of the mamma that have been propagated in the laboratory for over two years, as many as 16 have shown departures from the features they exhibited at the outset, these departures affecting the degree and nature of the histological differentiation, the percentage of successful inoculations, the rate of growth of the resulting tumours, the relative proportions of progressively growing tumours and of tumours which undergo spontaneous absorption after transitory growth, the susceptibility of the tumour to method of transplantation, to dose, to race, to age, and to the influence of induced immunity. Thirteen tumours have shown a relative constancy of their structural and biological characters. Of the 16 variable tumours, nine have varied from the primary condition in both respects. Two have shown biological variations without histological change and five have altered in microscopical characters without noticeable modification of their biological behaviour. On the whole, therefore, histological character is less constant than biological behaviour.

The relative constancy, but still more the variability, which the

umour cells exhibit, during propagation, throws indirect light of the ost suggestive kind upon the nature and the manner of the develop- nent of cancer. The variability in a constant environment, during ropagation, allows one to infer that corresponding variations may take lace, while the cells are under the influence of the particular environ- uent provided by the animal in which the tumour developed spontane- usly. The environment of the cell will depend on the individuality of he animal, and, with the progress of life, distinctions between one nimal and another may become more and more marked. This inference ccords with what has been said above on the ease with which auto- ransplantation is effected and the difficulty with which transplantation an be effected to another individual, and therefore also with the fact hat all cancerous mice do not exhibit an equally suitable soil for umours in general. These spontaneous variations of the parenchyma ells of tumours during propagation suggest that we have here a repeti- ion, in a minor degree, of the cellular processes responsible for the rimary transformation of non-cancerous into cancerous tissue. Just as ellular changes occurring during propagation may transform within a rief space of time an acinous growth into a solid one, or a slow-growing umour into one rapidly proliferating, so in the tissues prior to the evelopment of a malignant new growth the responsive proliferation of ells may pass into the progressive, independent proliferation of ancer.

Experimental sarcoma.—In this connexion it may also be well to refer again to the production of sareoma under experimental conditions from what have been the non-malignant connective tissues of carcinoma. Not the least significant aspect of the origin of sareoma by the transformation of the stroma of transplantable carcinomata is the rarity of its occurrence. Two only of our strains have exhibited it, and the conclusion seems warranted that in these cases the parenchyma is possessed of peculiar properties. In one of our strains the change occurred only in a small number of animals, and the whole process, from the first indications of sarcomatous changes in the stroma to the substitution of the carcinomatous elements by pure sareoma, took place slowly and was only completed after several successive transplan- tations. In the other strain the transformation was much more frequent, took place more rapidly, and the disappearance of the carcinomatous element may be complete in one transferenee. In spite of these differences the parallelism between the histological pictures in the two strains is extremely close and leaves no doubt of the essential similarity of the processes involved. The stimulus exerted by the carcinoma cells on the stroma must be different in these two strains from that exemplified by the otber transplantable tumours, other- wise every transplantable careinoma should end in sarcoma, as it has indeed been asserted they might do. A fairly long dura- tion of the stimulus exerted by the careinoma cells without cessa- tion of their proliferation seems to be neeessary, and the first steps of the process are always localised in an extremely minute area of what are often large tumours. The parallel to the circumscribed origin of squamous epitheliomata arising in areas subjeeted to chronic irritation in man (chimney-sweeps' cancer, paraffin cancer, Kangri- cancer) does not require to be insisted on further, since it has been emphasised in previous years.

Metabolism and bio-chemistry.—Experiments bearing on the meta- bolism and bio-chemistry of cancer have been conducted on a larger scale than formerly. In some of the investigations the Imperial Cancer Research Fund has had the collaboratiou of independent workers in the Physiological Department of the University of Edinburgh, the Bio- chemical Department University of Liverpool, the Pathological Depart- ment Guy's Hospital, the Pathological Department St. Thomas's Hospital, and the Physiological Institute, Royal Veterinary College, Berlin. The absence of suitable accommodation for such investi- gations has made this distribution of material necessary, and, owing to the special knowledge possessed by the investigators in these different centres, it has also been advantageous. An exhaustive investigation has been made into the relative sizes of the organs of rats and mice bearing transplanted and spontaneous tumours. The most important result has been the discovery of an enlargement of the liver in animals bearing carcinomata and sarcomata, whether transplanted or naturally arising. Up to a certain point the hypertrophy is proportional to the weight of the tumour. There can be no doubt that this hypertrophy of the liver is associated with the metabolism of the tumour. It is being further investigated as an important clue to the bio-chemieal relations of a tumour to the organism bearing it. Careful investigations show that it is not to be explained by animals bearing tumours taking up more nonrishment than do normal animals. It has been found that less nitrogen is required to build up a given weight of tumour than is required to build up an equal weight of normal tissue of the host, cancerous tissue containing not more than three-fourths as much nitrogen as normal tissues weight for weight. In animals with transplanted tumours, at a period before excessive growth has led to exhaustion, nitrogen is stored up in proportion to the increase in size of the tumour. The nitrogen for the tumour is obtained by a "sparing action" on the protein metabolism and not at the expense of the host tissues. This explains why with the increase of the tumour the animals do not eat more. Control experiments on pregnant animals have shown a parallel condition to exist in them. It will be evident that the extension of the bio-chemical side of the investigation of cancer will become more and more a matter of urgency and promise.

Relation of spirochætes to cancer.—It is worth recording that 34 of our tumour-strains have been examined in the Bacteriological Laboratory, London Hospital, for the presence of spirochætes, with negative results. Spirochætes have been the most recent alleged causative agents of cancer. This negative result, together with the fact that spirochætes have been found in mice in the absence of tumours, shows that their presence in a tumour is of no etiological significance.

Immunisation.—A large proportion of the work has been devoted to the reactions conferring resistance to the transplantation of cancer, to those responsible for the disappearance of transplanted tumours, and to the rarer phenomenon of the natural cure of spontaneous malignant new growths. The most varied means of disintegration or modification of cells are being employed to attempt to rob tumour-tissue or normal tissue of its powers of growth while retaining its powers of inducing resistance, but as yet without success. Resistance can still be induced only by the employment of living tissue.

The possession of a large series of tumour-strains showing all grada- tions in the percentages of tumours disappearing after transitory growth has made it possible to study the reasons for their disappear- ance under favourable circumstances, because the series comprises some tumour-strains with the maximum speed of growth, while others present all gradations to the minimum. Advantage has also been taken of those alternations in the biological properties of tumour cells to which attention has so frequently been directed in previous years. It is now possible, under given experimental conditions, to prevent a secondary transplantation—i.e., artificial metastasis—taking place for certain tumour-strains. This result has been obtained by inserting between the primary and secondary transplantations au inoculation of a very rapidly growing tumour showing only transitory growth, as the following sample experiment shows. Of 12 mice, already bearing pro- gressively growing tumours and treated in the manner described, the secondary inoculation was successful in three only, and then the tumours were very much smaller than in the control consisting of 13 mice, of which 10 developed new progressively growing tumours on secondary inocula- tion. A similar result can be obtained by the implantation of tumours growing much more slowly and liable to spontaneous absorption, as well as by an inoculation of normal mouse tissue. By similar methods the growth of the primary transplanted tumour may be greatly hindered, can be brought to a standstill, and the animal cured, in circumstances under which the disease would certainly have progressed, and where the possibility of the occurrence of spontaneous cure can almost certainly be excluded. Thus the control of transplanted cancer has been brought within the region of probability. These achievements must not be confounded with successful vaccination against spontaneous cancer arising, or against infectious disease. Animals perfectly pro- tected against the repeated inoculation of cancer may develop tumours of their own—an observation often confirmed. Still more emphatically do we warn against applying to the human subject the methods which, after long perseverance, have enabled us to arrest the growth, and even to cure animals, of transplanted tumours that were well established, and also to render animals resistant to a secondary inoculation—i.e., to dissemination and metastasis formation.

The immunity reactions to transplanted cancer are throughout clearer and more easily studied than are those of spontaneous cancer. The problems presented by spontaneous tumours are more delicate and elusive. The methods effectual in normal animals against primary inoculation with transplantable tumour, which, as mentioned above, also arrest the growth of growing transplanted tumours and prevent successful re-inoculation under suitable circumstances, have been without action on the continued growth of the 25 spontaneous tumours on which they have been tested, have failed to prevent recurrence or dissemination, and have not yet prevented a successful re-inoculation of the spontaneously affected animal with its own tumour. The investigations must go on until a higher degree of resistance can be obtained in this way, or it may be that an entirely different method must be sought. The expectation of ultimate success seems a fair inference from the results obtained with transplanted tumours which reproduce all the phenomena of growth and dissemination of spon- taneous tumours, and from the rare but undoubted cases in which temporary arrest of growth or total disappearance have occurred in spontaneous tumours.

The prospect is made the more hopeful by the discovery of a method whereby au animal can be immunised by means of one of its own tissues against a primary inoculation of a tumour transplanted from another animal. This, again, is a very different matter from immuuising an animal against its own tumour. Nevertheless, it illustrates how much that was previously unsuspected is being revealed as step by step advances are made into yet unexplored regions. Inquiries into the effects which the several tissues of the body may have, either singly or in combina- tion, in inducing protection are being made.

Chronic irritation and cancer.—A practical result arises out of the association of various forms of irritation with the development of cancer in sites where more obscure influences can be excluded, espe- cially from what has been ascertained on the incidence of cancer in native races practising peculiar customs, and on the incidence of cancer in some animals. Experiment has emphasised this relation and has thrown light upon the mechanism which makes the irritation effective, leading to similar consequences although the irritants themselves have nothing in common. Recent legislation is thereby justified in the interest of workers employed under circumstances exposing particular parts of the body to chronic irritation of peculiar kinds. In 1903–04 the feasibility of obtaining more accurate information of the incidence of cancer in different occupations was before the Statistical Subcommittee. The progress made since renders such an investigation still more urgent to-day. It must not be supposed, however, that cancer has been proved to be always the result of irritation. The *mediate* influence of irritation has only been defined more closely than ever before.

Preparations are being made for the issue of a Fourth Scientific Report. The two annual surveys of the work conducted since the Third was published will indicate that already sufficient new material has accumulated; meanwhile progress has been recorded in a large number of published papers.

My colleagues join me in congratulating Dr. Haaland on the impor- tant position he has accepted in Norway. While regretting the loss of so able and willing a collaborator, we trust that he may have, in his native country, those opportunities for the pursuit of science of which he is so eminently deserving, and that he may thereby be enabled to enhance the reputation Norway enjoys for independence and originality of thought.

ERNEST F. BASHFORD, M.D.,
General Superintendent of Research and Director of the Laboratories.

Report of the Honorary Treasurer for the Year Ending June 24th, 1910.

The actual expenditure on the research work and the incidental expenses connected therewith during the year 1909–1910 amounted to £5782 13*s.* 7*d.* The actual income from invested capital during the same period was £4159 7*s.* 8*d.* The contributions received during the year towards the general fund reached a total of £3150 16*s.* 5*d.* After deducting from these contributions £1623 5*s.* 11*d.* to meet the deficiency of income as compared with expenditure for the year, and £703 11*s.* 10*d.* for repayment of the overdraft of the preceding year, there remained the unexpended balance of £823 18*s.* 8*d.* to be carried to the general fund. In addition to these contributions a further sum of £6000 has been contributed towards the endowment fund. The invested capital has therefore been increased by this amount during the year and the total now stands at £132,222 19*s.* 3*d.* On comparing the receipts in interest and dividends for the year ending June, 1910, with those for

the year ending June, 1909, it will be found that though the amounts of stocks were precisely the same in the two years, there was a diminution of £94 9s. 9d. on the dividends of the general investments, and of £94 9s. 7d. on those of the Bischoffsheim Fund. This is explained by the fact that the income-tax rebatement on some of the stocks has not yet been received owing to the political situation which prevailed during the financial year just terminated.

On comparing the items of expenditure of the last year with those of the year immediately preceding the following differences will be noticed: (1) a diminution of £330 5s. in the fees paid to committees and hospital officials, due chiefly to the discontinuance for the moment of the returns of cancer cases occurring in the hospital; (2) a further reduction in the farm expenses amounting to £137 0s. 3d.; (3) a reduction of £831 10s. 10d. on the scientific report account, due to a considerable portion of the cost of the large report of 1908 falling for payment within the first half of the year 1909, and to the fact that there was not during last year any large scientific report issued; (4) the office expenses have been somewhat less; (5) an increase of £163 4s. 2d. in salaries and wages, due partly to the honorarium granted to one of the scientific assistants; (6) an increase of £51 8s. 4d. in travelling expenses of the director to attend congresses at Budapest and the Hague, and to visit some of the more important laboratories on the continent; (7) an increase of £262 2s. in the requirements in the laboratory, largely caused by the purchase of expensive apparatus necessary for the research investigations which were going on; and (8) £87 14s. 6d. more has been spent on advertisements this year than the year ending June, 1909.

It is gratifying to report the continuing aid of some of the earliest friends of the Fund. The munificent gift to the endowment fund of £5000 by "A Friend" is from one of the first and most liberal contributors and one of the most earnest and hopeful of the well-wishers of the research into the difficult problems connected with cancer and morbid growths in general. The donation of £1000 (being the fourth of a similar amount) from the Duke of Bedford is a further evidence of the interest in, and the enthusiastic encouragement to, the cause which His Grace has shown ever since the initiation of the Fund. In 1908, during the absence from England of, then, H.R.H. the President and now H.M. the Patron of the Fund, King George V., the Duke of Bedford rendered a great personal service by presiding over the Seventh Annual Meeting of the General Committee; and after the annual meeting of last year his watchful consideration of our untoward financial position led him to make this last generous gift for the express purpose of clearing off the overdraft of £703 and providing a balance in our current account. Our grateful thanks are also due to Mr. James Wilcocks for his handsome contribution of £1000 to the endowment fund. There is one other donor, though I may not mention her name, to whom the Imperial Cancer Research Fund is deeply indebted. I refer to "Anonyma," who, having previously contributed on several occasions to the Fund, has this year made the substantial gift of £100.

Knowing as I well do the amount of self-sacrifice and the many self-denials which such a donation from a lady of very moderate income means, I desire on behalf of the executive committee to thank her publicly through the channel of this report, and at the same time to assure her—a gentle and tender-hearted woman and a lover of animals as she is—of our appreciation of her repeated efforts to correct and counteract prejudices which on the ground of vivisection it has been attempted to arouse against the Fund. Such attempts she with righteous indignation has from time to time taken trouble to show have a tendency, if they have any influence at all, to throw difficulties in the way of scientific research and to frustrate the aims of humanity. A glance at the list of contributions will show that from several other persons the fund has this year derived assistance by their repeated donations, in some instances for the seventh, eighth, and ninth occasion. This loyal support and sympathy is most encouraging to the executive committee, the scientific committee, and the Director and his assistants, each and all of whom are stimulated to continuing and unrelaxing efforts to make progress in the search for knowledge and thus to justify the confidence placed in them. It is, however, still requisite for me as treasurer again to repeat that the annual expenditure greatly exceeds the income derived from investments, and to point out that this expenditure cannot be reduced, but, on the contrary, is quite sure to increase in the next few years. Next year a fourth scientific report which will be issued must make a very heavy demand upon the Fund, and the considerable expenses attaching to removal and to the equipment of laboratories in a new building will shortly have to be found. It is most essential, therefore, that there shall be no falling off in the coming years of the contributions to the working expenses of this Fund.

HENRY MORRIS, Honorary Treasurer.

Professor SIMS WOODHEAD, in seconding the adoption of the report, said that they might gather from it and from the abstract given by Sir William Church, that they had had done in the laboratories under Dr. Bashford and his staff an enormous amount of spade-work. In referring to spade-work he did not mean merely navvy work, but he thought they might congratulate Dr. Bashford and those who had been working with him on what he might call the intelligent sapping and mining of the cancer problem. There had been no great advances, perhaps, but as they saw from the report there had been a large number of very important questions tackled. Those who could read the report from the "inside" would say that even from the point of view of immediate value there had been a very great deal of valuable work done. But quite apart from that there had been a clearing of the ground, which he thought would enable those working in the laboratory to concentrate, and to concentrate much more effectively, upon the remaining problems which had to be solved; and in seconding the adoption of the report he felt that he could congratulate Dr. Bashford and those who had been working with him on working at a question the issues depending upon which were of very great magnitude. One knew that in a difficult question of th kind there might appear to be times when the interest flagge but those of them who had been on the Executive Committ and had watched the workers had realised what an inten fascination there must be in this subject, partly because the difficulty of the subject, partly because of the immen amount of work which had to be done, and partly because the issues that depended upon it.

The resolution was carried unanimously.

On the recommendation of the Executive Committee, th Duke of Bedford, K.G., was unanimously appointed Presider of the Fund.

Mr. BALFOUR then said from the chair: The next res lution stands in my name, and I propose it with very gre pleasure. It is—

That the thanks of this meeting be given to the Chairman ar members of the executive committee, the subcommittee, the honora treasurer, and others who have assisted in the work of the Fund durin the past year.

It is now seven years since I had the great honour of pr siding at the annual meeting of the Fund, and I am given t understand—I think by Sir William Church himself—tha critics have been found who think that the work of the Fun should have shown greater and more direct results in th course of these early years of its existence. I confess tha looking back over the seven years which have elapsed since last took this chair, it seems to me that a precisely opposit conclusion ought to be drawn from the various reports tha we have had laid before us, and not least from the summar of the work of the Fund which Sir William Church has jus given. I suppose there were persons who imagined that yo had only to start a Fund with a large number of competen workers to be able to find some immediate method o dealing with the great scourge of cancer—a scourge th magnitude and severity of which, though not apparentl increasing, is being more and more brought home t us by the improvements of statistics and the improve ments of medical diagnosis. But surely those expectation of an immediate discovery of some external remedy, so t speak, some accurate and active remedy for this disease, di not take sufficient account of the only means by whic we can really deal with these great therapeutical problems which must be dealt with as part of a great bio logical whole. If anybody considers, for instance, wha has been done in dealing with that enormous class o diseases which we now know to be due to microbi invasion they will see that it was not done by any metho analogous, for instance, to the accidental discovery o quinine as a prophylactic against certain kinds of fever but, on the contrary, all our discoveries are due to a broad scientific outlook which has produced unexpecte conclusions and results in every kind of different field, apar even from human pathology. Whoever would have suspected only within the lifetime of myself and others who are listen ing to me, that we should see some kind of common cause in such utterly different things as the production of alcohol, th production of pearls, and the production of whooping-cough and yet I suppose our knowledge of how all those very different results have come about is really due to investiga tions into the actions of microscopic organisms in various fields acting in very different ways. The public ought to remember that all that has been done in tropical medicine, in vaccine therapy, all the triumphs which have been won, and the much greater triumphs which are going to be won, are based upon this broad investigation into great scientific issues. Well, I imagine one result of the investigations of the Fund is to show that we are now dealing with quite a different set of phenomena from those with which ordinary infectious diseases are concerned. I gather that the results of the scientific investigations of the Fund are to show that while these infectious diseases are due to external invasion, tumours are due to domestic rebellion, and they are entirely different, therefore, as I understand the results which have been arrived at by Dr. Bashford and his colleagues, in their cause, and must be looked at from an entirely different point of view. But, accepting that fact and admitting that the enormous progress of our knowledge with regard to bacteriology will give us but little direct assistance in dealing with the problem of tumours, surely it is true that already the investigations of the Fund have given birth to great and important generalisations, which may be the foundation of a somewhat hopeful outlook as to the future. I will only mention two which appeal to me very greatly. One is the

investigations of the Fund with regard to the hereditary character of cancer. Now, let it be noticed that without our being able to observe relatively short-lived animals, it is almost impossible—in fact, it is quite impossible—to arrive at any conclusion as to the influence of heredity. The staff who carry out our investigations have set systematically to work to make these investigations into heredity in connexion with short-lived animals, and the result, surely, is of the utmost importance, for I gather that they have arrived at the conclusion that the question of heredity in connexion with cancer is almost negligible. I do not know that I may put it higher than that. At all events, nothing has so far clearly come out of experiments conducted on a large scale which should lead us to believe that heredity plays a large part. That, I think, is a fairly safe statement, is it not? If that statement be not unduly incautious, it points—it indicates at all events—that it may prove that as these malignant tumours are not due mainly to hereditary influences they are due to what we may very roughly, and sufficiently accurately for this purpose, describe as the accidents of life, or to causes which, at all events, are not inherent and innate in the organism at birth; and certainly the investigations of the Fund go to show that there are causes which undoubtedly do produce cancer even in the best behaved tissues, even in tissues which in the case of people leading the ordinary normal life never show, or hardly ever show, any malignant growths at all. Well, that surely must be an indication that something can be done to prevent or to diminish cancerous growth. I do not wish in the least to put it too high. I know Dr. Bashford is listening to me with nervous anxiety lest I should give too sanguine a view of the conclusions he has arrived at, and I wish to cut down my statements to the narrowest limits and put them in the most cautious way. But I do not think that even Dr. Bashford, with all his caution, will deny that the investigations made by the Fund into the manner in which chronic irritation unquestionably produces cancer may enable us materially to diminish as our knowledge increases the causes by which cancer is produced. If, then, we turn to the other, the more difficult, the more critical, and the more important problem of how malignant growths when they are present have to be dealt with, I think it would be a cruel kindness to suggest that we are even within sight of anything that can be called a new remedy for cancer. Yet surely we ought to draw encouragement from those remarkable series of investigations in which it has been shown that the growth and the spread of implanted cancer can be checked. It is quite true that no experiments hitherto made upon original tumours have given the same satisfactory results, but we cannot doubt—at least I should think it is difficult to doubt—that there must be a difference only of degree, not of kind, between the original growth and the implanted growth, and it is therefore surely not unduly sanguine to say that if in certain circumstances it has been found possible to deal successfully with the implanted growth, we need not abandon hope that by further extending our researches we may be able to deal also with the more virulent and refractory form of the original growth. At all events, that is the way in which it seems to strike the lay mind, and I hope Dr. Bashford will not think that I have gone too far in indicating these hopes, which, whatever he may say to the contrary, I individually entertain, but whether I shall live to see them bear fruit I really cannot say. Now, surely, if I have not over-stated the case, here are two great lines of investigation by which we have attained, or are within sight of, conclusions of the utmost value and importance. And let no man think, let none of the lay observers and sympathisers with our work for one moment think, because that work is of great extent, because its foundation has to be laid on a broad basis of scientific experiment, and because the work of the Fund does not merely consist of taking up one after another particular suggestions which are thrown out, very often by quite competent people, in respect of special modes of dealing with cancer—let no man think that because that is not the main work of our Fund, the main work of our Fund is on that account other than the only possible method of working which is going to produce great and permanent results for the good of humanity. I apologise for having occupied so much of your time and for having spoken with such fulness on a question on which after all every single man I am addressing is far more competent to say something to me than I am to say something to them, but it is not without its value that an outsider and a layman should give quite candidly his impressions of the work which has been done, and is being done, by this Fund. It may appeal to people to whom the technical reports which we issue from time to time make little appeal, and it may serve to encourage them in giving us that assistance without which even the most admirable scientific work must be brought to a premature conclusion. I do not think I need add anything more. I have already read the resolution which I am moving, and it is only necessary for me now to ask Sir Henry Howse to second the motion which I have the honour to propose.

Sir HENRY HOWSE having seconded the motion, it was unanimously adopted.

Mr. BUTLIN moved that Sir R. Douglas Powell should be appointed a member of the General Committee, and that Sir Watson Cheyne should be re-elected a representative of the General Committee on the Executive Committee. These elections having been made, and the honorary treasurer of the Fund having been elected for the future an *ex-officio* member of the Executive Committee, Sir HENRY MORRIS, the present honorary treasurer, proposed a cordial vote of thanks to Mr. Balfour for presiding, in the course of which he referred to the great loss which the Fund had sustained through the death of the late King, and to the high philosophical attainments of Mr. Balfour. This was seconded by Dr. ARTHUR NEWSHOLME, and carried with acclamation, when the proceedings terminated.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Second Professional Examination in Anatomy and Physiology, held on June 30th and July 1st, 4th, 5th, and 6th, 88 candidates presented themselves, of whom 53 were approved (including one lady—Miss S. J. Scott Reid, Royal Free Hospital), and 35 were rejected. The following are the names of the successful candidates:—

Cedric Whitfield Armstrong, B.A.Oxon., Oxford University and London Hospital; Edwin Randolph Bailey, Guy's Hospital; Richard Albert Banbury, St. Thomas's Hospital; Burgess Barnett, St. Bartholomew's Hospital; Howard James Bates, Birmingham University; Jamasp Curshedji Bharucha, L.M.S. Bombay, Bombay University and London Hospital; Peshotan Dorabji Bhiwandiwalla, L.M.S. Bombay, Bombay University; Samuel Isaac Blairmann, Middlesex Hospital; William Herbert Blakemore, Manchester University; Ralph Cay Briscoe, St. George's Hospital and King's College; Maurice Hereward Cane, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Ennis Ratcliff Chambers, London Hospital; Richard Challoner Cobbe Clay, King's College and Westminster Hospital; Gerald Cock, Charing Cross Hospital; John Rhys Davies, University College, Cardiff; Richard William Davies, St. Mary's Hospital; James Douglas Driberg, London Hospital; Walter James Ignatius Dwyer, London Hospital; Richard Shirley Fawssett, St. Bartholomew's Hospital; Geoffrey Garland, Leeds University; Arthur Oliver Gray, Middlesex Hospital; David Marcus Hanson, University College; Walter Sebastian Herman, B.A. Cantab., Cambridge University; James Stanley Higgs, St. George's Hospital and King's College; Frederick Theophilus Hill, St. Bartholomew's Hospital; John Iles Francis Knight, London Hospital; James Lafayette Lauder, Guy's Hospital; Percy East Lones, University College; Arthur Lowndes, Manchester University; Charles Virgil Nunez Lyne, King's College; Gerald Noel Martin, London Hospital; George Selvanayagam Mather, Ceylon and University College; John Millard, Birmingham University; William Morris, London Hospital; Herbert Henry Powys Morton, King's College; Francis Henry Mosse, B.A. Oxon., Oxford University and King's College; Lionel Page, Bristol University; John Rowland Payne, University College, Cardiff; John Abraham Perera, Ceylon University and University College; Arthur Starkie Plant, Manchester University; Frank Pearce Pocock, King's College and Westminster Hospital; Guy Algernon Pratt, Guy's Hospital; Sydney Jessie Scott Reid, Royal Free Hospital; Ivor Ridge-Jones, University College and St. George's Hospital; Joseph Edward Rivera, Manchester University; Arthur Edward Schokman, Ceylon University and London Hospital; Eric John Staddon, St. Thomas's Hospital; Thomas Joseph Taunton, St. Bartholomew's Hospital; Harold Topham, Leeds University; Donald Sargenson Twigg, Sheffield University; Alfred Stewart Wakely, King's College; William Leslie Webb, Guy's Hospital; and Leslie Gordon White, Leeds University.

At the quarterly examination in Practical Pharmacy held on July 7th and 8th the following gentlemen were approved:—

Charles Beresford Alexander, Liverpool University; Henry Park Asbe, King's College Hospital; John Horatio Baldwin, St. Bartholomew's Hospital; William McHutchinson Binning, University College; Antoun Bishara, Cairo and St. Thomas's Hospital; Henry George Barham, Blackman, Guy's Hospital; Thomas Rufus Bowen, London Hospital and private study; Eric Catford, St.

Bartholomew's Hospital; William Lonsdale Cockcroft, Manchester University; Stephen Walter Coffin, Guy's Hospital; Albert George William Compton, Cambridge University and St. Mary's Hospital; Edmund Sheppard Cuthbert, St. Bartholomew's Hospital; Ernest Ivon Davies, University College, Cardiff; Ralph Marsh de Mowbray, St. Thomas's Hospital; Carl Keating Graeme Dick, St. Mary's Hospital; Wilfred Angel Easton, Guy's Hospital; David Trevor Evans, University College, Cardiff; Louis Edward Forster, Liverpool University; John Wesley Gilbert, Bristol University; Harold Cane Codding, Guy's Hospital; Frank Cyril Greig, University College; Henry James Hacker, St. Bartholomew's Hospital; Percy Douglas Hamilton, Charing Cross Hospital; Charles Barnard Hawthorne, Birmingham University; Charles Lyon Herklots, B.A. Oxon., University College Hospital; Abdel Halim Hilmy, Cairo and St. Thomas's Hospital; Leonard Cockburn Dundas Irvine, B.A. Cantab., Cambridge University and Guy's Hospital; Richard Bertram Johnson, Bristol University; Charles George Gordon Keane, St. Mary's Hospital; Noël Sigismund Koch, St. Bartholomew's Hospital; Jasper Lakeman, London Hospital; Colwell de Calis Winkley Langdon, Manchester University and private study; Basil Hugh Campbell Lea-Wilson, Cambridge University and St. Bartholomew's Hospital; Charles Cooper Ling, London Hospital and private study; Patrick Andrew Mackay, St. Mary's Hospital; William Kellock McKay, Guy's Hospital; Kenneth Holl McMillan, St. Thomas's Hospital; Labib Abdul Malik, St. Mary's Hospital; Robert Charles Matson, Guy's Hospital; Cyril Cassan Messiter, St. Bartholomew's Hospital; Henry Naunton Morgan, University College, Cardiff; Reginald Sperling Morshead, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Herbert Guy Moser, St. Bartholomew's Hospital; Hubert Frederick Overend, Manchester University; Walter Justice Paramore, University College; George Musgrave Parker, Cambridge University and St. Bartholomew's Hospital; Harold Parker, Leeds University; Mahamarrakkelegey Gregory Perera, Ceylon Medical College and University College; Stanley Victor Percy Pill, St. Mary's Hospital; Thomas Bennion Bourne Price, London Hospital; William Reginald Pryn, Guy's Hospital; Bertram Pyman, University College, Cardiff; Alan Filmer Rook, Guy's Hospital; George Francis Rowcroft, St. Bartholomew's Hospital; Harold Arthur Rowell, St. Thomas's Hospital; Gerald Davenant Shann, St. George's and King's College Hospitals; John Patrick Shaw, Middlesex Hospital; Francis Robert Bradley Skrimshire, St. Thomas's Hospital; Frederick Lionel Spalding, Guy's Hospital; Thomas Sidney Stafford, Birmingham University; Gavin Stiell, St. Thomas's Hospital; Frank Sykes, Leeds University; Mom Chow Thavara, Guy's Hospital; Eric Morse Townsend, Middlesex Hospital; Algernon Randolph Upton, St. Bartholomew's Hospital; William Ernest Wade, University College, Cardiff; John Rollo Noel Warburton, St. Thomas's Hospital; George William Watson, Leeds University; George Harvey Dudor Webb, University College Hospital; Edward Parker Wallman Wedd, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Esmond Tetley Willans, B.A. Cantab., Cambridge and Leeds Universities; Norman Jeune Willans, Middlesex Hospital; Thomas Mansergh Wood-Robinson, Middlesex Hospital; and Ernest Jenner Wright, St. Mary's Hospital.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

At a meeting of the Council held on July 14th the undermentioned diplomas were conferred upon the following gentlemen:—

M.R.C.S.—Robert Edward Collins, Edinburgh University; and Damodar Narayenswamy Mudliar, Bombay and Manchester Universities and University College Hospital.

L.D.S.—Harold Harrison, Guy's Hospital; William Lowe Jackson, Charing Cross and Royal Dental Hospitals; and Edward Algernon Weaver, Birmingham University.

UNIVERSITY OF DURHAM.

At examinations for the degree of Bachelor of Medicine, held recently, the following candidates were successful:—

FIRST EXAMINATION.

Elementary Anatomy and Biology, Chemistry and Physics.—Charles Norman Gover, College of Medicine, Newcastle-upon-Tyne; Charles Stewart Parnell Hamilton, Charing Cross Hospital; Cyril Jacobs and Leo Magee, College of Medicine, Newcastle-upon-Tyne; Roland Sells, Guy's Hospital; Kirton Ivor Seager Smith, College of Medicine, Newcastle-upon-Tyne; and Hugh Gordon Sparrow, St. George's Hospital.

Chemistry and Physics.—Cyril Armstrong, Ishmael Gustavus Cummings, and Geoffrey Bede Egerton, College of Medicine, Newcastle-upon-Tyne; Leonard Wilfrid Hearn, Sheffield University; Francis Metcalfe, Ernest Charles Gilchrist Parker, Jane Penman, and Home Alexander Playfair Robertson, College of Medicine, Newcastle-upon-Tyne; Donald Charles Scott, Guy's Hospital; and James Calvert Spence and Alfred Cresswell Taylor, College of Medicine, Newcastle-upon-Tyne.

Elementary Anatomy and Biology.—Arthur Causton Freeth, St. Mary's Hospital; Frank Wilson Harlow and James Dixon Johnson, College of Medicine, Newcastle-upon-Tyne; Grace Winifred Pailthorpe, London School of Medicine for Women; Cecil Tom Gann Pearce, College of Medicine, Newcastle-upon-Tyne; Hugh Ley Puxon Peregrine, St. George's Hospital; and Eric Knowles Ryan, Sheffield University.

SECOND EXAMINATION.

Anatomy, Physiology, and Materia Medica.—Second-class Honours: Robert Lacy Kitching, College of Medicine, Newcastle-upon-Tyne; and Edward Phillips, College of Medicine, Newcastle-upon-Tyne, and London Hospital. Pass List: Ernest Bramley, Garfield Carse, Cyril Duncan, Laurence Heber Warneford Iredale, Andrew Govan McFarlane, Nora Murphy, Carinna Augusta Barry O'Neill, Arthur Patterson, John Logan Pringle, and Evelyn Ritson, College of Medicine, Newcastle-upon-Tyne; Felix Stephens Rood, M.R.C.S., L.R.C.P., University College, London; and Cedric Overton Shackleton, James Stewart Soutter, George Edward Stephenson Arthur Sutcliffe, B.A., and Gordon Stewart Woodman, College of Medicine, Newcastle-upon-Tyne.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

At recent examinations held in Glasgow the following passed their respective examinations:—

First Professional Examination.—Reginald Cornelius Marston, Leicester; Edith Mary Hewlett, Glasgow; John Rennie Carrie Gordon, Glasgow; John Gilchrist, Glasgow; George Loudon Neil Lesmahagow; John Crawford, Paisley; Amy Blanche Rubina Anderton Perriton, Bangalore; Madeline MacWilliam, Glasgow William Lyle Paterson, Glasgow; Andrew Crawford, Glasgow; John Alexander Smith, Glasgow; George Thomson, Glasgow; John William Cowie, Tillicoultry; John Berry, Leyland, Lancs; and John Corcoran, Cork.

Second Professional Examination.—Evan Edward Owens, Wales; Amy Blanche Rubina Anderton Perriton, Bangalore; William Bannatyne, Paisley; Willie Ashworth, Halifax, England; James Grant Morrin, Glasgow; William Laird, Larkhall; Alexander Morton Robertson, Glasgow; Alexander Scott Mackenzie, Victoria, New South Wales; and George Logan Clark, Glasgow.

Third Professional Examination.—David Winthrop Woodruff, Wilton; George William Mason, Monmouth, South Wales; Francis William Grant, Uddingston; Arthur Lloyd Edwards, Carnarvon; Padamji Ardeshir Dastoor, India; and Michael Vincent Walsh, Cork.

Final Examination, and were admitted L.R.C.P.E., L.R.C.S.E., and L.R.F.P.S.G.—Robert John Helsby, Denbigh, North Wales; Jane Hall Filshill, Edinburgh; Kedar Nath, Lahore; Alberga Delrio Constantine Rob, Jamaica; John Alexander Irwin, Glasgow; Zebina Annette De Cruz, Cochin, India; James Sullivan, Glasgow; Thomas Walsh, Glasgow; Maganlal Maneklal Daru, Bombay; and Albert Robert Henry Harrison, Cork.

UNIVERSITY OF ABERDEEN.

The following degrees were conferred on July 13th:—

Degree of M.D.—†William Brander, M.B., †John Elrick Kesson, M.B., *James Elmsly Mitchell, M.B., John Joseph Johnson, M.B., Rae McRae, M.B., Thomas Taylor, M.B., and James Ingram Pirie Wilson, M.B.

* Commendation for Thesis. † Highest honours for Thesis.

Degrees of M.B., Ch.B.—Robert Semple (Second Class Honours), James Bruce Anderson, Robert Moir Lechmere Anderson, James Scott Annandale, John Alexander Macarthur, Charles Archibald McDonald, Allan John McLeod, John James Alexander Neil, James John du Preez, Edmund Lewis Reid, John Ritchie, James Dewar Robertson, Charles Kelman Smith, Harold Edgar Smith, M.A., John William Stephen, William Taylor, Henry James Thomson, and William Milne Tough.

Douglas Gordon Cheyne has passed all the examinations for the degrees, but will not graduate until he has attained the necessary age.

The Diploma in Public Health was also conferred on:—

Williamina Abel, M.D. Aberd., Alan Deed Brunwin, M.D. Cantab., Robert Reid Duncan, M.B. Aberd., Kenneth Ross, M.A., M.B. Aberd., Alfred John Watson Stephen, M.B. Aberd., and George Alexander Williamson, M.A., M.D. Aberd. (with credit).

FOREIGN UNIVERSITY INTELLIGENCE.

Algiers: Dr. Weber has been appointed Professor of Anatomy in succession to the late Dr. Trolard.—*Berne:* Dr. Ries has been recognised as *privat-docent* of Psychology.—*Bonn:* Dr. G. Stertz has been recognised as *privat-docent* of Psychiatry and Neurology.—*Bordeaux:* Dr. Aubaret has been appointed (after *concours*) Professeur *agrégé* of Anatomy and Embryology. Dr. Rocher has been appointed (after *concours*) Professeur *agrégé* of General Surgery.—*Budapest:* Dr. Felix von Sontágh, *privat-docent* of Children's Diseases, has been granted the title of Professor.—*Cracow:* Dr. Adam Wrzosek has been appointed Extraordinary Professor of General and Experimental Pathology; Dr. Stanislaus Dobrowolski, Dr. Nowotny, and Dr. Max Rutkowski have been granted the title of Professor.—*Florence:* Dr. G. Menini has been recognised as *privat-docent* of General Pathology, Dr. G. Giacomelli as *privat-docent* of Operative Medicine, and Dr. Savarè as *privat-docent* of Midwifery and Gynæcology.—*Heidelberg:* Dr. Krehl has, contrary to the information published in German medical journals, decided to remain in Heidelberg instead of going to Leipsic. The chair of Surgery, which becomes vacant by the retirement of Dr. Narath, has been offered to Dr. Wilms, Professor of Surgery in Basle. Dr. Schönborn, *privat-docent* of Medicine, has been promoted to an Extraordinary Professorship.—*Innsbruck:* A demonstration has been made by the students against Dr. Pommer, the professor of pathological anatomy, on account of the number of candidates he had rejected in the recent *rigorosum*, or University examination. Apparently the only result was that the Professor cut his lecture short.—*Jena:* Dr. Roepke, *privat-docent* of Surgery, has been promoted to an Extraordinary Professorship.—*Lille:* Dr. Vanverts has been appointed (after *concours*) Professeur *agrégé* of General Surgery.—*Lyons:* Dr. Collet has been appointed to the chair of Internal Pathology

a succession to Dr. Roque. Dr. Latarjet has been appointed after *concours*) Professeur *agrégé* of Anatomy and Embryology. Dr. Leriche, Dr. Thévenot, and Dr. Tavernier have been appointed (after *concours*) Professeurs *agrégés* of General Surgery, and Dr. Bretin Professeur *agrégé* of Pharmacy.—*Montpellier:* Dr. Delmas has been appointed (after *concours*) Professeur *agrégé* of Midwifery. Dr. Massabuan has been appointed (after *concours*) Professeur *agrégé* of General Surgery.—*Munich:* Professor Döderlein has been offered the chair of Gynæcology in Berlin in succession to Dr. Bumm, but the authorities having consented to rebuild his clinic, he has consented to remain instead of migrating to Berlin.—*Nancy:* Dr. M. J. Schmidt has been appointed to the chair of Clinical Medicine in succession to Dr. Bernheim. Dr. Lucien has been appointed (after *concours*) Professeur *agrégé* of Anatomy and Embryology; and Dr. Busquet Professeur *agrégé* of Physiology. Dr. Binet has been appointed (after *concours*) Professeur *agrégé* of General Surgery.—*Naples:* Dr. Reinhard Dohrn, who has charge of the Zoological Station, has been granted the title of Professor by the Prussian Government.—*Paris:* Dr. Rouvière and Dr. Grégoire have been appointed Professeurs *agrégés* (after *concours*) of Anatomy and Embryology; Dr. Jean Camus, Professeur *agrégé* of Physiology; Dr. Tiffeneau, Professeur *agrégé* of Materia Medica; Dr. Laignel-Lavastine, Professeur *agrégé* of Mental Diseases and Pharmacodynamics; Dr. G. S. Roussy, Professeur *agrégé* of Pathological Anatomy; Dr. P. R. Guéniot and Dr. Lequeuy, Professeurs *agrégés* of Midwifery; and Dr. A. F. Terrien, Professeur *agrégé* of Ophthalmology. Dr. A. Gilbert has been appointed to the chair of Clinical Medicine in succession to Dr. Dieulafoy. Dr. Chevassu, Dr. Okinczye, and Dr. A. Schwartz have been appointed (after *concours*) Professeurs *agrégé* of General Surgery.—*Toulouse:* Dr. Dambrin and Dr. N. J. Martin have been appointed (after *concours*) Professeurs *agrégés* of General Surgery.—*Turin:* Dr. Eduardo Poggio has been recognised as *privat-docent* of Neurology and Dr. Marco Treves as *privat-docent* of Psychiatry.—*Zürich:* Dr. Wyss, Professor of Hygiene, is retiring at the close of the current session. Dr. H. von Wyss has been recognised as *privat-docent* of Medicine.

LITERARY INTELLIGENCE.—Mr. H. K. Lewis will publish shortly the fourteenth edition of the "Extra Pharmacopœia," by Martindale and Westcott. Some important changes have been made in the book. It was felt that the new volume should not be thicker than the thirteenth edition, and in order, therefore, to include the large amount of new matter the size of the page was enlarged to $6\frac{5}{8}$ by $4\frac{1}{8}$ inches. The paper is also less transparent than the last edition, and it is hoped that these two changes will render the book still more convenient and readable. A few of the more important changes in the matter of the book may be briefly referred to. A large number of new chemical and pharmaceutical preparations have been introduced; the pages devoted to vaccine and organo-therapy have been completely revised; patent medicines up to the number of 250 in all are now fully described; the article on radium has been recast and deals with the question recently raised regarding the standardisation of this element; the epitome on iontophoresis brings together much scattered work that has been done and published on this matter; the revision of the molecular weights has been made throughout the book in accordance with the alterations in eight atomic weights within the last two years by the International Commission. The new work also includes a chapter on Acidi Lactici Bacilli-Therapy, being conclusions of a considerable amount of experimental work in which the authors have been engaged with up-to-date literature on the subject. A supplement containing the results of analyses of over 300 organic bodies accompanies the present issue. This is to be obtained separately if desired. We hope to publish a critical review of the new edition in greater detail when it has appeared publicly.—Messrs. Rebman will publish in the autumn a work on the abdomen by Dr. W. Cuthbert Morton. In the work we are informed that a definition of the principles which ought to be followed in anatomical description is accompanied by an illustration of both text and plates of the thorough and consistent application of those principles to the abdomen proper. In the text the peritoneal sac is described from an altogether new point of view, and in addition its different portions are dealt with in relation to the individual organs in such a way that the whole sac is gradually built up. The claims made for the work suggest that it ought to be of service to teachers in anatomy and also practitioners.—The second volume of "The National Health Manuals," which Dr. T. N. Kelynack is editing, will be issued during the next two or three weeks by Robert Culley. It is entitled "Childhood," and deals with various aspects of child life. Twelve well-known medical authorities contribute chapters, and the work will be issued at the popular price of 1*s.* net.

THE BRITISH DENTAL ASSOCIATION.—The annual meeting of the Western Branch of the British Dental Association was held at Plymouth recently. The retiring President, Mr. T. T. Genge (Clifton), welcomed the new President, Mr. G. R. Brittan (Plymouth). In the course of an interesting address the President urged the importance of "The Care of the Teeth," and at the close Mr. Brittan was awarded a vote of thanks. A discussion took place in reference to the Bill to amend the Dental Act of 1878, and eventually it was resolved that—

> The branch, feeling that the majority of men who would be recognised under the Bill were utterly unfitted to serve the dental requirements of the public, was unable to give its sanction to the Bill.

There was a good attendance of members, amongst those present being: Mr. E. L. Dudley (Bath), Mr. J. J. Sanders (Barnstaple), Mr. F. Sleep (Plymouth), Mr. S. Carter (Bath), Mr. F. J. Hatton (Bristol), Mr. H. O. Dickin (Yeovil), Mr. H. Garbrell (Penzance), Mr. S. G. Yates (Ross), Mr. W. H. Goodman (Exeter), and Mr. A. E. Gibson (Clifton). The annual dinner was held in the evening at the Grand Hotel; there was a good attendance which included several medical men. The next annual meeting is to be held at Barnstaple.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of this society was held on July 13th, Dr. G. F. Blandford, the President, being in the chair. Twenty directors were present. Four medical men were elected members of the society. The sum of £1350 10*s.* was voted for the payment of the half-yearly grants to the annuitants of the charity. A widow of one of the members applied for relief; her husband had paid in subscriptions £21 and left his widow with an income of £20 per annum. The court voted that a grant at the rate of £50 per annum be made. Membership of the society is open to any registered medical practitioner who at the time of his election is resident within a 20-mile radius of Charing Cross. The annual subscription is 2 guineas, but a member may become a life member by paying one sum, the amount of which is fixed by the by-laws of the society. The next election will be on Oct. 12th, and application forms must reach the secretary on or before Sept. 21st. The invested moneys of the society now amount to £100,550. Full particulars and application forms for membership may be obtained from the secretary at the office of the society, 11, Chandos-street, Cavendish-square, London, W.

CHICHESTER INFIRMARY.—Mention was made in these columns on June 18th of the liquidation of the debt on the Chichester Infirmary and the proposal to reconstruct the building as a memorial to King Edward VII. This scheme is now well on towards fruition, inasmuch as at a public meeting held on July 15th a resolution was unanimously carried agreeing to the proposed scheme for reconstructing the infirmary at a cost of £20,000. The movement has had an excellent start with the promise of £10,000 from Mr. W. D. James, of West Dean Park, Chichester, himself a member of the board of management of the infirmary, and one of His late Majesty's personal friends. It was while staying with Mr. James that His Majesty made frequent visits to the infirmary, and Mr. James told the meeting of King Edward's particular interest in the Chichester institution; and, further, that he heard His Majesty say the last time he saw him before his death that his wish nearest his heart was that some means would be discovered to cure cancer. Sir Fredcrick Treves, who had already reported to the board of management upon the hospital, pointed out that even if the Chichester Infirmary had been built 30 years it would now be entirely out of date, whereas the institution had existed a century. The enormous strides that had been made in medical and surgical knowledge had rendered the institution obsolete. The speaker, however, paid an excellent tribute to the medical staff for the work they were doing. The meeting, which was presided over by the Duke of Richmond

and Gordon, was by no means a county one, and the proposed memorial is only to be considered as applying to the district covered by the Chichester Infirmary—namely, West Sussex and East Hampshire.

BRISTOL EYE HOSPITAL.—As a result of the recent centenary fête of the Bristol Eye Hospital the sum of £1678 has been raised for the funds of the institution.

THE Paris Academy of Medicine has elected Dr. Pagliani of Turin and Dr. Filehne of Breslau corresponding members.

Dr. Vollbrecht, Surgeon-General in the Prussian army, has been offered the post of Director-General of the Medical Department of the Turkish army, with the object of its reorganisation on the German system.

THE President and Council of the Royal Sanitary Institute will be at home to members of the British Medical Association at the new premises of the institute and the Parkes Museum of Hygiene on Wednesday afternoon, July 27th, from 3 to 6 P.M.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Midwives (No. 2) Bill.

Earl BEAUCHAMP, as Lord President of the Council, has introduced in the House of Lords the Midwives (No. 2) Bill. It has been read a second time. In its main provisions it is the same as the Midwives Bill which was withdrawn some weeks ago, but in several points the drafting has been altered.

Public Health (Health Visitors) Bill.

Mr. BURNS has presented a Bill in the House of Commons "to enable local authorities under the Notification of Births Act, 1907, to appoint health visitors." It has been read a first time. There is already a power existing in London to appoint women health visitors to visit the homes of the poor to advise them on the feeding and rearing of infants. Mr. BURNS'S object is to extend this power to large cities in the provinces.

HOUSE OF LORDS.

THURSDAY, JULY 14TH.

Education (Physical Training) Bill.

Viscount HILL moved the second reading of the Education (Physical Training) Bill. He explained that its object was to provide for physical training in elementary, secondary, and continuation schools. The Bill had been drawn up by the National Hygiene League. It raised the age up to which the physical training should be given to 16 years and provided that the teachers must have a sound knowledge of physical culture. The promoters of the Bill wanted careful instruction as to the proper way of standing and breathing.

Earl BEAUCHAMP (speaking on behalf of the Government) expressed approval of the desire of the noble lord to improve the physical training of children, but said that the Government could not accept the Bill as it stood. He pointed out that the work of physical training in the schools had only been lately reorganised. The first step was to train teachers, and that work was already in hand. He therefore asked the noble lord to withdraw the motion for the second reading of the Bill in the meantime.

After some discussion Viscount Hill withdrew his motion.

TUESDAY, JULY 19TH.

The Midwives Bill.

Earl BEAUCHAMP moved the second reading of the Midwives Bill, which he said was to amend the Midwives Act of 1902. That Act, as was often the case with new legislation, required that amendments should be made in several directions. It was to make them that the Bill was introduced. Proceeding to deal with the effect of the Midwives Act of 1902, he said that since it had come into operation there had been a very remarkable decrease in deaths of infants of the character which might be prevented by efficient midwives. A Departmental Committee had been appointed to inquire how far the Act had been a success and the amendments of its provisions now proposed were substantially founded on the recommendations of that committee. He should like to take this opportunity of paying a tribute to the admirable work which had been performed by Sir Francis Champneys, chairman of the Central Midwives Board. He had devoted a large amount of time in order to secure the successful working of the Act. He had discharged all the functions of the Board to the general commendation. It was very fortunate that in the early years of its existence the Board should have had the guidance of a man who enjoyed the confidence of the medical profession. Earl Beauchamp then went on to explain in detail the provisions of the Bill (which have already been published in THE LANCET). The aim had been to make the Bill, as far as possible, non-contentious, and to avoid, as far as possible, the very large issues involved in changes in Poor-law relief. Without in any way trenching on the larger question, he hoped that the Bill would be framed so as to secure general approval. He learned that there was a movement to bring Ireland within the operation of the Midwives Act through amendments to this Bill. However, he should say that that would be a matter of difficulty.

The Marquis of LONDONDERRY said that he felt strongly that the ca for the extension of the Midwives Act to Ireland should be consider in connexion with this Bill. It inflicted great injustice on the midwi of Ireland that they should be excluded from the advantages of t legislation. He did not see why their hardship should not be remov by an amendment.

The Earl of MAYO and Lord CLONBROCK also urged the extension legislation on midwives to Ireland.

Lord ASHBOURNE also did not see any great difficulty in extending t Bill to Ireland.

Lord BALFOUR of BURLEIGH said that although legislation similar that contained in the Bill would be welcome in Ireland, there was ve considerable technical difficulty in a Bill, which was an amending or to extend it into a statute dealing with the circumstances of Irela He spoke with some knowledge on that point, because it was he w had the privilege of piloting the principal Act through the House. I heard with the greatest possible pleasure the satisfactory statement to the operation of the Midwives Act during the last few years. entirely justified the passing of the Act. The noble earl had done more than justice in paying a tribute to Sir Francis Champneys and t Central Midwives Board.

Earl BEAUCHAMP, in replying to the debate, expressed satisfacti with the course of the discussion. He promised to give considerati to any amendments which noble lords might bring forward in co mittee, although he could not promise to accept all of them.

The motion was agreed to, and the Bill was read a second time.

HOUSE OF COMMONS.

WEDNESDAY, JULY 13TH.

Indian Medical Service.

Mr. KELLY asked the Under Secretary of State for India whether t Secretary of State had yet received from the Government of India report on the medical service of India; whether he was aware of t belief among Indian medical men that the delay was the outcome of t desire and intention of the Indian Government to reserve the high grades of the medical service to people of this country, without rega to efficiency, expenditure, or justice to the people of India; and wh steps did he propose to take to bring the highest posts within reaso ably easy reach of all medical men without distinction of nationality. Mr. MONTAGU replied: The answer to the first part of the question in the negative. As regards the second part of the question, t Secretary of State finds it difficult to imagine that any such beli exists. The Secretary of State cannot now formulate proposals.

Medical Inspection of School Children.

In Committee of Supply on the Education vote,

Mr. RUNCIMAN (President of the Board of Education) in the course his speech said: Let me say a word or two on the subject of medic inspection of school children. Medical inspection has not been ful organised in this country for a very long time, but every one of the loc authorities has now undertaken that work, and already more tha 1,500,000 children have been examined. One thousand medical office have been appointed, of whom 70 are women, and there are now no le than 300 school nurses. It follows of necessity that where you ha medical inspection carried out on such a large scale as this—and carrie out, I believe, on the whole efficiently—there must be something in t nature of treatment to follow. All cases are, I believe, first of all ser to a private medical practitioner, and the procedure is something lik this. The local education authority being responsible for providin the inspection appoints a school officer. The officer reports his findin to the local education authority. He does so privately. The loc authority communicates these findings, also privately, to the scho doctor or to the parents. It is then the duty of the parents to obtai the necessary treatment. That is the normal course. However, ther are large numbers of parents who are neglectful or unwilling to ful their duty, or they may be unable to provide the necessary treatmen Those cases are met in a variety of ways. Up to the present I find tha some authorities are paying for nursing assistance out of the educatio rate, which they are quite entitled to do. Sixty-five authorities hav done this; 33 of them are paying for spectacles out of the rates; 15 c them are contributing to hospitals out of the rates; and ten of ther have established school *crèches*. Besides that, I think I ought to ad that many private agencies and many hospitals have been lendin their aid in this good work. That means not only that the live of these children will be made happier, but that they will grov up much more efficient human beings, and the work done i the school in respect of them will certainly not be thrown away On the other side of their physical condition, I have to repor that great developments have taken place in the matter of physica exercises. Two years ago some members of my Board embarked o devising a general physical exercise syllabus largely on the Swedis system. That syllabus has met with great acceptance and 92,000 copie of it have been sold. It would be impossible to carry on the physica exercise work in all the schools under the local education authoritie unless the teachers were prepared to play a part in it, and in the train ing colleges no less than 4700 students have passed the examination i physical exercise since Christmas of last year. That means that thos teachers who go up from the training colleges will not be specialise physical exercise teachers, but it will be part of their ordinary work. I has been suggested by Lord Curzon and Lord Roberts recently that such physical degeneration of the people as exists might be arrested by universal military service. I am not going to embark on tha very large subject, except to say that universal service coul not meet this great problem. Military service can only benefi selected men. Those who are least physically fit, those who most require physical exercises, would be debarred from the very training and opportunity that would be provided under a military system. Moreover, military service does not include women and girls and can be in no way a substitute for physical exercise. It can only include those who are comparatively grown up. What we want to-day is to get hold of the children as early as possible and enable them not only to develop their muscles when grown up but to enable them to grow up well. The Board looks upon this new work as a national service, both from the point of view of discipline and of physique. There are two similar subjects to which I must refer. One is the teaching of what is known in education jargon as "mother-craft," the care of babies, and the other is the teaching of temperance. Last year I suggested that there might

more classes for this purpose. Some experiments have been successfully made in South Wales and many authorities in other parts of the country have been making similar experiments. They are being carefully watched by the Board with a view to discovering how the subject can best be dealt with. The temperance syllabus has been largely used by the local authorities all over the country and 33,000 copies have been sold already. That is one way of measuring the extent to which it has met the approval of local authorities. Upwards of 300 education authorities have arranged for the definite teaching of temperance on the lines of the syllabus. I hope that will bear good fruit as time goes on.

The Milk-supply.

Sir FRANCIS CHANNING asked the President of the Local Government Board whether, having regard to the fact that no legislation to secure purity of milk was contemplated this session, he proposed to adopt any other administrative steps this year for that object.—Mr. BURNS wrote in reply: I regret that it was not possible to reintroduce the Milk and Dairies Bill this session, and I am afraid that, pending the introduction of the Bill, administrative action in the direction of preventing the introduction of impurities into milk must necessarily be limited in scope. Certain inquiries have been and are being made by the inspectors into other aspects of the matter, such as the addition of preservatives to milk, and when these inquiries are complete I will carefully consider what administrative action can be taken. Pending legislation, it is to be hoped that the local authorities will exercise to the full such powers as they at present possess.

THURSDAY, JULY 14TH.

Midwives in Ireland.

Viscount CASTLEREAGH asked the Chief Secretary to the Lord Lieutenant of Ireland whether he proposed to introduce a measure dealing with midwives in Ireland on the lines of the legislation already in operation in England, subject to the necessary modifications to meet special Irish conditions.—Mr. BIRRELL answered: I do not propose to introduce legislation on the subject, at all events during the present session. I would point out that there is not the same urgency in the matter in Ireland as in England, having regard to the powers which boards of guardians in Ireland already possess.

The Adulteration of Flour.

Mr. BROADLEY asked the President of the Local Government Board whether he would consider the advisability of prohibiting the introduction of a so-called improver into genuine flour, as it had been found that the improvers of certain chemical companies contained arsenic, and many of them were simply preparations of purified bone ash, while others contained large quantities of gypsum or sulphate of lime; and whether he proposed to take any steps to deal with the use of these substitutes for the food values of pure flour in view of the provisions of the Bread Act of 1836. The honourable Member further asked whether samples of the different flours for sale in the United Kingdom had been taken by the Government food inspectors for the purpose of analysis; and whether it had been found to be a practice among some millers to adulterate the flour by the addition of chemicals of an injurious character with a view to increasing its whiteness, and also to give the flour made from a poor non-glutinous wheat the capacity to rise when in the process of baking, which would otherwise have to depend for its raising properties on the natural gluten contained in the wheat, and that, glutinous wheats being over a series of years the most expensive, the manufacturers who practised these methods were reaping a financial advantage at the risk of the consumer and supplying a flour which had not its proper food value in gluten.—Mr. BURNS (in a written answer) replied: The inquiry which I have directed into the bleaching of flour and the use of so-called improvers in its preparation is proceeding, and the points raised in these questions are receiving attention.

Measles and Whooping-cough in the Metropolis.

Sir WILLIAM COLLINS asked the President of the Local Government Board whether, in view of the large aggregate mortality from measles and whooping-cough in London, he would be prepared to approve of the utilisation of such hospitals of the Metropolitan Asylums Board as might not be required for notifiable diseases for the voluntary admission and treatment of children suffering from measles and whooping-cough.—Mr. BURNS wrote in reply: The question of the practicability of utilising the spare accommodation in the institutions under the control of the managers of the Metropolitan Asylum District for diseases other than those with which they are at present empowered to deal is under consideration, and I understand that a proposal on the subject is coming before the managers at the next meeting. I shall not lose sight of the matter.

Spirit in Medicines.

Mr. PRIMROSE asked the Chancellor of the Exchequer whether he would be willing to allow a drawback of the duty on spirit used by medical practitioners, chemists, and druggists.—Mr. LLOYD GEORGE (in a written answer) replied: I have given my sympathetic consideration to this matter, but the practical difficulties are very serious, and I am afraid I cannot undertake to grant such a drawback.

MONDAY, JULY 18TH.

The Standardisation of Disinfectants.

Sir GILBERT PARKER asked the President of the Local Government Board whether the Government would consider the advisability of altering the law relating to disinfectants so as to secure a standard which would adequately protect the public against spurious compounds which gave a false sense of security.—Mr. BURNS replied: The standardisation of disinfectants is a subject of great difficulty upon which expert opinion is divided. I do not think it would be practicable to deal with it at the present time.

Experiments on Living Animals.

Dr. ADDISON asked the Secretary of State for the Home Department whether, in view of the fact that the operation of spaying two rabbits under an anæsthetic by a skilled operator without his licence being in order had been declared a contravention of the Cruelty to Animals Act, 1876, he proposed to take any action in regard to the corresponding operation which was performed in numbers of cases on young pigs and on young male cattle and sheep in this country every year by unqualified persons and without an anæsthetic.—Mr. CHURCHILL answered: No, sir. The operation on the rabbits being "an experiment calculated to give pain" and performed without the necessary authorisation was a breach of the Cruelty to Animals Act, 1876. The other operations to which my honourable friend refers do not come within that Act, and I am advised that there is nothing illegal in them if carried out *bonâ fide* for commercial or domestic purposes and without causing unnecessary suffering. I have no evidence that the existing law with regard to them requires amendment.

TUESDAY, JULY 19TH.

Elementary Schools (Instruction in Hygiene) Bill.

Dr. ADDISON, in moving for leave to bring in a Bill to require that in public elementary schools instruction should be given in hygiene and to girls in the care and feeding of infants, pointed out that ignorance of these matters was one of the greatest of all causes of physical degeneration. At the present time it was a fact that 120,000 children died annually under the age of 12 months; that was a proportion of 1 in 4. A large part of this wasto of child life was due to improper feeding and want of care on the part of those who had to nurso the children. He admitted that the Notification of Births Act had brought about some improvement. However, there was still a high death-rate amongst infants. To combat this circumstance he thought that it was necessary to begin to instruct girls at school in the care of children. The instruction which would require to be given to them was quite simple, and it would not take up much of the school time. If girls were taught about the care of infants they would know, when they became mothers, that a baby should have no other food artificially except milk. The effect of this knowledge, he was suro, would lead to a diminution in the death-rate of infants to a very large extent.

Leave having been given, the Bill was introduced and read a first time.

The Administration of Anæsthetics.

Sir WILLIAM COLLINS asked the Secretary of State for the Hom Department whether it was proposed to introduce legislation to carry out the suggestions of the Departmental Committee presided over by Sir Malcolm Chalmers, which inquired into the question of deaths resulting from the administration of anæsthetics, and whether any communication had been made to or received from the General Medical Council with a view to requiring a knowledge of anæsthetics and their administration as part of the medical curriculum.—Mr. CHURCHILL wrote in reply: As stated in the answer given on the 12th instant to a question by the honourable and learned Member for the East Toxteth Division of Liverpool, the recommendations of the Coroners' Committee are now under consideration, and I hope, when time permits, to propose legislation with regard to them. As regards the second part of the question, I would refer my honourable friend to paragraph 15 of the committee's report on deaths from anæsthetics and to the evidence given before the committee by Sir Donald MacAlister, President of the General Medical Council. Sir Donald MacAlister explained that the General Medical Council in 1906 issued a recommendation that instruction in anæsthetics should be a compulsory part of the medical curriculum, and all examining and licensing bodies with power to grant qualifications entitling the holders to be registered under the Medical Acts have followed this recommendation, so far as their powers permitted, or are seeking powers to follow it. Correspondence took place with the General Medical Council on this subject in 1908; but neither this office nor the Privy Council Office has had any communication with the Council since Sir Donald MacAlister's evidence was given.

WEDNESDAY, JULY 20TH.

The International Committee on Mental Diseases.

Sir WILLIAM COLLINS asked the Secretary of State for Foreign Affairs whether it was proposed again to send official representatives from Great Britain to the meeting of the International Committee on the Causes and Prophylaxis of Mental Diseases to be held this year at Berlin in October; and whether the Italian Government, with whom the formation of the committee originated, had approached His Majesty's Government in the matter or had propounded any scheme for the future working of the International Committee.—Sir EDWARD GREY wrote in reply: The answer to the second part of the question is in the negative, and the question of the participation of His Majesty's Government in the meetings of the committee has, therefore, not yet been considered.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.
Fractures and Separated Epiphyses. By Albert J. Walton, F.R.C.S. Eng., M.S. Lond., L.R.C.P., M.B., B.Sc. Lond. Price 10s. 6d. net.

BAILLIÈRE, TINDALL, AND COX, London.
A Manual of Nursery Hygiene. By W. M. Feldman, M.R.C.S., L.R.C.P. Price 2s. 6d. net.
The Ear and its Diseases. By Albert A. Gray, M.D. Price 12s. 6d. net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.
The Compendium of Medicine and Pharmacy. By C. J. S. Thompson. Third edition. Price 5s. net.

BLACK, ADAM AND CHARLES, London.
Advice to Consumptives: Home Treatment, After-care, and Prevention. By Noel Dean Bardswell, M.D. Foreword, by C. Theodore Williams, M.V.O., M.D., F.R.C.P. Price 1s. 6d. net.

CASSELL AND COMPANY, LIMITED, London, Paris, New York, Toronto and Melbourne.
Difficult Labour: A Guide to its Management. For Students and Practitioners. By G. Ernest Herman, M.B. Lond., F.R.C.P., F.R.C.S. New and enlarged edition, with added Chapters on Retroversion of the Gravid Uterus and Puerperal Eclampsia. Price 12s. 6d.
First Principles in the Art of Physical Development. By W. A. Chapple, M.P., M.D., Ch.B., M.R.C.S., D.P.H. Price 1s.
A Manual of Chemistry. Adapted to the Requirements of Students of Medicine. By Arthur P. Luff, M.D., B.Sc. Lond., F.R.C.P., F.I.C., and Hugh C. H. Candy, B.A., B.Sc. Lond., F.I.C. New and enlarged edition. Price 7s. 6d. net.

COLLINGRIDGE, W. H. AND L., London.
Window and Indoor Gardening. By T. W. Sanders, F.L.S., F.R.H.S. Price 2s. 6d. net.

CONSTABLE AND CO., LIMITED, London.
Nightshade. (A Novel.) By Paul Gwynne. Price 6s.

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Oxford Medical Publications. Practical Nursing. For Male Nurses in the R.A.M.C. and other Forces. By Major E. M. Hassard, R.A.M.C., and A. R. Hassard. Price 3s. 6d. net.

GLAISHER, HENRY J., London.
A Prescriber's Companion. By Thomas D. Savill, M.D. Lond. Fourth edition. Revised by the Author, assisted by Charles F. Harford, M.A., M.D. Cantab. Price 1s. net.

HIRSCHWALD, AUGUST, Berlin.
Bibliothek v. Coler-v. Schjerning. Band XXIX. Behelfsvorrichtungen beim Sanitätsdienste im Felde. (Vorwiegend nach Erfahrungen aus dem Hottentottenfeldzuge, 1904-07.) Von Dr. Westphal. Price M.5.
Band XXX. Nervensystem und Insolation. Entwurf einer klinischen Pathologie der kalorischen Erkrankungen. Von Dr. F. A. Steinhausen. Price M.4.

HOEBER, PAUL B., 69, East 59th Street, New York. (LEWIS, H. K., London.)
Physiology and Pathology of the Semicircular Canals. Being an Excerpt of the Clinical Studies of Dr. Robert Barany, with Notes and Addenda gathered from the Vienna Clinics. By Adolph E. Ibersboff, M.D., and a Foreword by Royal S. Copeland, A.M., M.D. Price $1 net.

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The Diseases of Infancy and Childhood. By Henry Koplik, M.D. Third edition, revised and enlarged. Price 25s. net.

LEA AND FEBIGER, Philadelphia and New York.
The Medical Complications, Accidents, and Sequels of Typhoid Fever and the Other Exanthemata. By Hobart Amory Hare, M.D., B.Sc., and E. J. G. Beardsley, M.D., L.R.C.P. Lond. With a Special Chapter on the Mental Disturbances following Typhoid Fever. By F. X. Dercum, M.D. Price, cloth, $3.25 net.

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REY, A., 4, Rue Gentil, Lyon, France.
Livre Jubilaire. Mémoires Originaux Dédiés à M. J. Teissier, Professeur de Clinique Médicale à l'Université de Lyon à l'Occasion du XXVe Anniversaire de son Professorat, 1884-1909. Price not stated.

RIDER, WILLIAM, AND SON, LIMITED, London.
How to Keep Fit. An Unconventional Manual. By A. T. Schofield, M.D., M.R.C.S. Price 1s. net.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.
Surgical After-treatment. A Manual of the Conduct of Surgical Convalescence. By L. R. G. Crandon, A.M., M.D. Price 25s. net.
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The Lion's Whelp (A Novel). By G. M. Irvine, B.A., M.B. With introduction by John Campbell, M.A., M.D., F.R.C.S. Eng., LL.D. (Hon. Causâ). Price not stated.

SPRINGER, JULIUS, Berlin.
Die Röntgentherapie in der Dermatologie. Von Dr. Frank Schultz. Price, paper, M.6; bound, M.7.

UNIVERSITY OF LONDON PRESS AND HODDER AND STOUGHTON, London.
Physiology, the Servant of Medicine. (Chloroform in the Laboratory and in the Hospital.) Being the Hitchcock Lectures for 1909, delivered at the University of California, Berkeley, Cal. By Augustus D. Waller, M.D., LL.D., F.R.S. Price 5s.

VINCENT MUSIC COMPANY, LIMITED, 60, Berners-street, London, W. (DONLAN, THOMAS J., Colonial Building, Boston, Mass., U.S.A.)
Science and Singing. By Ernest G. White. Price 4s. 6d. net., or $1.25 net.

WILEY, JOHN AND SONS, New York. (CHAPMAN AND HALL, LIMITED, London.)
Introduction to the Analysis of Drugs and Medicines. An Elementary Handbook for the Beginner. By Burt E. Nelson. First edition. First thousand. Price, cloth $3.00 net, or 12s. 6d. net.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)
Golden Rules of Obstetric Practice. By W. E. Fothergill, M.A., B.Sc., M.D. Sixth edition. Price 1s.

YELLON, WILLIAMS, AND CO., LIMITED, The Celtic Press, 43, Chancery lane, London, W.C.
Speech-reading for the Deaf—Not Dumb. By A. J. Story, Headmaster of the North Staffordshire Blind and Deaf School, Stoke-on-Trent. Price 5s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ALEXANDER, ARCHIBALD, M.B., Ch.B. Edin., has been appointed Junior House Surgeon at the Stockport Infirmary.

BOVEY, THOMAS WILLIAM WIDGER, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health for the Bampton (Devon) Urban District Council.

CAMPBELL, A. J., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer for Ross, Herefordshire.

GRAY, M. D., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Drumlish District of the county of Longford.

HODGSON, ALGEON SUGDEN, L.D.S. R.C.S. Eng., has been appointed Honorary Dental Surgeon to the Royal Halifax Infirmary.

MACEWEN, H. A., M.B., Ch.B. Glasg., D.P.H., has been appointed Medical Officer of Health by the Cupar (Fife) County Council.

MARR, HAMILTON CLELLAND, M.D., M.S. Glasg., has been appointed Medical Commissioner in Lunacy for Scotland.

NICHOLSON, OLIPHANT, M.D. Aberd., F.R.C.P. Edin., has been appointed Examiner in Midwifery in the University of Aberdeen.

O'HALLORAN, J. A., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Worksbop Act for the Killashee District of the county of Longford.

ROBERTS, E. E., M.D. Liverp., M.B., B.S. Manch., has been appointed to the New Professorsbip of Pathology and Bacteriology in the University of South Wales.

STOCK, WILLIAM STUART VERNON, M.B., B.S. Lond., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Demonstrator in Obstetrics at the University of Bristol.

TATTERSALL, N., M.B., Ch.B. Vict., M.B., B.S. Lond., has been appointed House Physician to the Victoria Hospital for Children, Chelsea, S.W.

WHARTON, JOHN, M.D. Cantab., has been appointed Visiting Ophthalmic Surgeon to the Chorlton Union Hospitals, Manchester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNSLEY, BECKETT HOSPITAL.—Honorary Surgeon.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Surgeon. Salary at rate of £50 per annum, with board, lodging, and washing.

BLACKBURN, COUNTY FEVER HOSPITAL.—Resident Medical Officer and Assistant Medical Officer of Health, unmarried. Salary £100 per annum, with board and lodging.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with board, apartments, and laundry.

CUMBERLAND COUNTY COUNCIL.—Junior Assistant to Medical Officer of Health. Salary £225 per annum.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 per annum, with board, apartments, and laundry.

DORCHESTER, COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £140 per annum, with board, &c.

DOUGLAS, NOBLE'S ISLE OF MAN HOSPITAL AND DISPENSARY.—Resident House Surgeon, unmarried. Salary £90 per annum, with board and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, witb board and washing.

ENNISKILLEN, FERMANAGH COUNTY HOSPITAL.—House Surgeon. Salary £72 per annum.

EPSOM, LONDON COUNTY ASYLUM, Horton.—Junior Assistant Medical Officer, unmarried. Salary £160 a year, with board, apartments, and washing.

GLOUCESTER, GLOUCESTERSHIRE EDUCATION COMMITTEE. — School Medical Inspector. Salary £250 per annum.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—Anæsthetist. Salary 10 guineas per annum.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL. — Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum with board, lodging, and washing.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with rooms, board, and washing.

HÔPITAL FRANÇAIS, 172, Shaftesbury-avenue, W.C.—Second Resident Medical Officer, unmarried. Salary £50 per auuum, with board and laundry.

HULL, ROYAL INFIRMARY.—Two Casualty House Surgeons. Salary £[illegible] per annum, with board and lodging.

HUNTINGDON COUNTY HOSPITAL.—House Surgeon. Salary at rate of £80 per annum, with board, &c.

KIRKCALDY, BURGH OF.—Medical Officer of Health. Salary £300 per annum.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH.—Assistant Clinical Pathologist.

LINCOLN GENERAL DISPENSARY.—Resident Junior Medical Officer, unmarried. Salary £175 per annum, with apartments, &c.

MANCHESTER CHILDREN'S HOSPITAL, Gartside-street, Manchester.—Assistant Medical Officer for six months. Salary £100 per annum.

METROPOLITAN ASYLUMS BOARD, London.—Assistant Bacteriologist. Salary £300 per annum.

MILE END OLD TOWN, HAMLET OF.—Senior Assistant Medical Officer. Salary £150 per annum, with board, lodging, and washing. Also Junior Assistant Medical Officer. Salary £120 per annum, with board, lodging, and washing.

NEWCASTLE-UPON-TYNE UNION WORKHOUSE.—Assistant Medical Officer (female), unmarried. Salary at rate of £100 per annum, with apartments, rations, and washing.

OLDHAM INFIRMARY.—Three House Surgeons for six months. Salaries £120, £100, and £80 per annum, with residence, board, and laundry.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary at rate of £80 per annum, with board, &c.

PARISH OF ST. GILES INFIRMARY, Brunswick-square, Camberwell.—Assistant Medical Officer. Salary £120 per annum, with apartments, board, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and washing.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Joint Morning House Anæsthetist. Salary £25 per annum.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

SALFORD UNION INFIRMARY, Hope, Pendleton.—Medical Superintendent. Salary £350 per annum.

SALISBURY, FISHERTON HOUSE ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and washing.

SALISBURY GENERAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and lodging. Also Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and lodging.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.

SUNDERLAND INFIRMARY.—Two House Surgeons. Salary £80 per annum, with board, residence, and washing.

THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board, residence, and laundry.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board and apartments.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, &c.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House Surgeon. Salary £120 per annum, with apartments, board, and laundry.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Physician.

WORCESTER GENERAL INFIRMARY.—House Physician. Salary £100 per annum, with board, residence, and washing.

The Secretary of State, Home Office, London, S.W., gives notice of a vacancy as Medical Referee under the Workmen's Compensation Act, 1906, for the County Court Circuit No. 21, attached more particularly to the Birmingham County Court.

Births, Marriages, and Deaths.

BIRTHS.

FIELDING.—On July 8th, at Bethel-street, Norwich, to Dr. and Mrs. S. J. Fielding, a son.

FRENCH.—On July 13th, at Porchester-gardens, Hyde Park, W., the wife of J. Gay French, M.S. Lond., F.R.C.S. Eng., of a daughter.

NUTTALL.—On July 12th, at Hollins-grove, Darwen, to Dr. and Mrs. J. S. W. Nuttall, a daughter.

TOOTH.—On July 16th, at Harley-street, London, W., the wife of Howard H. Tooth, M.D., C.M.G., of a daughter.

WINTER.—On July 16th, at John of Gaunt's House, Lincoln, the wife of Edward Stuart Winter, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

MARRIAGES.

CHOLMELEY—TURNER.—At St. Luke's, Weaste, on July 19th, by the Rev. J. Butler Cholmeley, Vicar of St. Mark's, Hull (brother of the bridegroom), assisted by the Rev. H. D. Lockett, Vicar of Weaste, William Frederick Cholmeley, F.R.C.S., son of the late Rev. John Cholmeley, Rector of Carlton Rode, Norfolk, to Caroline, daughter of the late William Henry Turner, of Oswestry.

LEEMING—READ.—On July 14th, at Trinity-road Baptist Church, Upper Tooting, A. Norman Leeming, M.B., B.S., to Mabel Otway, youngest daughter of J. E. Read, "Beverley," Brodrick-road, Upper Tooting, S.W.

DEATHS.

GRANT.—On July 14th, at Ruthven, Ballindalloch, Banffshire, Robert Grant, C.B., M.B., M.A., aged 68 years.

STEELL.—On July 17th, at Anson-road, Victoria Park, Manchester, Agnes Duulop, the dearly-loved wife of Graham Steell, M.D., F.R.C.P.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

FIRE TESTS WITH FLANNELETTE AND OTHER TEXTILES.

THE British Fire Prevention Committee, whose offices are at 1, Waterloo-place, Pall Mall, London, S.W., has issued a very interesting and valuable report dealing with the results of a practical inquiry on the inflammability of flannelette and other textile materials. No less than 450 fire-tests were made, and many of the results are strikingly seen in a series of photographs excellently reproduced in the report. We are glad to find that the committee's recommendations are in complete accordance with the views which we have expressed in these columns from time to time upon this important question. As to possible legislation it is suggested:—

"1. That where material cannot be classified as 'non-flaming' under the standard test it shall not be permissible to sell such material unless there be plainly woven or printed into the selvedge, every yard apart, the words BURNS RAPIDLY.

2. That on any flannelette or union, sold as being non-inflammable, i.e., as complying with the standard test, there shall be woven or printed into the selvedge, every yard apart, the words NON-FLAMING.

3. That where ready-made articles of clothing of flannelette or union are sold the respective descriptions, BURNS RAPIDLY or NON-FLAMING, shall be twice woven or printed into the principal band of the article of clothing or firmly stitched in two places on an inner hem of the garment.

4. That any wholesale or retail firm or hawker selling flannelette or union in piece or in ready-made garments not properly marked, or selling as 'non-flaming' a material not complying with the tests, shall make themselves amenable to prosecution under an enactment having some such simple and rapid procedure as is adopted under the Foods and Drugs Act, the central authority reserving to itself the right to prosecute if the local authority does not do so.

4 A. No flannelette made abroad shall be passed by the Customs, unless it is Non-flaming, and the name of the maker or wholesale firm woven in the selvedge.

5. That parents and guardians be made specifically responsible (say, by an Amendment to the Children's Act and with the same penalties) for death or injury from fire to children under the age of twelve wearing union or flannelette material that is marked 'burns rapidly.'

6. That local authorities shall, by public warning, make known the danger of the use of untreated flannelette as a clothing material."

WHITE OF EGG AS A DRESSING.

To the Editor of THE LANCET.

SIR,—While reading Dr. F. C. Eve's article in THE LANCET of June 25th on "The Utility of the Antilytic Power of Horse Serum," it occurred to me that the white of egg, a popular application in this country for chronic ulcers, might have similar properties. Judging from the little I have seen of its use it is certainly of some value as a dressing, but possibly its virtues are chiefly of a negative kind, the albumin being protective and non-irritative, thus allowing the natural recuperative powers to come into play. In cases where the question of cost precludes one from using horse serum I think the egg albumin well worth a trial. It is perhaps unnecessary to say the eggs should be perfectly fresh.

I am, Sir, yours faithfully,

Douglas, Isle of Man, July 12th, 1910. P. W. HAMPTON.

DEATH FROM VERONAL POISONING.

AN inquest was held recently at Devonport relative to the death of an assistant canteen manager of H.M.S. *Impregnable*, aged 24 years. Medical evidence showed that death was due to veronal poisoning, and a verdict to the effect that "Death was caused by misadventure in taking an overdose of veronal tablets" was returned. The coroner remarked that there had been other deaths caused by veronal, but the poison was not scheduled, and a chemist could sell it to anyone who wanted it, a position which he thought that other authorities should take heed of.

RADIO- AND ELECTRO-THERAPEUTICS.

WE have received from Messrs. Siemens Brothers and Co., Limited, of Caxton House, Westminster, London, S.W., three new publications dealing respectively with the application of radio-active materials in disease, the choice of effective X ray apparatus, and a number of electro-medical appliances which now find a valuable place in treatment. All three publications are well worth reading, as, apart from the excellence of the illustrations and the fact, of course, that Messrs. Siemens Brothers are the vendors of the apparatus described, a very good idea is obtained of the advances which have been made in these branches of medical science, as well as in the adaptation of the various appliances for medical purposes.

THE ACCURATE DETERMINATION OF COLOUR SENSITIVENESS AND COLOUR BLINDNESS.

Messrs. A. Hilger, Limited, astronomical and optical instrument makers, of 75A, Camden-road, have brought to our attention an instrument made by them for the accurate determination of colour sensitiveness and colour blindness. The makers believe that the instrument is the only one which can be described as an accurate "measuring instrument" in this respect, and although its principle is closely allied to the theories of colour perception elaborated by the inventor, Dr. F. W. Edridge-Green, it does not depend upon his theory for its practical utility and exactness. The colour perception spectrometer is so arranged as to make it possible to expose to view in the eye-piece the portion of a spectrum between any two desired wave-lengths. We had an opportunity of examining the apparatus on the occasion of one of the conversaziones of the Royal Society, when we were impressed with the ingenuity of its design, and as a measuring apparatus for colour perception it may justly be claimed to be scientific.

"DR." CRIPPEN.

IT appears that the police now want Crippen very badly. They recently had him under their hands, but did not appear to be anxious to keep him. We observe that many of the daily papers consider that the police acted with all possible skill and foresight. They may be right here, but they are not right in persistently giving a medical title to a quack. The *Times*, we are glad to see, puts qualifying inverted commas to his title.

STONE BLIND.

To the Editor of THE LANCET.

SIR,—"Stone blind" is a popular term for complete and hopeless loss of vision. I have been unable to trace its origin, but imagine that it arose in the days when glaucoma was not understood as a pathological process. It was then clinically known that an eye of "stony hardness" had no chance of sight. Platner in 1745 speaks of the eye—"oculus qui caligat ..... durusque fit." If there is another explanation I should much like to hear it.

I am, Sir, yours faithfully,

July 20th, 1910. WM. ETTLES.

DIPHTHERIA AND CATS.

AT the last meeting of the Buckfastleigh (Devon) urban district council, Mr. H. Ubsdell, the medical officer of health, reported that three cases of diphtheria which occurred in one family were caused by infection from a cat.

THE WOMEN'S IMPERIAL HEALTH ASSOCIATION OF GREAT BRITAIN.

To the Editor of THE LANCET.

SIR,—The title of the Women's National Health Association of Great Britain has been altered to the Women's Imperial Health Association of Great Britain. The President is Muriel, Viscountess Helmsley, and all information regarding the work of the association can be obtained at the office, 3, Princes-street, Hanover-square, W.

I am, Sir, yours faithfully,

R. V. GILL, Secretary.

Princes-street, Hanover-square, W., July 19th, 1910.

THE CARE OF THE BABY.

THE little pamphlet called "Baby," written by Miss Edith L. Maynard, and published at the price of 1*d.* by the Sanitary Publishing Company, Fetter-lane, London, is now in its fifth edition. The subtitle of the pamphlet is "Useful Hints for Busy Mothers," and it contains just that kind of information which is likely to prove useful to the young mother whose knowledge concerning one of the most important of her duties may be lacking. Dr. John Robertson, medical officer of health of Birmingham, supplies an introductory note.

E. E.—If the inquiry means that the general labourer desires to obtain compensation from his employer under the Workmen's Compensation Act, and if the loss of his eye is from "an injury by accident arising out of and in the course of" his employment, he should be able to recover compensation based on his loss of earnings. For partial incapacity he is entitled to not more than 50 per cent. of his average weekly earnings during previous 12 months—*50 per cent. and not exceeding £1*, and in no case exceeding the difference between his average earnings before the accident and the amount he is earning or is able to earn in some suitable employment after the accident. The "average value of an eye" cannot be stated in these circumstances.

T. H.—We have made a few inquiries with reference to our correspondent's communication, and we cannot find that the pathological phenomena possess association with the meal. With regard to the chemical constituents of rhubarb, analysis gives the following percentages: water, 92·67; mineral matter, 0·94; protein, 0·83; fibre, 1·11; sugar, 3·01; fat, 1·19; and oxalic acid, 0·25.

Eikona.—We believe it is the custom to supply the medical attendant with such a print. Sometimes the patient wishes for and obtains one, but there might be obvious difficulties in complying with every request made by a patient. We do not think that there is any custom in the matter that can be called "generally recognised."

L.R.C.P. Lond. will find in the columns of THE LANCET for the last few years references to abattoirs in all parts of the world. Our Commissioner has reported fully upon the German system.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

CONGRESSES are now getting so numerous that we have thought that a diary like the one printed below might be of service to our readers. With that idea we shall repeat it occasionally, with any necessary additions or subtractions. The following Congresses, Conferences, and Exhibitions are announced for 1910:—

July 26th–29th (London).—British Medical Association.
,, 26th–29th (Cambridge).—Pharmaceutical Congress.
August 1st–7th (Brussels and Liège).—Congress of French-speaking Psychiatrists and Neurologists.
,, 2nd–7th (Paris).—Third International Congress on School Hygiene.
,, 4th–10th (Brussels).—International Congress of Legal Medicine.
21st–26th (Brussels).—International Home Education Congress.
August 31st (Sheffield).—British Association for the Advancement of Science.
Sept. 5th–10th (Brighton).—Congress of the Royal Sanitary Institute.
,, 10th–14th (Brussels).—Second International Congress on Occupational Diseases.
,, 13th–15th (Brussels).—International Congress on Radiology and Electricity.
,, 22nd–27th (Toulouse).—Sixth French Congress of Gynæcology, Obstetrics, and Pædiatrics.
,, 22nd–28th (St. Petersburg).—Fifth International Congress of Obstetrics and Gynæcology.
,, 27th–30th (Vienna).—Eighth International Physiological Congress.
Oct. 1st–5th (Paris).—Second International Conference for the Study of Cancer.
,, 3rd–7th (London).—Sixth London Medical Exhibition.
,, 3rd–7th (Berlin).—International Congress on the Care of the Insane.
,, 4th–8th (Brussels).—Second International Congress of Alimentary Hygiene.
,, 13th–15th (Paris).—Eleventh French Congress of Medicine.
,, 16th–22nd (Barcelona).—First International Spanish Congress of Tuberculosis.

In 1911:—
May–October (Dresden).—International Hygiene Exhibition.
August or September (Berlin).—Third International Laryngo-Rhinological Congress.
September (Brussels).—Exhibition of Fractures.
October (Cologne).—International Congress of Criminal Anthropology.

In 1912:—
September (Washington, D.C.).—Fifteenth International Congress of Hygiene and Demography.

In 1913 the only fixture so far is in London, where the Seventeenth International Congress of Medicine will take place.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr Abraham: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson Diseases of Women.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M. Medical and Surgical Clinics. X Rays. Operations. Dr. Davis Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr Davis: Operations of the Throat, Nose, and Ear. Mr. B Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howel Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham) Nose, Throat, and Ear (Mr. H. W. Carson).
TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld) 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds), Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks) 3 P.M., X Rays (Dr. A. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

OSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.
MONDAY.—5.15 P.M., Dr. A. Voelcker: Diseases of the Chest in Children, illustrated by cases, specimens, skiagrams, and drawings. (Lecture V.). (Post-graduate Course.)
TUESDAY.—5 P.M., Mr. H. G. T. Fairbank: Deformities, illustrated by cases, specimens, skiagrams, and sketches. (Lecture V.). (Post-graduate Course).
WEDNESDAY.—5.15 P.M., Dr. A. Voelcker: Diseases of the Chest in Children, illustrated by cases, specimens, skiagrams, and drawings. (Lecture VI.). (Post-Graduate Course.)
THURSDAY.—5 P.M., Mr. H. G. T. Fairbank: Deformities, illustrated by cases, specimens, skiagrams, and sketches. (Lecture VI.). (Post-graduate Course).

OPERATIONS.

METROPOLITAN HOSPITALS.

ONDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

UESDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

EDNESDAY (27th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

HURSDAY (28th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

RIDAY (29th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

ATURDAY (30th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (0 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)
THE LANCET Office, July 20th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
July 14	30·14	E.	...	116	71	54	55	56	Overcast
,, 15	29·95	E.	...	104	67	56	55	58	Overcast
,, 16	29·90	N.E.	...	112	68	55	54	56	Overcast
,, 17	29·87	E.	...	93	66	56	56	57	Overcast
,, 18	29·84	N.E.	0·12	84	59	56	56	58	Overcast
,, 19	30·02	N.E.	0·29	109	70	50	52	56	Fine
,, 20	29·92	S.W.	...	94	65	56	58	60	Overcast

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Presidential Address
ON
THE EVOLUTION OF THE BRITISH MEDICAL ASSOCIATION AND ITS WORK.

Delivered at the Seventy-eighth Annual Meeting of the British Medical Association

By HENRY T. BUTLIN, D.C.L., LL.D.,
PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

LADIES AND GENTLEMEN,—At almost every meeting of the Association the President may choose for the subject of his address anything in the heavens above, in the earth beneath, or in the waters that are under the earth. But this year the subject of the President's address is strictly prescribed by the circumstances of his election. You might have chosen a man far more distinguished in his profession, of greater fame, with title or riband, but you have deliberately taken in preference a less distinguished person for the sole reason that he has worked for the Association, and that you know that he has the interests of the Association at heart. You have, as it were, said to him: "Thou good and faithful servant, take thou the presidential chair." And the only way in which he can repay you for the honour you have done him is to speak of the Association, to tell what it has done in the past and what it now is, and, perhaps, what it may yet do. If it were not my duty it would be my pleasure to do this, for it is good now and again to look back into the past and ponder over the lessons which it teaches, and to see how and to what extent they can be applied to the present and the future; and it is also good in a great city like this, where there are foreign visitors and distinguished guests and special delegates from our branches oversea, to give them some idea of the work of their and our Association.

I. ANNUAL MEETINGS.

I could not, of course, give a history of the Association in this address; indeed, I would not if I could, for a large part of it would have no interest for many of my audience. But I would deal with certain features of the Association, and would illustrate them with word-pictures where that is possible. And, first, of the annual meetings, at which everyone knows there is a good deal of eating and drinking and giving of toasts, without which no civilised country seems able to conduct its business. But you shall soon see that the meetings are not for the sole purpose of feasting and junketing. For that purpose go back to the meeting at Plymouth nearly 40 years ago (1871), where the Address in Surgery is read by an English surgeon practising in Edinburgh, to which he has recently been transferred from Glasgow. His name has been during the last two or three years in the mouth of many persons, and there is a good deal of difference of opinion on the value of the doctrines which he professes. As you see him now he is a man some 40 years of age, rather above the middle height, but not tall, of stately presence, with a broad brow and a face which betokens earnestness and amiability, but scarcely, perhaps, that determination of which he gave such signal proof in the course of the next five-and-twenty years. He is very neatly clothed in garments of a sombre hue (indeed, I think he belongs to the sect of Quakers), and his address is slow and without the attraction of eloquence, and he describes his methods with such detail and exactitude as must have been tedious to many of his audience, most of whom do not profess his principles and few of whom follow his practice. Yet this is none other than the great Lord Lister, as yet almost an unknown surgeon, and he is telling to probably the largest number of persons he has hitherto addressed the principles of antiseptic surgery. And thus he finishes:—

> For, sure I am that, however much the means of carrying out the antiseptic principle may come to vary from those which we now use, the principle itself will certainly be ultimately recognised as the most important of all those that shall guide the practice of surgery; and the sooner our profession is aware of this, the better it will be for suffering humanity. (Collected Papers, 1909, vol. ii., 198.)

Now visit with me the town of Worcester 11 years later, where the Association is celebrating its fiftieth anniversary (1882). And enter the town-hall a little late, as I did, for the commencement of the Address in Surgery. This time the speaker is a tall Irishman (Sir William Stokes), and at the very moment you enter he is supporting the antiseptic principles with the true eloquence of his countrymen; and well he may do so, for only three years previously, at a meeting of the Association at Cork, the principles had received a nasty blow from my eloquent and gifted colleague, Mr. Savory. The orator's head is thrown back, his chest well forward, and he is in the full swing of his address, assisting the effect of his words by the grace of his action. He is dressed in a tweed suit, if I see aright, and I really believe that the strap of a field-glass hangs over one shoulder. But he is not, on that account, the less in earnest, and his address is a rightdown good address.

And now take six years ago, when a Scotchman occupies the platform at Oxford, tall and stately, a man amongst men (Sir William Macewen), who speaks in grave terms befitting the speaker and the subject. He speaks also, like the others, on sepsis and antisepsis, but the principles have long since been accepted, and it is only questions of detail which occupy the attention of the meeting.

There is only one other address to which I would conduct you—that on pathology at the Cambridge meeting 30 years ago, where my revered master, Sir James Paget, is the speaker. His eloquence is such that had he been blind he would still have been a leader of men; and the genius of his mind looks forth so clearly through his eyes, that had he been speechless he might still have commanded many persons to his will. He is speaking on a subject hitherto but little dealt with—"the consequences of injury and disease in the structures of plants." Until that moment there were few people who were aware that he had ever studied it; but, as he spoke of it, it seemed as if it had been the one great study of his life. You can hear him now, as he says:

> Is there in all the range of natural history a more marvellous group of facts than may here be studied? If you would like to work out a problem in evolution, find how it has come to be a part of the ordinary economy of Nature that a gall insect compels some part of a plant to grow in a manner which, while injurious to the plant, becomes useful to one insect not yet born and to another who will, in due time, invade the gall and kill and feed upon its occupant, and then may itself be invaded and eaten by a third. (Memoirs and Letters, 1901, p. 304.)

Such have been the men and of such a kind have been the subjects that have occupied the attention of large audiences at our annual meetings. And although I cannot promise you that the meeting of 1910 will bring forth any great discovery in medicine or change the whole face of surgery, I can confidently promise that the scientific part of the meeting, with its 21 sections, each presided over by a distinguished person, and that the Addresses in Medicine and Surgery will be worthy of so great an occasion.

II. PUBLIC MEASURES.

From its very foundation the Association showed great interest in matters in which the public or the State and the profession were involved. In the first half-dozen years it had appointed committees to consider vaccination, the condition of parochial registers, Poor-law medical relief, medical relief of persons who are poor but not paupers, the suppression of quackery, the sale of arsenic, and other matters, and there was no reason to doubt the existence of that "zeal and alacrity" on the part of the members which had been recommended by Dr. Hastings in his first address at Worcester. They seemed full of energy and enthusiasm. There can be no question that the Association did influence legislation on many of these matters in which the interests of the public and of the profession are involved. But I thought I should like to be able to tell you to-night the history of some one instance, at least, in which the influence of the Association was paramount, and was acknowledged by the public as well as by the profession. My own knowledge did not supply me with any such example, so I turned to my friends, the editor of the *Journal* (Dr. Dawson Williams), and the financial secretary (Mr. Elliston, whose father was a valued member for many years, and President ten years ago at Ipswich), and begged them to help me. Although neither of them could give me exactly what I wanted, they nevertheless did put me on the track of what I wanted, and I followed up the track, as you shall presently see.

In order fully to understand the term "medical reform," I must take you back to the early years of the last century, when a man might practise every branch of

medicine and surgery on a qualification obtained by a single examination in either surgery or medicine, to the time of Bob Sawyer and Ben Allen; when the examinations of the various qualifying bodies in Great Britain and Ireland varied remarkably in severity, and there was no central authority which could influence them to alter the terms of their examinations; when there was no registration of legal qualifications, and it was difficult for the public, or even for the profession, to discover what men were qualified and what men were practising without a qualification. The condition of affairs was so unsatisfactory that in 1834 a Royal Commission was appointed to "inquire into and consider the laws, regulations, and usages regarding the education and practice of the various branches of the medical profession in the United Kingdom." Three years later, at its fifth annual meeting, the Association appointed what may be called its first Medical Reform Committee, with the somewhat wide instruction "to watch over the interests of the profession at large."[1]

In 1840 a Bill was introduced into the Commons by Messrs. Warburton, Wakley, and Hawes, which contained provision for the establishment of a central council and for the direct representation of the profession on it.

In 1842 the Council of the Association presented to Sir James Graham, the Secretary for the Home Department, a memorial explaining the principles of medical reform which were advocated by the Association: a uniform and efficient primary qualification; representation of the profession on the governing bodies of the corporate institutions or on the proposed central council; and the registration of legal qualifications. The Association desired to wait upon the Home Secretary by deputation, but Sir James Graham would not consent either in that year or in the following year to receive a deputation. He, however, introduced a Bill into Parliament in the year 1844 which contained a scheme of registration.

In 1846 Messrs. Wakley and Warburton again introduced a Bill for the "Registration of the Legally Qualified Practitioners in Great Britain and Ireland." Although this was only a small part of what the Association desired, it nevertheless presented a petition in favour of the Bill, on the principle that the gain of a little is better than the loss of the whole. In the course of this year a deputation was actually received by the Home Secretary, Sir George Grey, who advised that the Association should approach such other of the medical bodies as were in favour of medical reform, and thus obtain stronger influence to bear upon the Houses of Parliament. The advice was accepted and acted on, but without success, and the Association was left to fight the battle alone.

Nothing seems to have been done for the next five years, when the Association, wearied by long waiting, directed its Medical Reform Committee to draft a Bill on its behalf (1851).

In 1853 a deputation was received by Lord Palmerston, who was then Home Secretary, and even by the Prime Minister, the Earl of Aberdeen, whose grandson is one of our honorary members at this moment. Both these noblemen expressed sympathy with the views of the Association.

In 1854 Mr. Craufurd introduced a Bill, but it was soon lost, and a memorial was sent up to Lord Palmerston.

In 1855 a deputation waited on Sir George Grey, who was again Home Secretary, and a Bill was introduced into Parliament by Messrs. Headlam, Brady, and Craufurd, but was abandoned at the second reading.

In 1856 Headlam's Bill, which provided for a central council of which one-third of the members should be direct representatives of the profession, was again introduced into the Commons. It was supported by Lord Palmerston, and petitions were sent up by many branches of the Association in favour of it. But it fell through, and so did a second Medical Reform Bill which was introduced during the same session of Parliament.

It was in this year that the Association changed its name, and to some extent its character, for it ceased to be the Provincial Medical and Surgical Association and became the British Medical Association. I do not know whether it was on that account or for other reasons, but sure it is that a very remarkable circumstance occurred in the course of the next year—

1857, when the Home Secretary (Sir George Grey), instead of being pursued by the Association, actually was himself the pursuer. He sent for Sir Charles Hastings to hear his views once more and to discuss with him the measures which should be taken. Finally, in

1858 Lord Elcho introduced the Bill which became in the course of that session the Medical Act of 1858. It provided for the establishment of a General Medical Council and for the registration of medical qualifications. The influence and work of the Association were recognised by the appointment on to the first Medical Council of Sir Charles Hastings, the founder of the Association.

And now it might be thought that the Association, triumphant after many years of strenuous labour, would have been content with its achievement. But, alas! very little had really been accomplished. There was no minimum uniform and efficient primary qualification, and a young man might practise medicine on a surgical qualification or the reverse, while there was no obligatory examination in midwifery. Registration was therefore little more than a farce. Again, there was no direct representation of the profession on the new Council, and the action of the Crown in its appointments did not fulfil the hope which had been cherished by the reform party. Only those persons who have for years devoted themselves to public affairs and whose whole heart has been in the struggle to carry a particular measure through can understand the terrible disappointment of the reform party. They had wrought for three times seven years for Rachel, and it was the hand of her sister Leah which they had at length obtained. To many zealous men these failures of a public measure are more bitter than the failure of their own private affairs. Their vigour is apt to be impaired; their health to be broken. I should have been but little surprised if the Association had, from this time, made up its mind never again to meddle with Bills in Parliament. And certainly it did seem that its strength was spent. For, like some great animal heavy and sore from the wounds of a long and deadly combat, it lay prostrate for nine years. Then, as it were, it slowly lifted up its head, and, looking round, perceived that, not only was there no direct representation of the profession on the General Medical Council, but that, now that Sir Charles Hastings was dead (1866) there was not even a representative of the Association. Nevertheless, feeling that the new Council which it had helped to create knew what it had desired, and, therefore, hoping that it would be likely to join with it in attempting to obtain reform, the Association sent a deputation to the General Medical Council in the course of the year—

1868. But the reply was that, "under present circumstances, it would not be expedient for the Council to consider the propriety of attempting to obtain a change of constitution," and it was thus found that, instead of a friend and ally, this new body was likely to prove a serious obstacle to reform.

In 1869, therefore, the Association began afresh. A deputation waited on the Lord President of the Privy Council (Earl de Grey and Ripon), who, in the following year—

1870, introduced a Bill into the Lords, but it contained no provision for direct representation, and the Association would have none of it. A deputation was again sent up to the Lord President and to the Vice-President of the Privy Council, and the Bill fell through owing to pressure of business.[2]

[1] Most of the information contained in this account of the doings of the Association in relation to medical reform is taken from Dr. Alexander Henry's "Historical Sketch" in the British Medical Journal of 1882, vol. ii., p. 847. The latter part of the account is picked up from the reports of the Medical Reform Committee in the Journal and from other sources. Dr. Henry's "Historical Sketch" is profoundly interesting to every person who cares for the past and present of the Association, and I strongly recommend its perusal to all those who are now engaged in the work of the Association.

[2] Many years later I was present at the dinner of the Association at the annual meeting at Leeds, when Lord de Grey, then Marquis of Ripon, referred to this matter. Part of his speech ran thus: "He was bound to say he had occasionally found in those departments (the War Office, the Admiralty, and the Privy Council) men of ultra-official views who were so irreverent as occasionally to speak in terms not altogether of admiration or respect for the British Medical Association. He once, indeed, had to suffer from the action of the Association. When he was Lord President, he endeavoured to deal with the subject of the constitution of the General Medical Council, and he introduced a Bill which he thought was a very good one, and most of the provisions of which had since become law. It did not, however, contain one provision greatly desired by the British Medical Association, and they so effectually pleaded for delay at a fatal moment towards the end of the

In 1873 our old ally, Mr. Headlam, came to the assistance of the reform party, and introduced a Bill, which was also lost through press of business.

In 1877 history was repeated, for, wearied of long waiting, the Association directed its committee to draught a Bill.

In the course of the next session—

1878, the Bill of the Association was introduced by Messrs. Mills and Childers, and another Bill was introduced into the Lords by the Government, but both Bills were lost; they were again introduced in the course of

1880, passed the second reading, and were referred to a Select Committee. I suppose, as the consequence of this, in

1881, a Royal Commission was appointed to consider the working of the Medical Act. The Commission was not long in reporting, and in

1882 the Reform Committee expressed satisfaction with the terms of the report, and sent up a deputation to the Lord President of the Council. It is a mark of the growing influence of the Association that this deputation was introduced by no less a person than the Duke of Westminster. During that session a Bill was presented to the Lords by the Lord President, but it was lost in the Commons from lack of time.

In 1884 the Bill was again introduced, was accepted by the Lords, and made a Government measure in the Commons; but it met with such strong opposition on the part of bone-setters, cancer-curers, herbalists, and the like, and from one or two of the corporations, that it was lost, in spite of the evident desire of the Government to carry it through.

In 1885 a less ambitious measure was introduced, but a change of Government took place, and the measure was abandoned.

In 1886 the Medical Reform Committee urged the importance of reform so firmly on the new Government that a measure was passed through the Lords by the Lord President of the Council (Earl Spencer), and through the Commons by Sir Lyon Playfair, and became the Medical Act of 1886. It provided for direct representation of the profession on the General Medical Council, and that a legal qualification to practise should only be obtained by those persons who had passed an examination in medicine, surgery, and midwifery.[3]

Thus, after nine-and-forty years of labour, the Association had been successful, not to the full extent of its desires, but to a very large extent. And it had every reason to be proud. You see that I have taken the trouble to learn all these details in order to narrate to you what you may deem a very tedious story. And you may be sure that I did not learn them easily. And you may ask why I was at such pains to make myself master of a story so full of tedium. It was on that very account I did it. I would have every member of the Association learn the story as I have learned it—particularly every young member. I would have it printed in large type and set up in every building which is devoted to the service of the Association that all men may find in it an object-lesson of what can be done by patience and perseverance, by determination and tenacity of purpose.

So I would have the names of all those members of the Medical Reform Committee who took an active part in its work handed down: of Hastings of Worcester, Barlow of Bath, Crosse of Norwich, Southam of Manchester, Stewart of London, Waters of Chester, Ernest Hart, and many others. They are all gone, and there remain only a very few of those who took part even in the promotion of the second Medical Act, Dr. Bruce Goff and Dr. Hugh Ker, who are still working for the Association, and Sir Walter Foster, now Lord Ilkeston, who was one of the first direct representatives of the profession on the reformed Medical Council. I am proud that we have these three members with us this week.

session that they defeated the Bill, and stranded him altogether until he was carried away in the wrong direction by the rising tide of opposition. He was bound to say—and he made the confession very frankly—that he was now convinced that the Association was right and he was wrong. He was, perhaps, on that occasion—it was a rare occasion in his public life—somewhat too conservative."

[3] The Association had fought for many years for eight Direct Representatives on a Council of 24 persons. The Bill only provided for five—three for England, one for Scotland, and one for Ireland. Only in the course of last year (1909) was the representation increased by the action of the General Medical Council itself.

III.—Scientific Grants and Scholarships.

Now, take quite another phase of the work which we have done. In the "seventies" of the last century there was not so much talk of original research as there is in these days, and but little money was then supplied for research. In those days, as in these, there were many men, for the most part young men, who were waiting about the hospitals for a place upon the permanent staff or were hoping to get into private practice. They were just able to maintain themselves (for few of them had much private income) by teaching and minor posts and appointments. They often had time on their hands, and, being above the average of young medical men in intelligence and education, were willing and glad to seek occupation and perhaps a name in original research. They were often able to find a work-bench in one of the hospital laboratories and aid and counsel from the professors and lecturers. But the researches were, in many instances, expensive, and they had not the means to meet the expense of material and apparatus. When the Association began to find itself in funds it was suggested to the Council, I believe by Mr. Ernest Hart, that a certain sum of money should be awarded every year to research workers to assist them to obtain the material and apparatus which they could not procure for themselves. In the year 1874 the scientific grants were founded; £165 were granted that year, and I am sure it will be a matter of interest to some of the members here to-night to learn that the first grant out of that sum which appears on the minutes was a grant of £50 to Mr. Hicks for "researches on alcohol." I do not know how many grants have been made or how many researchers have benefited by the scientific grants, but I do know that from £300 to £400 a year have been awarded every year, and that such men as Washbourn, Bayliss, Starling, Rose Bradford, Kanthack, Halliburton, Gaskell, and many others quite as distinguished have been recipients of grants, and that a large number of researches have been made possible by the liberality of the Association.

Ten years later (1884) two research scholarships of £150 each were founded, to enable men to devote their whole time to particular researches. Since that time there have been some 50 scholars of the Association, and it will suffice to tell you that Sir Watson Cheyne, Dr. Sidney Martin, Dr. Stockman, Dr. Copeman of the Local Government Board, Professor Haycraft, and Professor Starling have been scholars of the Association to prove to you the pains which have been taken to select persons fitted to pursue original research.[4]

It has been my lot to speak both for and against the scientific grants on more than one occasion. As Treasurer of the Association I have had to restrain the ardour of the committee and to prevent it dipping its fingers too deep into the purse of the Association. As a member of the committee, I have had to defend the grants from the platform at the annual meetings. There have always been members of the Association who have grumbled that the money devoted to scientific purposes was not applied to the defence of members and to the suppression of illegal practice. And, even of those who approved of the grants, there were always some who grumbled at the nature of the investigations and wished to see the money applied to investigations which were likely to find a certain and immediate practical application. I confess that these latter grumblers have sometimes had my sympathy. Researches on pulse-curves and researches on biliary secretion seem a long way from practical medicine. Yet I would not, on any account, interfere with or appear to despise any research, however little it would seem likely to be useful in the practice of medicine and surgery, provided it is in the hands of a competent worker, and is likely to provide new knowledge. The last time I spoke in favour of the grants was, I think, at Cheltenham, where I directed the attention of the meeting to the vast commercial and industrial use which had been made of Faraday's discoveries of the relations of magnetism to electricity. The discoveries seemed to belong to the purest

[4] Sir Watson Cheyne, Bart., surgeon to King's College Hospital and surgeon-in-ordinary to His Majesty the King; Dr. Sidney Martin, physician to University College Hospital and professor of pathology; Dr. Ralph Stockman, professor of materia medica at Glasgow and physician to the Western Infirmary; Dr. Copeman, medical inspector to the Local Government Board and lecturer on public health to Westminster Hospital Medical School; Dr. Starling, professor of physiology at University College; Dr. Haycraft, professor of physiology at University College, South Wales, &c.

realms of science, and nobody could have foreseen their practical application. And it was not Faraday himself who made the application. He would never touch that side of the question, as he believed that to do so would damage his powers of research. Tyndall speaks particularly of this,[5] and I am sure that some discoveries which have appeared to have no practical bearing have resulted in greater advantage to the practice of medicine than some of those researches which have been undertaken from the purely utilitarian point of view.

At the present moment it is the fashion to say that things are better managed in Germany; as people said in my young days, "They do these things better in France." Although I do not at all admit this as a general proposition, I think it is to some extent true when it is applied to the relative value which English and German business men attribute to scientific research. I am informed that some great industrial concerns in Germany build and equip large laboratories in which 50 to 100 chemists are continually employed at varying salaries according to their position, and that they are directed by the most distinguished chemist the industry can procure. These chemists are not only permitted but are encouraged to prosecute research, and the researches are not limited to the possible utility to the industry, but may take any direction which seems good to the worker and the director. The object of the industry is to encourage chemical and physical research, with the full confidence that in a series of years the industry will derive enough benefit to pay the cost of the laboratory, and will probably derive more benefit than it would do by limiting the nature and scope of the researches to the possible service of the industry. Only the other day I was looking through the "Collected Papers of Lord Lister," and noticed that the earliest researches which he made were on muscular and elastic tissue. Suppose that he had been dissuaded from these researches on the ground that they seemed to have little or no practical bearing, he might have been so far discouraged as never to have undertaken original research. What a lamentable thing that would have been! What a loss to human beings! No, the taste and faculty for research need to be encouraged in a likely worker, even if the objects of his researches give no hope of immediate practical value.

Nevertheless you may fairly ask me whether I am not able to show something of value to practical medicine and surgery which has resulted from the money which the Association has devoted to science. Yes, I could give you several instances if I had time to do so, but one must suffice. In 1883, in consequence largely of an observation made by my old friend Sir Felix Semon, the Clinical Society of London appointed a committee to consider the nature and relations of myxœdema. The work of the committee was divided into several parts, to which competent persons were assigned. The experimental part was chiefly under the charge of Professor Horsley. It was essential to the completion of the work of the committee but it was costly, and the Clinical Society had not made any grant towards it. This part might have fallen through, and the report of the committee might have been seriously prejudiced, and its value profoundly lessened, had not the Association come to the aid of the committee with a substantial grant, which was supplemented after an interval by further sums towards an inquiry into the physiology and pathology of the thyroid gland. To this work may be attributed thyroid-therapy and a wide knowledge of the relations of the thyroid gland to health and disease. And indirectly it may be said that this was the beginning of all the knowledge which has since been gained on the physiology and pathology of other of the ductless glands.

One matter to which the Association has largely contributed is the study of chloroform. Several committees have been appointed on this very important subject. The last committee has only just published its report.[6] I have read it carefully through and have formed the opinion that the £700 which have been devoted to this committee is a very small sum in comparison with the practical value which the work of the committee is likely to have. At least £1500 have been given to the various committees which have worked on this subject for the Association.

There is one grant which was made by the Scientific Grants Committee 18 years ago, and actually paid over to the applicant, but I am sorry to say it was never used. It was made to a certain Surgeon-Captain David Bruce to assist him in the investigation of Malta fever. Other arrangements were made for Captain Bruce, so the money was returned to the Association, otherwise we should have had the credit of having assisted that distinguished military officer in the very early days of his researches. What a satisfaction that would have afforded every member of the Association!

I can only further tell you that, including grants to the Jenner Institute, to the Therapeutic and other committees, the Association has provided more than £33,000 for scientific purposes since the year 1873.

IV. BENEVOLENCE.

Just now I spoke of the dissatisfaction of some of the members of the Association that our revenues are devoted to scientific purposes instead of to the needs of the profession. It seems to have been determined very early in the life of the Association that its income should not be applied to the benefit of the members. When the Association was incorporated under the Companies Acts in 1874 it was expressly stated in the Memorandum that the members of the Association should not be entitled to benefit from the income of the Association.

But from the very first the members were mindful of the material necessities of the profession. At the first annual meeting in 1833 Dr. Barlow, of Bath, presented proposals for the establishment of a benefit fund. The proposals were ordered to be printed and circulated among the members. At the third annual meeting it was recommended that a society be formed, to be called the Provincial Medical Benevolent Society, and that a fund be accumulated by subscriptions and donations. It is quite pathetic to read in the report of the Benevolent Society two years later that the committee had been enabled to bring the fund into operation and to afford relief in two cases of distress. For many years the Benevolent Fund reported each year to the annual meeting of the Association, which took the greatest interest in its affairs and which has continued to interest itself in them from that time to the present. The pages of the *British Medical Journal* have always been open to official communications, to letters and articles in favour of the Fund, and even the machinery of the Association has been used, by the kind permission of the Association, for collecting subscriptions and donations towards it with such success that last year the Fund was able to boast that since its establishment it had distributed about £76,000 in annuities and the same amount in grants, and now administers about £4500 a year; that out of the income derived from investments it supports 126 annuitants, who must be over 60 years of age, and that the annual subscriptions and donations form a fund out of which grants are made to deserving cases not eligible for annuities.

I am not exaggerating when I say that the British Medical Benevolent Fund owes its origin, its first successes, and its present position to our Association.[7] It has probably done better as an independent body than if it had been, as was intended in the first instance, a part of, and dependent on, the Association. I doubt whether it would have received anything like so large a sum in donations and legacies as it has actually done. On the other hand, its relations with the Association have been throughout of such value to it that the good influence which the Association has exercised over its affairs cannot be too highly estimated.

To those persons who are disposed to complain that the Association has never done anything for the material welfare of its members or of the profession this account of the British Medical Benevolent Fund is my answer, and I trust I shall never again hear the complaint.

V. ORIGIN AND PROGRESS. GREAT OFFICIALS.

Although I am not going to furnish a history of the rise and development of the Association, there are certain matters in its past which will interest the members here to-night. It was founded, as you know, in the year 1832, when there were but few railways, when the lesser roads were not too good, when it took days, not hours, to reach the metropolis from many parts of the country, and when perhaps more doctors rode on horseback than went in wheeled vehicles to see their patients. Yet even then Dr. Hastings, who founded the Association, said, in his address in the board room of the Worcester Infirmary, "The facilities of communication between distant towns ..... had

[5] Faraday as a Discoverer, London, 1870.
[6] Brit. Med. Jour., Supplement, July 9th, 1910.

[7] See Brit. Med. Jour., 1905, vol. ii., p. 1655.

become so much greater that distance would afford but a slight barrier to the undertaking."[8] At the first annual meeting in 1833 about 200 of the total 316 members were present. But the Association made but slow progress in the course of years. In 1874, when it was incorporated under the Companies Acts, it only numbered between 5000 and 6000 members. And as to its finances in the early years, they were deplorable. Four-and-twenty years (1856) after its foundation it was £2000 in debt, and the members had to put their hands into their pockets to help it out.

Although it met in different large towns in the United Kingdom, it was not until the thirty-eighth meeting, nearly forty years ago, that its presence was officially recognised by the appearance of the Mayor, Sheriff, and Under-Sheriff of Newcastle-on-Tyne at the opening meeting in their robes of office. The scientific business of the annual meetings was only divided up into sections just before that time (1867), when four sections were established—Medicine, Surgery, Physiology, and Midwifery. Indeed, the progress which was made during the first half of its life (of 78 years) would never have justified an observer in predicting its present numbers and importance. It was just about 38 years ago that it began distinctly to advance; and, as usual, it was not measures, but men, that caused the advancement. Indeed, there has never been any question in my mind on this point. Nor have I ever had the least doubt of the particular men to whom the Association owes more than to any other men, dead or living. They were both officials of the Association, and each of them remained in its service for more than 30 years.

The first was a little sallow-faced Jew, with clean-cut features and piercing eyes, active in mind and body, clear-headed and as keen as men are made. The reputation of our *Journal* when Mr. Ernest Hart became its editor in 1866 was none too good, and only in the previous year a proposal had been made to the annual meeting to replace it by a less expensive journal. From the moment Mr. Hart took it in hand its future was ensured. His wide knowledge of all matters connected with his profession, private and public, professional and general, and his skill in writing, would have enabled him easily to perform all the editorial work which was then needed or was likely to be needed for many years to come. But that was not his idea of editing. He gathered to his aid every man who had a special knowledge of any subject which appeared in the pages of the *Journal*, and persuaded him to give his opinion on the value of the communication, and even to write unsigned articles and annotations upon it. I was very much surprised the first time I signed the quarterly cheques to discover the large number and the position of the contributors to the *Journal*. Each man was paid for his contribution, but while a good deal was paid away each year, no one person received much more than a trifling sum. This was, I believe, an expensive way of conducting it, but in a very few years it had made the reputation of the *Journal*. When Mr. Hart became our editor the number of members was only between 2000 and 3000, and when he resigned, after 34 years' service, it was 17,000. The work of editing would have been quite enough for most men; it was only a small part of what was done by Mr. Hart. There was no question of public health which he did not deal with or attack. And his interest in all that concerned or might concern the Association in the future was truly remarkable. I believe the foundation of the scientific grants and scholarships was largely due to his influence. I *know* that the library owed its actual origin to him, although it had been considered at the very first meeting of the Association. The Medical Sickness Society was, Dr. Hall tells me, his idea. His mind teemed with fertile thoughts, and they were always at the service of the Association if they were likely to be useful to it.

The other official was Mr. Francis Fowke, not known to the members as the editor was, and really only understood and esteemed by those persons who were closely associated with him in business affairs. He was our general secretary and manager, and to him fell the charge of all matters connected with the printing and publishing of the *Journal*, the advertisements, the collection of subscriptions, the arrangements for the annual meetings, and I know not what else. He it was who advised the removal of the offices of the Association to that great artery of traffic, the Strand; who gradually took over the printing of the *Journal*, the provision of the paper on which the *Journal* is printed; who studied various methods of improving the illustrations in the *Journal;* who devoted his attention to every little business detail with such success that the surplus income of the Association, which was £38 when he became its manager in 1871, was nearly £5000 when he resigned his post in 1902. No wonder that successive treasurers placed their confidence in Mr. Fowke, and supported him one after another in the schemes which, with great caution and after long pondering, he put forward for some improvement in one or other of our business methods.

It would be difficult to find two men less like each other than the editor and the general secretary and manager. Mr. Fowke was gouty and asthmatical, nervous and apprehensive, constantly apologetic, slow of speech, and slow to form a judgment, particularly in matters relating to finance. No wonder his brilliant colleague looked upon him with a feeling almost of contempt. But there is no use denying it. In spite of what was said in some of the obituary notices of the editor's financial abilities, and in spite of his nationality, he was really a very indifferent financier. And this was appreciated fully by the manager, who repaid the feeling of contempt for himself by the strongest expression of distrust of the financial schemes of the editor. It may easily be imagined that there were no feelings of cordial friendship between two such men. This was quite well known to many persons interested in the Association, and during the years I was treasurer it was several times suggested to me to do my best to heal up the dissensions between the two great officials. But I would not listen to such suggestions. No lasting peace was possible between them; and my own opinion was that the safety of the Association was better secured by their hostility to one another than it would have been by their friendship. Each kept a watch upon the other useful in the interests of the Association. Had they combined there might possibly have been mischief. Had there been two Harts, the Association would probably have been swiftly borne to that great personage to whom the beggar on horseback is said to ride. Had there been two Fowkes, it might have gone to sleep. Peace be to the ashes of these two men, and let us be thankful that their places are so excellently filled by our present editor and financial secretary (Dr. Dawson Williams and Mr. Elliston).

VI. THE FUTURE.

I fain would speak of many other matters—of the library, of our new premises in the Strand, of the formation and growth of the branches, of the extension of the Association beyond the seas. But I have been warned not to trespass on your patience by speaking at too great length, and the warning is full of wisdom. I must therefore devote the few minutes which are left to me to the present and future of the Association. What is this great society to do with its 22,000 members, its numerous divisions, its 70 branches, its large revenues, its great standing committees, its Council and House of Representatives, its medical secretary's department? Well, since its reconstitution eight years ago it has devoted its attention very largely to the defence of its members and of the profession generally against the attempts which are made with cruel frequency against them by many sections of the community. Whilst extolling the nobility and generosity of our profession as a whole, it is notorious that public and private bodies, municipalities, corporations, clubs, medical aid institutions, and charities vie with each other in their attempts to use our services without reward, or for the smallest compensation which is possible, and it is equally clear that the only chance which the rank and file of the profession—those men who perform the most and the best of its work—have to repel these attacks is the support of a great and powerful body like our Association. Medical men talk of these things as if they belonged only to modern times; as if, until recently, we had been fairly treated, and no attempt had been made to impose on our good nature. I would ask them to read a certain report of the first committee which the Association appointed to consider the question of Poor-law medical relief, presented 75 years ago (1835).

> Your committee are aware that the vast amount of gratuitous medical assistance that has been at all times afforded to the needy by all grades of the profession throughout the country (an amount that could not be

[8] Brit. Med. Jour., 1882, vol. i., p. 847.

conceived by those who were not informed on the subject) has been productive at least of one very injurious effect; it has induced the unthinking portion of the public to conclude that there was some sort of conventional, if not legal, obligation on the medical profession to attend, without reward, to the ailments of the poor.

The words of the committee can be applied with even greater truth to-day, and there has never been a time in the last three-quarters of a century when they might not have been truthfully applied. Years ago, during the time that I took an active part in the work of the Association, we made attempts from time to time to assist medical men in repelling these attacks, and with more or less success. Now the Association is dealing with this part of its work with much greater vigour, and with the intention to do its best to help the oppressed members of the profession. And, as the result, in these last years I believe the body of the profession look with greater hope and confidence upon the future than they have ever done within my recollection. This side of our work has my hearty wish for its success. My mind is frequently saddened by the hard cases of some of those practitioners whom I have known as well-educated, industrious, and intelligent, and who have been cruelly ill-treated by public bodies and societies. But I am afraid there is no side of our work which needs greater tact or more delicate handling than this. An expression of undue force on the one hand, an exhibition of weakness on the other hand, and the amount of mischief which may follow is incalculable. I cannot remember any period of our history when our affairs required more skill and sagacity than the present. Everyone naturally turns to watch what the governing bodies of the Association will do. I watch, like the rest, and I have studied the men who are entrusted with the guidance of our State. I have mixed with the members of the Council and, to some extent, with the members of the representative body in this last year, and I have come to the conclusion that, although their task is grave and difficult, they are the men to undertake it with success.

Address in Medicine

ON

RECENT PROGRESS IN MEDICAL SCIENCE.

Delivered at the Seventy-eighth Annual Meeting of the British Medical Association

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THE DOMINANCE OF ETIOLOGY IN MEDICINE.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—My first duty, and to me the most pleasant of my duties, on this occasion is to thank Mr. Edmund Owen for the high compliment that he paid me in inviting me on behalf of the Council to deliver the annual Address in Medicine. I do thank him heartily, for I appreciate the special importance and distinction attaching to the office when the Association meets in London. I have felt only too keenly in the preparation of my address the difficulty of justifying the selection of me as spokesman for medicine before you, and before a public that is always ready to interest itself in our proceedings. And I have also become keenly aware of the difficulty of finding a fresh line of thought along which to lead a learned audience like mine, and maintain their interested attention for a whole hour—an audience of whom many have listened year after year on similar occasions to my distinguished predecessors.

RECENT ADVANCES.

The annual address is traditionally expected to include a chronicle of the advances that have been made in the science and art of medicine since the last meeting of the Association. Not a year goes by but there is abundant reason for mutual congratulation on this account. The past 12 months are no exception to this experience, and if I were to recount to you our gains during the 15 years that have elapsed since we last met in London we should indeed find cause for satisfaction. I will spare you such a trial of your patience. Our weekly Epitome and our year-books keep us up to date in this information, which we scarcely ought to require if we have done our best to assimilate new facts and take advantage of clinical and therapeutical improvements as they are announced. Therefore I will content myself, and no doubt satisfy my audience, with a very brief record of the additions to our knowledge of disease, and of the improvements in our means and methods of diagnosis and treatment, of the first magnitude only. I will then ask you to survey with me what I consider the principal line of progress in Medicine during this interval, the position that has been won, the prospect lying before us of further advance, and the need and the call for it. It is right that this address should reflect, however imperfectly, the spirit and aspirations of the time.

First of the great events to which my record of the period will be limited comes the discovery of the spirochæta of syphilis; of the part played by the mosquito in malaria and in yellow fever and by the goat in the diffusion of Malta fever; of the connexion of a trypanosome with sleeping sickness, of the Leishman-Donovan body with the kala-azar, and of the *Diplococcus intracellularis meningitidis* with cerebro-spinal fever. The existence of typhoid carriers has been fully demonstrated, as well as the dangers of other typhoid products than the stools. Investigation has been pushed forward during the same period into the relation of human to bovine tuberculosis, and stringent regulations have been framed in respect of milk and meat as articles of food. The effects of oral sepsis have been worked out, and prove to be so widespread, so multiple, and frequently so grave as to make us ashamed of our previous blindness to a common source of blood infection staring us in the face all those years. Auto-intoxication proper has attracted professional, and only too much public, attention and led to the introduction of a great variety of dietetic and medicinal "cures." Of improved methods of observation and diagnosis blood examination in the many forms of its development and in its many applications deserves first mention; and special interest and importance attach to the Widal reaction in typhoid and to the Wassermann reaction in syphilis. Radioscopy, which was coming into clinical use in 1895, has been greatly improved and extended, more particularly in its applications to the investigation of gastric and intestinal disorders and diseases; and the orthodiagraph must be mentioned in this connexion. The sphygmomanometer has been generally employed and cardiac irregularity instrumentally investigated with success. A real advance has been made in the introduction of lumbar puncture as a means of diagnosis in cerebro-spinal diseases.

During these 15 years several new methods of treatment of the first rank have been either introduced or perfected. Chief of all comes serum-therapy and vaccine-therapy, of which I shall have more to say presently. Part of the development of the thyroid treatment of myxœdema and cretinism falls within this period, and with this may be coupled the introduction of preparations of the suprarenal gland into the materia medica. Of great importance is the employment of spinal analgesia as a substitute for general anæsthesia, the dangers of which have been closely investigated in relation to the status lymphaticus, as well as to post-anæsthetic acid intoxication. Other powerful means of treatment have been discovered in radium, in the Roentgen rays, and in the Finsen light. Of a different order, but full of promise, is the use of graduated labour as an element of sanatorium treatment in pulmonary tuberculosis. Of new drugs proper the most important are synthetic compounds with hypnotic and analgesic actions.

INROADS OF SURGERY.

When we consider how great are these gains, both in themselves and in their possible applications, we may be well satisfied with what has been accomplished within a relatively short period in the history of Medicine—of Medicine, I mean, in its comprehensive, original sense, the Healing Art. But if I had interpreted my position to-day as that of a representative of pure physic in the limited sense of the sister art of pure Surgery, I should have had to speak less cheerfully. I should have had to introduce my reference to the outstanding events in the history of Medicine during the last 15 years by lamenting the striking change that has occurred in its scope and in its immediate interests through the many losses that it has suffered at the hands of the surgeon. One after another the great viscera in their pathological and therapeutical relations, as objects of treatment

and of clinical study and demonstration—and, I might add, as subjects of physiological investigation and interest in the medical wards and hospital laboratory—have been taken over in good measure by him. This is one of the revolutions brought about by the epoch-making work of Pasteur and Lister. The graver diseases of the stomach, the duodenum, the liver and gall-bladder, the appendix, the colon in its whole extent, the pancreas, the kidneys, the lungs and pleura—even the heart, the brain and spinal cord—have, one after another, been gradually passing out of the hands and experience of the physician. Consider the loss that this means to medicine—to what the Germans call *innere Medizin!* The physician may well be anxious about his position now and in the future. The field of practice contracts before his eyes. He may be forgiven if he feels a twinge of soreness and even of jealousy pass across his mind when he watches the steady sap of his position by his operating colleagues. But this is only a passing grudge! I associate myself on the present occasion with Medicine in the wider sense, with Medicine as it concerns, not the consulting physician, but the family practitioner, who in his daily work disproves, with Sir Clifford Allbutt in a recent correspondence in the *Times* on this very subject, the necessity of "halving the understanding and management of individual diseases between two sets of persons." Medicine heartily congratulates Surgery on the brilliant advances that she has made, and rejoices with her in them, although many of them have been at her own expense. Has she not gained as much as she has lost by the inroads of Surgery? Surgery has not only effected in treatment much that Medicine failed to do and never could attempt; she has greatly increased our knowledge of the diseases of the viscera, and, indeed, not of their diseases only, but of their disorders, and even of their condition and functions in health, all as the result of direct observation of them *intra vitam*, intelligently employed, and of the effects of operative treatment. Surgery has assisted Medicine in Medicine's own methods; has furnished Medicine with fresh suggestions and fresh means of investigation; and Medicine, never slow nor too proud to learn, has availed herself of Surgery's findings and conclusions to perfect her proper knowledge for her own uses.

The Doctrine of Causation.

This reference to the direction in which surgery has advanced into the domain of Medicine, and to the doctrine of infection on which this advance is based, introduces us to the greatest of the changes that have passed over Medicine since we last met in London.

The discovery of phagocytosis, and the appreciation of its significance as a provision for meeting the causes of acute disease, extended the seat of interest in the processes of infection from wounds to the blood and tissues and to the immunising properties or provisions discovered in the plasma. Anatomical pathology gradually gave place in great measure to bacteriological and chemical pathology, and therewith Medicine—practical Medicine as well as medical science—has taken a great step forward from the study of lesions to the investigation of processes, of the causes in which they originate, and of the circumstances by which they are controlled.

The Progress made in Etiology.

It is on this development of medicine that I desire to address you mainly to-day—on the dominant position in Medicine which the doctrine of causation has come to occupy in the course of the last quarter of a century, and to occupy more and more securely during the period that has elapsed since the last meeting of the Association in London in 1895. For the truth of this thesis I have only to refer you in the first place to my brief record of advances these 15 years. With a few exceptions they have been in the field of etiology—the discovery of essential causes of diseases, such as the spirochætæ and the trypanosomes; of media which bring these into relation with man, like the blood-sucking insects and domestic vermin; and of new methods of investigating infective processes, particularly in the blood. The triumphs of Surgery have taught the practitioner of Medicine to appreciate the fundamental place that etiology fills in pathology, and the significance of the essential, the predisposing, and the incidental elements respectively of the causation of disease. A remarkable change has been, and still is, passing over the character of Medicine. Etiology, which always has been regarded as one of the foundations of rational Medicine, has developed with extraordinary rapidity as a subject of investigation in the bacteriological laboratory and as a subject of clinical inquiry at the bedside. This is an event in Medicine which more than any other appears to me to deserve historical recognition on the present occasion as a subject of interest, not to the profession only, but to the public as well.

When we make a comprehensive survey of the whole field of Medicine during the past 15 years we cannot fail to be struck by the amount of time and labour that has been devoted to the study of etiology and by the abundant results that have been secured by it in the form of accurate knowledge of the causes of disease, the manner of their incidence on the body, the reactions of the body to them, and the circumstances that modify disease in its course. Following, as I have said, in the wake of Surgery and its investigations on the infectious processes on the surface of wounds, Medicine now conducts a methodical investigation into the bacteriological relations of infective processes in the blood and tissues—that is, into the essential cause—in every instance of acute febrile disease. How much has already been done and how much is daily being done in this attractive and promising field of observation, and how encouraging is the success that attends the applications of this newer knowledge in practice, was revealed to us a few weeks ago in the brilliant discussion on the use of vaccines at the Royal Society of Medicine, with which many of you, no doubt, are acquainted. It is true that the usefulness of serum-therapy and vaccine-therapy is still far from being settled. Diphtheria, typhoid fever, the pathological effects of the bacillus coli, and certain diseases of the skin yield to the method, and acute pneumonia does so in some instances; but the medical septicæmias, tetanus, and even tuberculosis after all the time and labour that have been devoted to the investigation of tuberculin, only too often do not, unless it be tuberculosis of the skin and the bladder. We ask ourselves the meaning of this relative failure of the internal applications of our knowledge of the infections—our failure as compared with the successful results of aseptic Surgery. The question introduces us to the elements of the doctrine of infection and of the associated doctrine of causation.

Factors in Infection and Immunity.

Medical treatment of the infectious processes is relatively disappointing, mainly because we do not enjoy the incomparable advantage which presents itself to Surgery of dealing with the infection in advance of its action by employing aseptic measures to prevent the contact of it with the blood and tissues. Before the practitioner is required to deal with the germ and its effects on the body, it has already reached the field of its operations and commenced its pathogenetic action. What is to be done? Observation demonstrates that even then it may not be too late to interfere. In a number of instances, as we have just seen—unhappily too few—successful resistance can be offered to intruding micro-organisms and to their toxic products. An antibody or an antiproduct may be introduced into the blood, or developed in it, in time to establish immunity.

This discovery, for which we have to thank Pasteur and Metchnikoff in particular, and their spirited and devoted followers, is after all but a scientific confirmation of the correctness of two well-established observations and a time-honoured conclusion founded upon them. The first of these observations was that whilst a large proportion of individuals fall victims to the infectious or contagious diseases, a considerable proportion do not. The older observers did not fail to be struck by the fact that this liability, proclivity, susceptibility, of certain persons as compared with others to be infected, or greater disposition to suffer severely from the disease or to die from it, was met with in the delicate and weak, and they formulated the doctrine that such delicacy or weakness is a predisposing cause of acute disease. We have come to express the same conception of the etiological relations of acute disease in other terms. We say that all individuals possess in some degree a provision of protection or resistance to the actions of pathogenetic organisms, which is to be regarded as natural—that is, as a normal or physiological safeguard against infection. Our blood and tissues

have acquired this faculty of immunity or of developing immunity in the struggle for existence; they exercise it when provoked by the presence of infection; but in many individuals it is defective and fails because of some present personal circumstance, or of some remote family or racial weakness.

The second observation is that even those individuals who resist the action of invading organisms, who, for instance, harbour germs in their tissues without local damage or constitutional disturbance, may at any time under certain circumstances—that is, under changed conditions of life—lose their power of resistance. The germs that have been lying inactive within them suddenly manifest evidences of vitality in themselves, with disorder or disease in their host as the result. This is a fact of the first importance. It proves that there may be yet another element in the causation of acute disease; that there are three factors to be reckoned with. First, there is the cause which we call essential, the specific infection, an extrinsic influence, the element without which in the particular instance, and in every other instance, the disease would not have occurred. Secondly, there is the patient's resistance to the specific infection, an intrinsic element. Thirdly, there may be incidental or concomitant circumstances or associations which are not essential, because not present in every instance of the disease, but which, by occurring incidentally in particular instances, either favour the essential influence directly in its invasion of the body, or, on the other hand, lower resistance, and thus indirectly contribute to the production of the disease.

CONCOMITANT CIRCUMSTANCES IN DISEASE.

It is of this third element of etiology that I desire to speak to-day, with respect more particularly to its nature and forms, and with respect to the opportunities that it affords the practitioner, not only to forecast, prevent, treat, or otherwise control disease, but to take part in the advance of medical science.

These concomitant circumstances are of great variety, both in kind and in the manner of their incidence on the body. When they act immediately they are commonly known as the exciting, precipitating, determining "causes" of disease; for instance, a street accident that introduces the tetanus bacilli into the blood; the summer season, which produces the essential cause of hay fever; the hour of the day that determines an attack of ague; the emotional shock or the gastric catarrh that lays a person open to invasion by the germ of cholera; the drinking bout that precipitates acute pneumonia; the measles that determines an outbreak of tuberculosis; the different climates that favour the life and activity of different parasites; and also the different media—particularly food, drink, and air—that serve to convey the essential extrinsic cause into the victim. And these are but one group of the incidental circumstances that share in the production of disease, that may contribute to its causation in different cases, but are not an invariable factor of it. In a large number of instances the connexion is remote. It is found in the circumstances and life-history or record of the individual, or of his parents—insanitation, unwholesome occupation, dissipation, misfortune, privation, or disability left behind by previous illness, which have been slowly and steadily sapping constitutional resistance, and have reduced it to a state of inefficiency by the time that the struggle with infection or other morbid influence comes. I repeat that the outstanding feature of the Medicine of the present time is the study and practical applications of this doctrine of general etiology from the two sides—from the second as well as from the first side, that is, with respect, not only to the nature and incidence of the specific causes of disease, but also to the nature of immunity and the circumstances under which it fails. Whilst the pathologist in our public institutions, in hospitals, and in private laboratories, investigates the biology of germs and the immunising value of the blood by means of the opsonic index and otherwise, the practitioner estimates, as he has done from time immemorial with more or less intelligence and success, the value of what he calls his patient's constitution. He does this in part by ascertaining his patient's present bodily condition in respect of structural soundness and absence of functional disorder. But he pushes his inquiries on the subject much further. He obtains his patient's entire record, family and personal. He informs himself of the circumstances under which his patient has been born, has lived, and is living, being assured that, after all, what we dignify with the name of natural resistance is but the product, the embodiment as it were, of all the influences that have fallen on the man—racial, congenital, and personal.

The knowledge thus acquired by the practitioner he turns to practical account in two directions. First, he uses it as a guide in the immediate management of the case. Since he cannot prevent the inroad of germs, nor remove them, and since he can but seldom destroy them within the body, he may enable the patient to resist them. He protects the blood and tissues from the action of the infections by maintaining natural resistance at a high level—the method practised in sanatoriums for tuberculosis by means of fresh air, abundant feeding, and graduated exercise. Or—which is an object of far more frequent and far more extensive concern—he promotes personal and public hygiene in anticipation of disease, and succeeds in restoring, cultivating, and maintaining or increasing the natural resistance of the individual, the community, and the race against the time when infection may fall upon them.

But, secondly (and here I crave your particular attention), in devoting attention to these other elements of causation, the practitioner contributes his share of the materials of which the doctrine of etiology is being constructed. Not all of us, indeed but few of us, can work at the higher pathogeny. In respect of infections, we can but admire the skill and perseverance of our bacteriologists, assimilate as much as possible of their conclusions, and seek their help in the diagnosis and treatment of this class of diseases. Bacteriological investigation is too delicate and too difficult, and depends too much for its usefulness, and even for its safety, in practical Medicine on correctness of conclusions based on skilled observation, to be conducted by the practitioner himself unless in a few cases. But we can all take a share in the cultivation of knowledge of the other branch of etiology. After all, the pathological laboratory is not the natural field of operation and observation of the action of the infections, excepting in those instances, unhappily not uncommon, where the worker himself falls a victim to the disease that he is investigating. A knowledge of the patient's constitution, based on his record, is the peculiar privilege and possession of the family practitioner who takes full advantage of his opportunities. Living in the society of his patients, born and bred as he may have been in their midst, he knows, or he ought to know, the conditions of inheritance and life, good and bad, under which their constitutional resistance to acute disease has been and is being shaped. If he has made proper use of this opportunity the family practitioner is in as good a position as the most skilled pathologist to give an opinion on the prospect of successful resistance—that is, of recovery—in a case of typhoid fever or of pulmonary tuberculosis.

OTHER CAUSES AND DISEASES THAN ACUTE INFECTIONS.

Let me now take another step forward, and remind you that the acute infections are but one of the many kinds of pathogenetic agents. The countless influences around us, intimately associated with our daily life, constitute a group of possible causes of disorder and disease almost too familiar to receive attention from the modern pathologist, occupied with the investigation of micro-organisms. To the practitioner of Medicine, in the routine of his daily work, these and the respective and relative modes of their incidence and actions on the body are of equal or even greater moment, and from him they are receiving more and more attention. I refer to our manner and habits of living; the amount and pressure of our occupations; the forms and seasons of our occasional relaxations; our pleasures and amusements; the condition of the atmosphere in which we work; our food and the associated luxuries of alcohol and tobacco; simple physical stresses, whether in labour or in sport; the animals and plants with which we are commonly associated—common media of transference of disease; climate and weather; and the many influences known as "nervous," which fall upon the brain in education, in business, and in the social and domestic spheres, which are intimately bound up with our personal happiness, and which may produce intellectual and emotional strain, anxiety, grief, and other unfavourable effects. And doubtless there are other causes of disease at work in our midst still to be discovered. It was not until a few years ago that the pathogenetic properties of germs were known. Consider what the state of etiology, pathology, and medicine as a whole would be to-day if this portion of what

is now common knowledge had been overlooked. How long was not the mosquito unsuspected, the rat, the bug, the flea, the common house-fly? The search in this direction is being steadily pursued in the spirit of patient enthusiasm and hopefulness that stimulated and sustained Pasteur. If you seek for evidence of that pursuit and of that spirit you have only to turn to the work that is being done in Tropical Medicine, where a very romance of pathology is being daily unfolded.

Side by side with these agents we have the common or everyday disorders and diseases, more numerous than the infectious, many of them as often fatal as the other class, although unrecorded in the published weekly death-rate; many of them also productive of disablement or at least of relative disability, or in the young insidiously ruining the constitution; all of them fruitful sources of indisposition, suffering, and waste of work, and time and means, and therefore the common concern of Medicine and the State. Such are, for example, gastric catarrh, gastric and duodenal ulcer, appendicitis, gall-stones, hepatic cirrhosis, emphysema, asthma, gout in its many forms, obesity, arterial sclerosis and Bright's disease, with their intimate associates separately named, including angina pectoris, apoplexy, uræmia; and such are the almost countless disorders of the different systems—the nervous system more especially—which I need not attempt to enumerate. Here is a list of but a few of the more familiar cases with which we meet in practice, and the causes of which it is as important—as necessary—to discover and understand and appreciate, in themselves and in the manner of their incidence on the body, as the causes of the acute febrile processes.

THE PRACTITIONER AS A NATURALIST.

Is it possible to trace what I have called common diseases to the common influences around us with scientific correctness? It is most difficult to say how far each of these influences acts directly, how far indirectly or incidentally only—that is, by interfering with resistance on the one hand, or by assisting essential causes on the other hand, as we saw in our consideration of acute specific diseases. The problem of the causation of many of the common diseases, when it comes to be faced practically, proves to be one of extreme complexity. It is rendered still more complex and difficult by the fact that the same influence may in one instance be an essential cause, in another instance an incidental circumstance only. A high atmospheric temperature is the essential cause of heat-stroke, but on the same day it acts as an incidental precipitating circumstance only of cholera infantum by favouring the development of a specific bacterion in milk. Extreme cold is the specific cause of frost-bite and of death from exposure, but far more often it contributes to disease by incidentally depressing bodily resistance. This complexity of the causation of disease is so great that it might well discourage attempts to disentangle the different elements of it in the routine examination and treatment of our patients. Taken together, the three factors concerned in the production of disease constitute nothing less than the total relations of the individual and of the community to their environment. But if Medicine is to attain success as a genuine art—that is, as a pursuit that aims at doing the very best in the very best way—we must make an attempt to discover each element and to give it its proper weight. Here we have found a great opportunity, each of us individually as extensive as our practice, and all of us collectively as a profession, of advancing Medicine; and here as much as in connexion with the acute infections, the active pursuit of etiology is to be seen which characterises present-day Medicine. Let me try to impress upon you the consideration that here the practitioner has the field in great measure to himself. He is prepared to seek the assistance of the pathologist when it is calculated to be useful, but in the great majority of cases the inquiry rests with himself, since the causes of which he is in search are other than micro-organisms, and indeed are not always material. The immense extent of the field of observation and inquiry does not discourage him, but the reverse. The practitioner has come to make it the first step of the diagnosis of his cases to search for the cause of the disease in every instance. He divests his mind for the time of the traditional or authoritative names or labels attached to diseases, and approaches each case in the spirit of a naturalist. Acute tonsillitis is no longer a single disease for him. He is not satisfied until he has determined by bacteriological examination which of the common infections is at work. He knows that sore-throat is but a manifestation of the place of entrance of a specific organism into the blood. His way of regarding many of the common affections of the bowel has now come to be in respect of the kind and activity of the bacteria, normal and abnormal, that flourish within it; and on this consideration he bases his views of auto-intoxication, and his use of certain diets and intestinal antiseptics and purgatives. When he meets with a case of gall-stones, and plans preventive measures, he starts from purely etiological considerations—the cure and prevention of chronic biliary catarrhs in which bacteria flourish. Diabetes is to the practitioner not a hard-and-fast disease, but a disorder which he tries in each instance to refer to some part or other of the absorbent and assimilative systems in which a particular ferment or enzyme has failed. A case which a few years ago he would have been satisfied to call "pyelitis"—using a purely anatomical term—he now investigates forthwith by searching for the bacillus coli, or for the tubercle bacillus, or for other organism. A case of hæmaturia, with fever and dropsy, is not nowadays regarded offhand as "acute nephritis," and nothing more done in the way of diagnosis: the observant physician is aware that these are but phenomena due to the passage from the body by the kidneys of the pneumococcus, the typhoid bacillus, or other specific organism which he may not yet be able to differentiate more closely than the germ of "septicæmia" or of "infective endocarditis." Consider how bacteriological examination of the sputum has furnished a "ready" method of diagnosis of diseases of the lungs and pleura, acute and chronic—a method only too "ready," indeed, for us to regard it as a sufficient guide to prognosis and treatment. If we turn to diseases of the heart, and the present-day study of the more common kinds and form of them for practical purposes, do we not find that the consideration which chiefly guides our prognosis and treatment is their origin: whether valvular disease is a result of rheumatism, or of syphilis, or of mechanical stress; whether the "fatty heart" of former days is not degeneration due to alcohol, or to gout, or to sedentary living; whether the "idiopathic enlargement" of the last generation is not a mechanical and physiological outcome of the abuse of athletics? When we meet with aortic aneurysm, do not our thoughts travel at once to the spirochæta pallida, and from it to the physical stress that completed the damage of the aortic coats which it infests? What are tabes dorsalis and general paralysis, and a multitude of other forms of nervous affections which were formerly regarded as independent diseases, but acknowledged manifestations of the actions of a single cause—syphilis and its products? The name "anæmia," useful enough as a title, now conveys to our minds an idea that prompts us to examine the mouth for sepsis, and to ascertain the condition of the alimentary canal, of the genito-urinary organs, and, indeed, of all the mucous surfaces. A complaint of headache in a child at school at once suggests an examination of the eyes. And when a youth of poor physique and constitution is brought to us our minds turn naturally to want of physical exercise and other unwholesome influences under which he has been reared in a town.

In these instances, which are but illustrative instances, and I believe I may say in most of our professional work, we appreciate the line of the principal and most promising advance at the present time, as compared with earlier but still comparatively recent periods. Physical examination, which was developed so remarkably in the first half of the last century, is still being advanced, particularly in the direction of exactness, by means of apparatus and the introduction of skiagraphy. Clinical chemistry also has been and is being steadily improved and extended. By these and other means, including examination of the blood, the actual pathological condition of affected parts can be investigated with far greater accuracy than before. But we do not rest now at this stage, which might be called the "anatomical" stage, of diagnosis. We are not satisfied until we have pressed our inquiry a stage deeper, and done our best to discover in what the anatomical change of the affected organ originated. The minds of the profession will not rest until the cause of cancer has been found.

VARIOUS INFLUENCES AFFECTING COURSE, PROGNOSIS, AND TREATMENT.

From this somewhat lengthy discussion of the three orders of influences concerned in the causation of disease let me pass on to consider how its course may be shaped by influences of the same orders respectively, particularly by those influences which I have called incidental.

When we commence practice, inspired by the study of pathology, we are all disposed to regard illness, a disease in progress under our observation, as a manifestation of the actions of the essential cause of it only—of the tubercle bacillus, for example, of alcohol, of the spirochæta of syphilis. It is not long before we come to recognise abundant evidences of spontaneous relief, repair and recovery, in the symptoms of the case, just as we recognise natural resistance in the origin of it. But it may require years of intelligent observation and consideration on our part to enable us to realise how large a part is played in every illness by altogether casual conditions and events.

A considerable proportion of the so-called "symptoms" of a disease are not strictly phenomena of the morbid process itself—that is, are not present in every instance of it—but are manifestations of some passing influence. The same remark applies to the phases of an illness, known as complications, relapse, and recurrence: they may usually be referred to extrinsic disturbances, possibly insignificant enough in themselves, which have afforded the essential cause—infective or not—a fresh opportunity to display its action. The food or feeding, the patient's room, his nurse, his relatives about him, the state of his bowels, the provision for sleep, rest and occupation of mind, fatigue, a passing chill, and surely the medicinal treatment as well,—all these are as much influences in determining the course of his case as was the original cause of it. There is no better test of a good practitioner than the possession and exercise of a faculty of observing and judging with correctness the effects of these incidental circumstances on the patient. The experienced doctor, as contrasted with the beginner fresh from hospital, knows that every passing event affects the case for good or for bad, and he never fails to give it its proper value in estimating the condition and prospects of his patient. He knows that by keeping critical watch and firm control on the patient's surroundings he may be able to modify favourably the progress of a case that appears altogether unpromising when regarded solely from the side of its essential nature. He has learned that it is with a patient, not with a disease, that he is concerned; with a process, not with a lesion. An attack of paroxysmal dyspnœa in the course of chronic Bright's disease he does not interpret as directly due to increase of the renal lesions in degree or in extent, but to careless indulgence on the part of the patient in meat or wine. He is prepared to find that return of pyrexia during convalescence from typhoid fever has been caused by a visit from friends, and is not a true relapse from re-infection. And it is because of his experience of the actions of extrinsic incidental influences in modifying the course of disease that the practitioner cautions the subjects of chronic quiescent appendicitis and chronic dysentery against exposure to cold and wet and fatigue.

This consideration helps us to realise the bearing of the circumstances and events of our patient's life upon prognosis and treatment. In estimating the future we direct our attention to the diseased or damaged organ, but by no means to it alone. We ascertain and consider as correctly as we can the conditions under which his life will be spent, knowing that these will in great measure determine the course and termination of his case. As the prognosis of acute disease is largely based on the patient's past and on his present state, so the prognosis of a case of chronic disease is in practice mainly an intelligent forecast of the circumstances under which the subject of it will live. Take as an instance a case of valvular disease of the heart in a patient of 15. We are expected to foretell the patient's future; in particular what is to be expected of him in respect of capacity for work and the value of his life in terms of years. In framing our estimate of the patient's prospects we naturally take into account the form, situation and severity of the valvular lesion and the condition of the cardiac walls—all purely anatomical elements of prognostic value. But experience has taught us that a score of patients starting on equal terms in this respect, at the age of 15, have many different futures before them; and this not because of the actual disablement of the heart, which is the same in all, but because of the different influences which will fall upon the respective individuals. If we are to give useful advice to the boy with aortic disease, we must project our view of his case into the next ten years, and picture our patient surrounded by companions devoted to games and exercise in every form; and we estimate as nearly as we can the control of the lad's disposition in that direction that can be exercised over him. Next we anticipate the importance on the duration of his life of the choice he may make of a profession—laborious or sedentary, full of nervous stress or the reverse; for on this in great measure will depend the maintenance of cardiac compensation. We see him during the same period of early manhood exposed to the familiar temptations of social life, with alcohol, syphilis, and the other elements of irregular conduct and habits all ready to fall upon the damaged heart unfavourably. A little later we know that his reserve of strength will be tested by the concerns of his professional and domestic life, as well as by the many sources of anxiety in connexion with his home and with making sufficient provision for his family. And when the question of the actuarial value of the patient's life is put to us—that is, in respect of the prospect of his survival to middle age and beyond it—our principal prognostic consideration relates to the position which the man will have won for himself by that period of his life, the conditions under which he may be expected to be working, the habits which from his present disposition, and judged by his inheritance, breeding and upbringing, he will probably have developed, and the liability to early degeneration which may be learned in part from his family history.

This is but an illustrative statement, but it may serve to bring home to our minds the extent as well as the character of the interest that attaches to prognosis when it is based on an appreciation of something more than the findings of the post-mortem room and even the symptoms and signs present in our patient. The different influences that will surround our patient, and will tell on him for good or for evil, are forecasted, and, let me add, forestalled, if possible, for in the proper appreciation of the prognostic conclusion lies the opportunity as well as occasion for preventive treatment. And this, let me repeat, is what the best type of family doctor understands and practises, passing his days amongst his patients, whose careers he helps to shape and to guide and to control by advice, by encouragement, by warning, by reproof if necessary, as well as by means of dieting and drugs.

THE PROFESSION AND THE PUBLIC.

Thus the practitioner of to-day has come to concern himself more and more with the constitutional soundness as well as with the present health of the persons under his care, and with the whole environment in which they live. One of the principal demands made on Medicine in these days is for an opinion—not in the individual case only, but in respect also of the community and the race—on the effect for good or for evil of modern civilisation, as it may be studied and ought to be modelled, especially in our great cities. Even if the stimulus of the recent successes in general etiology and pathology, which I have attempted to put on record to-day, had been wanting, the force of public opinion at the present time would itself move the profession to search for the relations between disease and the common circumstances of the life of the people. Neglect of physical culture, overpressure in education, the wear and tear of professional and commercial life, insufficient attention to the nourishment and care as a whole of children, intemperance and debauchery, and the insanitary and otherwise unwholesome conditions in which the community often have to live and work, as their parents lived and worked—these, in their bearings on disease and degeneration, have come prominently to the front in connexion with eugenics, and, indeed, with many of the political controversies of the present hour. A cry has been raised, and is loud and clamant in this country, that we are the victims of modern civilisation, which penalises health and soundness; that the nation is degenerating; that the environment is ruining our constitutions. The practitioner of Medicine is expected to extend his active interest in health and disease, and in the influences that determine them respectively, beyond the strictly professional field. He is required to ascertain and to furnish for public

information in the public service the materials of which our sanitary laws and regulations may be constructed.

In conclusion, let me say that I shall not consider that I have been justified in my selection of the subject of this Address, nor that I have done justice to it, unless I have convinced you that, much as has been done in the past, satisfactory as is the position that has been reached by Medicine in its progress along the line of investigation of causes of disease, much, far more, remains to be accomplished, and that a great part of it is waiting to be done by the family practitioner. Conviction of the importance of etiology must carry with it a sense of duty. We must not rest content with mutual congratulations on past achievements. There cannot hut be many influences around us unfavourable to health and life remaining to be discovered hy patient inquiry and observation. No doubt causes of disease lie concealed in many common things, and are associated with many common events. There is a natural disposition at the present time to leave investigation of this character to the bacteriologist. This is altogether nnfair to him. I have already asked you to consider that it is unreasonahle to expect the pathologist in his laboratory to solve other than certain classes of etiological problems. The remainder rests with onrselves. General practice is the most fruitful and promising field for the study of the natural history of disease in the living body. We who deal directly and immediately with the individual and with the community have opportunities which must not be neglected. What is more, we have that particular kind of opportunity which the scientist eagerly desires to command. We can vary the circumstances of our people's lives in the direction of improvement, and watch the experiment, and carry out a strictly scientific observation whilst effecting real personal and public henefit. And, over and above all this, who but the family practitioner can find and furnish the material from which the great problem of inheritance in relation to the causation of disease is to be solved? The student of eugenics collects such material laboriously, and laboriously works out results. The practitioner studies not the dead figures but the living individuals in action. He sees the delicate, the unsound, the drunkard, marry. He brings into the world children horn of such parents. He has medical charge of the new generation throughout the earlier years at least of its precarious existence, and is often in a position to observe the event in its full development. Opportunities like these of connecting influences, direct and indirect, personal and inherited, with results, are afforded him only too abundantly throughont the community in which his practice lies.

THE BRITISH MEDICAL ASSOCIATION.

Besides employing individual opportunity and individual effort we may, and we do, advance this work collectively. The profession occupies a position, has contracted responsihilities, and acquired an influence in the country vital to the highest interests of the country. The British Medical Association as a body has never ceased to prove its concern for the national health and soundness and has done its fnll share in discovering and dealing with the causes that nnderlie the inefficiency and degeneration of portions of the people. It employs the exceptional advantages afforded hy its organisation in the promotion of this object. We have a Standing Committee on Public Health. At the annual meetings, as on the present occasion, there is a Section of State Medicine. Every question, every public movement, bearing on the subject of the health of the people, is examined closely in the *Journal*. By these means and otherwise the Association takes an active interest in the pressing social problems of the time. I need mention only the medical examination and care of school children, physical training, the use and abuse of althletics, temperance, mental stress in education and in daily work, and the public provision of regular and sufficient relaxation and wholesome amusements for the people. Several of my predecessors in the honourable office which I occupy to-day have delivered themselves of clear and striking opinions on one or other of these subjects.

Thns, in the objects and achievements of our Association itself we see at work the spirit of the Medicine of to-day which I have attempted to unveil to you in this address. Surely it is a spirit that is worthy of encouragement and support, whether it possess and move those of our number who devote so much of their time and powers to the organisation and administration of this great Association, the enthusiastic pathologist in his laboratory, the physician in the wards, or the laborious practitioner in the remotest corner of the country or of the colonies.

Address in Surgery

ON

MALIGNANT DISEASE.

Delivered at the Seventy-eighth Annual Meeting of the British Medical Association

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MR. PRESIDENT,—My first duty to-day is to tender to the Council of the British Medical Association my thanks for the honour conferred on me by the invitation to give the Address in Surgery at this great meeting in the metropolis of the empire. I should indeed be vain did I not realise that the Council by their invitation desire to honour not myself as an individual but rather the good work done by provincial men in advancing the science and art of surgery, a generous recognition for which I desire on behalf of my colleagues to express grateful appreciation. That I personally should have been chosen instead of others far abler for the duty imposed upon me is due, I feel, to the accident that I practise in the Midlands, the nursery in which this Association was born.

When one's mind is roving over the field of surgery, after the manner of those in labour with such a task as mine, naturally the first thing one has to grapple with is the difficulty of choosing a subject suitable for such an occasion as this. We have a gathering composed only in part of those who confine themselves to the practice of surgery, and largely of others occupied in different fields of special or general medical work. Under these circumstances it appears to me desirable to take some subject of general interest and deal with it in broad outline. Such a subject I hope I have found in Malignant Disease.

The great era founded on the genius of Pasteur and Lister, which has robbed surgery of so many of its anxieties and terrors, which has enlarged and illuminated our work in all directions, has extended its splendid influence over our knowledge and treatment of malignant disease. The revelation of bacterial and allied infections as the cause of so many diseases inspired the hope—indeed, I may say the expectation—that the origin of cancer would soon be laid bare. The veil is still unrent, the secret is yet hidden, and the world waits with painful interest for the revelations of the future. But whilst we realise our ignorance of the absolute canse, we mnst appreciate that our knowledge, of the processes of malignant disease, of the strnggle, of the living organism against it, and of the means by which we may relieve or cure cancer, has advanced and is advancing in a most hopeful manner. Our position to-day is in marked contrast to that which obtained a comparatively few years ago; then the predominant view was that cancer was a systemic disease, of which the tumour was the local manifestation, and removal of the evident growth was rarely regarded as anything more than palliative. This conception of the nature of cancer provided a disastrous example of the influence of bad theory on practice. It led in most cases to totally inadequate removal of the disease, the speedy return of which *in loco* was held to substantiate the belief that it was due to a blood dyscrasia. By clinical observation, by patient pathological investigation, and, more recently, by laborious observation and experiment on some of the lower animals, we have obtained, and are still obtaining, knowledge which is pregnant with power and which is far in advance of that in the hands of our immediate predecessors. We can only fully appreciate this when we review our position from the three sides—experimental, pathological, and clinical. In the time at my disposal I cannot hope to deal

exhanstively with the huge field open to me, but must be content to address myself to three main considerations. Briefly, these are (1) What experiment has taught us as to the growth of transplanted carcinoma and the methods by which immunity can be conferred on inoculated animals; (2) our knowledge of resistance to malignant disease in the human subject; (3) the means available for its successful treatment.

RESULTS OF EXPERIMENTAL INVESTIGATIONS.

Appeal to experiment has given information to be obtained in no other way; interrogation of living tissnes had become essential to supplement our knowledge of the mere histology of malignant structures, and incidentally has provided interesting parallels between the results of experiment and conditions exhibited in the human tissues. Experimental observations have been carried on in all civilised countries, but nowhere with greater ingenuity, or with more scientific acnmen than by workers under the Imperial Cancer Research Fund in this country. To the director of that rescarch, Dr. Bashford, and to his colleagues, I should like to express my feelings of indebtedness and appreciation.

Let us first consider what we know of the growth of cancer. If portions of a carcinoma from one mouse are grafted into several other mice of a similar strain, a certain number of these grafts, but not all, develop and form malignant growths indistinguishable from the primary tumour, and will eventually determine the death of the inoculated animals. If the growth of these new tnmours be investigated from day to day several points can be clearly shown. First, that the tiny nodule introdnced grows by multiplication of its own epithelium and not by conversion of the cells of the host into carcinoma cells. Whilst the epithelial cells introduced are the sourcc from which all others are formed, the part played by the tissues of the receiving host is of the utmost importance. The inoculated fragment consists of epithelium supported by a varying stroma of connective tissue, the two being blended in different proportions and on different patterns, producing carcinomas of varying type as we find in human beings. The fate of the epithelial cells I have already mentioned. What happens to the connective tissue of the stroma? It degenerates, dies, is removed by phagocytosis, and is replaced by proliferation from the connective tissue cells of the host, which new tissue speedily becomes vascularised, and so provides the intruded epithelium with nutrition. If this new production of stroma from the host does not occur, the epithelial cells die and the inoculation of cancer fails. Thus we learn that experimental carcinoma is a parasite, the essential element the epithelium, living its own life and using its host as a provider of nutrition through the new stroma and its accompanying blood-vessels. But we learn also that, not content with exciting a production of new stroma and blood-vessels to supply its needs, the epithelial cell so impresses the tissues in which it is implanted that a stroma is produced exactly similar to the stroma in the primary growth, be it of great amount or little, be it of one pattern or another. If the stroma of the primary tumour be highly vascular, so that the growth is of the hæmorrhagic type, this will be exactly reproduced by successful inoculation.

The interest of the experimental observations I have just related, intrinsically great as it is, is enhanced when we recall that this parasitism and this almost fastidious production of the new stroma finds a parallel in human pathology. In one of the most remarkable tumours of the human subject, chorion-epithelioma, we have an example of parasitism almost experimental in its nature. Chorionic epithelium derived from the tissues of the fertilised ovum—that is, from a new generation—grows into and transplants itself into the tissues of the mother, a being of a preceding generation. The primary growth in the uterus, and its metastases scattered widely by the blood stream through the body, determine the death of the host which the parasitic tumour has invaded. In the ordinary metastases of malignant tumours we have a process closely resembling that of experimental transference, particles of the primary growth swept into the lymph or blood stream, carried by one of these to any or all parts of the body and producing exact facsimiles in the metastases. If the primary tumour is a columnar-celled carcinoma of the intestine a replica of it may be produced in the brain, or if an ossified spindle-celled sarcoma of the femur, an exact bony reproduction of it may be grafted in the heart.

If the experiment of transplanting carcinoma from one mouse to another be repeated sufficiently often another phenomenon may arise—a no less remarkable occurrence than the production of a new form of malignant growth, namely, sarcoma, which develops side by side with and is closely blended with the introduced carcinoma. When this curious observation was first described close criticism was naturally directed to it; the result was attributed to careless experiment, to the introduction of a mixed tumour into the new host, to confusion between malignant growth and the infective granulomata. The experimental production of sarcoma has now, however, been repeated so often and by such critical investigators that we must absolutely accept the fact of its occurrence. When a portion of carcinoma is transplanted the only tissue in it which survives is the epithelial cell, and we are driven irresistibly to the conclusion that the cell itself, or something contained within it, possesses such properties as to induce a malignant growth of different nature, of a new type, derived from the connective tissues amongst which the graft lies. Only very exceptionally is sarcoma thus produced, and this suggests that the connective tissues are not easily provoked to malignant growth, an observation which is in accord with clinical experience. Not only may sarcoma be produced by experimental transference of a pure carcinoma, but if the tumour of mixed strains be in turn transplanted the carcinomatous element may die out and a pure sarcoma eventually be propagated, or the sarcoma may prove the more aggressive of the two, as shown by its invasion and destruction of the carcinomatous tissue. An added interest is provided by the occasional occurrence in the human subject of mixed malignant growths—that is, sarcoma and carcinoma occurring in the same part or organ. A few such have now been placed on record, and they have this in common with the experimental mixed growths—that the sarcomatous element may prove the more active and malignant of the two, as shown by its invasion and eventual destruction of the associated carcinoma.

Mr. President, in my earlier remarks I pointed out that experimental inoculation in some mice failed, although the animals were under exactly the same conditions as their fellows in which success was attained. We naturally inquire what this failure means, and from the experience of various investigators it seems possible only to attribute it to higher resistance on the part of certain mice or, to put it in other words, to a degree of natural immunity. This being recognised, experiments were devised to determine if this natural resistance could be increased with the ever-present hope of being able to throw light on the problem of treatment in cancer of human beings. The results of these experiments show clearly that it is possible to increase the resistance to inoculation of malignant growths in mice and allied species. By repeatedly inoculating mice with a particular tumour a very high degree of immunity to that tumour can be attained, but this immunity does not apply to other malignant growths, at all events, in the same degree. Protection against inoculation may also be provided by other materials than those derived from malignant tumours—for example, by a mixture of tissues such as an emulsion of mice embryos or, better still, by using an emulsion of the skin of mice embryos or emulsion of spleen, both of which appear to give a high degree of protection, or by using blood, the active powers of which have been shown to reside in the corpuscles and not in the serum.

When we scan these experimental results closely it is evident that protection can be given only within narrow limits. The tissues used must be derived from the same species, or at least from those very closely allied; so with the blood—blood from the rat or rabbit does not protect mice. Again, the highest degree of protection is provided from tissues of a similar histogenesis—as, for instance, an emulsion of mouse skin provides the maximum immunity to inoculation of squamous-celled carcinoma in the mouse. In the endeavour to learn what produces immunity minute investigation has been made of the changes which occur in and around the grafted material, and though some of the details are still in dispute the following appear to be the essential points. Similar changes in the immune and in the normal mouse can be traced up to a certain time, that is, about the third day. In each case there is degeneration of the introduced stroma, and some necrosis of the central area of epithelium. Two views have been advanced as to what

happens in the immune later than about the third day. According to the one, we find failure in the production of the new stroma and its accompanying capillaries, and, according to the other, a new vascularised stroma does form. But whichever view is correct—and possibly both are in varying degrees of immunity—a few days later still a well-marked reaction is established in the adjacent connective tissues. These tissues become infiltrated by young cells which surround, penetrate, and eventually strangle the implanted graft. This reaction of the areolar tissue, with the formation of scar tissue which destroys the implanted epithelium, is similar to the changes produced by the exposure of transplanted growths to the action of radium, to which I will refer later. It is also comparable to the destruction of cancerous emboli in blood-vessels owing to the formation of scar tissue by proliferation from the endothelium, a process which has been observed not only in the lower animals but also in man. By whatever means immunity is induced, at the end of about two or three weeks the graft has disappeared by the activity of phagocytes.

Immunisation by radium has at this time a special interest and needs rather fuller consideration. If a portion of mouse carcinoma be exposed to the action of radium for a period insufficient to produce any structural change, gross or microscopic, and this fragment be subsequently inoculated into other mice, the inoculation fails, no growth takes place. The same result may be obtained in other ways, as, for instance, by breaking up the fragment of growth in a mortar or by exposing it to a temperature of 98·6° F. for 24 hours. In mouse carcinoma which has been already established by inoculation exposure to radium causes some of the tumours to disappear, others continue to develop normally, and a few, perhaps, flourish more actively. Sections taken from the disappearing tumours may show hæmorrhage where the radium had exercised its influence, but the most noticeable change is an active proliferation of the connective tissues, especially at the margin, and an invasion of the parenchyma of the tumours by young fibroblasts. As these complete their development they contract on, strangle, and destroy the epithelial cells they embrace. We have no evidence here of a direct specific effect on the epithelium of the growth which is found to be still actively proliferating. Some experimental observations made for me by Mr. Percival Mills show that similar changes may be induced by exposing the liver of a healthy mouse to the action of radium. The liver cells, as the carcinoma epithelial cells, undergo slight changes, which disappear in a comparatively short time. The connective tissue round the vessels and the endothelium of the vessels show marked activity and proliferation, which remain long after the hepatic cells have returned to their normal condition. We have, then, after the application of radium to implanted carcinoma only a formation of scar tissue, such as may be observed in human lymphatics and blood-vessels invaded by cancerous epithelium, and such as is seen in mice, in whom immunity to inoculation has been induced. Further experiments with radium have shown that cure of an inoculated growth exposed to its rays gives immunity to subseqnent inocnlations of carcinoma similar to that which is obtained from treatment with blood, skin, or other tissues. This immunity is not confined to the particular area involved by the tumonr, but extends to the whole body. The quality of immunity thus induced may have its value in increasing the resistance of the body when once a process of cicatrisation of a malignant growth has been set up in the human tissues by treatment with radium.

Immunity in general terms may be ascribed either to failure on the part of the introduced epithelium to produce its specific action on the living tissues in which it is embedded, or to a change in the connective tissues, which now fail to respond, owing to the action of the immunising agent. This quality of immunity to inoculation has not been transmitted by heredity—the mice born of parents rendered immune are as liable to successful inoculation as are other mice—the mother mouse does not convey any protection through her milk to her offspring—no anti-cancerous serum can be obtained from the immunised animal.

As part of the whole picture I wish to place before you, I have endeavoured briefly to concentrate attention on some of the more important conclusions derived from the interrogation of living tissues by experiment on animals. Experiment has told us much of the growth of cancer, and of the means by which inoculated tumours may be inhibited and cured, but it has nothing yet to tell us of the origin of cancer.

HUMAN RESISTANCE TO MALIGNANT DISEASE.

I would now turn to the second part of my theme, from experimental to pathological and clinical knowledge, both of which afford evidence of the struggle in the human subject between the tissues of the host and the parasite cancer. It is perhaps not clearly recognised that such a struggle exists; the tendency is rather to look upon cancer as a constantly progressive disease, neither halting nor wavering in its course. But there is evidence, both pathological and clinical, that the tissues do resist, that between them and the disease is a real struggle which occasionally ends in spontaneous cure. Striking evidence of this is afforded in the process of lymphatic permeation and subsequent lymphatic fibrosis, graphically described and illustrated by Handley in carcinoma of the breast and elsewhere. The tendency of breast cancer is to spread centrifugally from the primary growth into the lymphatics of the deep fascia around. The cancerous epithelium is observed pushing its way into the lymphatic vessels and extending more or less radially along them, not probably from any inherent attraction by those vessels, but because it finds in them the lines of least resistance. This is lymphatic permeation. With the growth of the epithelium the lymphatic becomes more and more distended until its walls rupture; a little hæmorrhage may occur, and some reaction of the surrounding tissue. As a result fibrous tissue is produced, contraction follows, and the cancerous epithelium is strangled. This is lymphatic fibrosis. Unfortunately, whilst this reparative process is occurring at one part, with resulting formation of a mere fibrous thread, the distal point of the invading epithelium is thrusting still further along the lymphatic, and we have the picture of active invasion at the periphery, with recession and recovery at the proximal part of the lymphatic vessel. Similar resistance may be found in the blood-vessels when cancerous particles become embolised into them, as is most easily demonstrated in the lungs. There tiny emboli may be found free in the blood stream or enclosed in a thrombus, which in part or entirely occludes the vessel. From the intima young connective tissue develops, which surrounds the thrombus, penetrates it, and, finally contracting, destroys the cancerous epithelium, remnants of which may in places be found in the thrombotic mass. Occasionally one of the cancer emboli may survive and grow through the vessel wall into the lung tissue around, producing there a metastasis; but this appears to be quite exceptional. Very large numbers of partially destroyed cancer emboli may be found in lungs when no metastasis visible to the naked eye can be discovered, and a perusal of M. B. Schmidt's work on this subject leads to the conclusion that this destruction of cancer emboli is not a mere accident, not an occasional happening, but a frequent occurrence, multitudes of metastases being thus cut short and prevented. Observations on mouse cancer have shown a similar secluding and destructive process inside the blood-vessels of the lung, another illnstration of the close similarity between the processes found in man and those produced experimentally in animals. What a curious comment on the old idea of cancer as a blood disease is provided by the destruction of cancer emboli in the blood-vessels owing to the endothelial reaction set up by their presence! Or, again, by the immunity against successful cancer inoculation conferred by the injection of blood into a mouse.

The facts just related, together with the blood and lymph vascular arrangements in malignant tumours and the post-mortem findings in patients dead of these diseases, point clearly to the prevention of a large proportion of possible secondary malignant formations owing to the failure of particles separated from the primary tumour to graft themselves on to the tissues in which they are eventually stranded. Did this destruction not occur metastatic formations would be found earlier and in much greater profusion than post-mortem records show in the large majority of cases.

As we pass from microscopic to clinical evidence, we find resistance to cancer quite as clearly shown. Who amongst

us has not felt sore disappointment at the ultimate recurrence of disease in a patient who by lapse of time, say from three to ten years, has been regarded as cured by operative measnres. Some of these late recurrences may be examples of the development of new and entirely independent growths, but this explanation will not apply to others. The locality of the late development, the position it occupies with regard to the operation wound, the microscopic examination of the recurrence, practically leave no doubt as to the relationship between the original tumour and the cruelly disappointing appearance of the sequel. It is hardly possible to avoid the conclusion that minute foci of cancerous growths may lie latent in the tissues for long periods, not dying out entirely, not developing until favourable conditions arise of the nature of which we are at present ignorant. The most striking example of latency in my own experience was provided by a patient whose breast and axillary lymphatic tissue had been removed for carcinoma. Many years of freedom from recurrence appeared to give absolute security; yet 11 years after the operation, when the patient was in advanced age, she returned to show me a mass of carcinomatous glands, some below, others above, the clavicle. The patient was certainly free from evident gland infection at my last examination six years previously, and entertained no doubt as to the development of the gland mischief as late as ten years subsequent to her operation. The only possible explanation of such late recurrence appears to lie in a struggle between minute particles of cancer left at the operation and the tissues in which they are implanted. Resistance is sufficient to prevent development, but not to destroy the minute cancerous focus. Since cancer cells can thus be held in check for years, finally to become active, their eventual destruction in other and more fortunate cases is, to say the least, highly probable. I might, if time allowed, amplify the evidence of resistance to malignant growth by referring to the repair of spontaneous fracture in bones the seat of metastases, or to the disappearance of pressure symptoms when the spinal cord is involved by secondary growths, and so on; but this would not really carry the argument much farther. I suppose that everyone who has closely observed the progress of malignant tumours has been struck by variations in the rate of development, at one time rapid, at another slow, the growth receding in one place, advancing in another.

If the evidence of struggle between the human host and cancer were to end here, the story would indeed have a disappointing conclusion, as we should have to acknowledge final defeat. Happily we can carry the matter further and are able to claim an occasional victory on the part of the tissues over cancer. The occurrence of spontaneous recovery is perhaps oftener cited than verified, but after the most rigid scrutiny not a few cases remain which appear to be conclusive. If we submit these to analysis one of the most striking results is the frequency of recovery in chorion-epithelioma. This tumonr is as intensely malignant as any which affects human beings; it may produce extensive local infiltration and widespread secondary growths, it may destroy life in a few months. If we examine the records of chorion-epithelioma reported to have recovered they appear to satisfy every requirement: portions of the growth were examined microscopically by competent observers, incomplete removal of the primary manifestation was acknowledged, the clinical evidence of secondary formations in the lungs was complete as shown by physical signs, by hæmoptysis, and by dyspnœa. Yet spontaneous restoration to vigorous health followed with complete and prolonged absence of all signs of growth either in the primary or the secondary localities. Speculation on the cause of spontaneous recovery from chorion-epithelioma inevitably recalls to one's mind that it is really an implanted cancer and not one arising primarily in the maternal tissues. It provides, therefore, a parallel to inoculated cancer in mice, which in not a few cases may grow for a time and then disappear without treatment of any kind, whereas spontaneous recovery in mice the subject of carcinoma arising *de novo* is very rare.

Perhaps no more interesting example of apparent spontaneous recovery from cancer is recorded than the classic case observed by Pearce Gould. A woman with recurrent breast cancer, extensive gland infection, nodules in the skin, growth in one femur with spontaneous fracture, and signs of growth in the chest, reduced to death's door by her disease, is found four years later to have lost all signs of malignant growth save shortening of her femnr from the spontaneous fracture. Similar examples of complete recovery are recorded of malignant growths in the abdomen and other parts, but I must not trespass on your indulgence by referring to them in detail.

I would rather draw your attention to a very interesting question relating to patients who show high resistance to, and more or less spontaneons recovery from, carcinoma—this is, Have they acquired an immunising power capable of being transferred to others the subject of cancer? This point, as far as I know, was first raised by Hodenpyl of New York, whose untimely death we have to deplore. He had under observation a patient the subject of carcinoma of the breast with extensive secondary formations. All the lesions disappeared spontaneously, and at the end of four years an extensive chyliform ascites alone remained. Hodenpyl hoped to find in the body fluids of this patient an immunising agent transferable to other human beings. The ascitic fluid was first used experimentally on mice, in which inoculated tumonrs are reported to have disappeared under the influence of the treatment. This led to the tentative use of the same fluid in carcinoma of the human subject, and a preliminary report speaks hopefully of the results attained. The full report will be awaited with interest, but one obvious criticism can hardly fail to be made. Experimental immunity has so far been obtained within very narrow limits, and the alleged successful treatment of mouse carcinoma by a fluid from the human subject appears to contradict practically all that has been hitherto demonstrated with regard to experimental immunity.

Of the absolute nature of the resistance to malignant disease at present we know little if anything. We cannot recognise the factor which heightens or lowers it, whether it be a chemical variation in the tissues or an influence produced through the nervous system, stress or anxiety perhaps exaggerating or exaltation diminishing the activity of the growth.

I think, however, we can recognise one striking feature in the destruction of the cancerous epithelium which is common to the experimental production of immunity, to the disappearance of growths under radium, to spontaneous recessive processes in the human body. This is the active part played by the connective tissues; we have an irritative overgrowth, with hyperplasia and subsequent contraction, which appears to determine the death of the epithelial cell.

TREATMENT OF MALIGNANT DISEASE.

I turn now to the third part of my snbject, and trust, Mr. President, that I shall be pardoned for the demands I have made on the attention of the meeting in thus dwelling on experimental and natural processes in cancer. A just recognition of these appears essential for a sound judgment on the value of our methods of treatment and equally of importance in guiding us to future advances.

When considering the means available for the cure or the amelioration of malignant growths, certain modes of treatment by cancer serums, by drugs, and by enzymes may be disregarded as futile. The X rays have a real field of usefulness in relieving pain, in reducing the activity of inoperable growths, in healing rodent ulcers if we are justified in including these amongst malignant formations. When, however, we examine the absolute curative value of this method of treatment disappointment awaits us; personally I have never known an uneqnivocal malignant growth absolutely disappear under the influence of X rays, though apparently others have occasionally been more fortunate.

Turning to another side of radio-therapy as provided by radium, it is necessary to speak haltingly, to avoid too enthusiastic hopefulness on the one hand, on the other too niggardly an acknowledgment of what radium as yet appears to have effected. We may clear the ground somewhat by immediately accepting radium as curative in rodent ulcer, with this reservation, that the permanence of cure mnst be certified by longer period of time than has yet elapsed in most of the cases treated. This reservation is absolutely necessary from our experience of late relapse after what has appeared to be cure by excision. If we scrutinize the results of treating growths which are undoubtedly malignant, as shown by progressive local invasion and by secondary formations in lymphatic glands or other parts, we

find much that is promising but little that is conclusive. A profound impression is produced in many instances; malignant tumours of large extent and depth may disappear or much diminish. But the improvement and the apparent recovery are apt to be deceptive, and subsequent return of the growth which progresses to the death of the patient appears to be a not infrequent experience. Further, instead of recession a more rapid evolution of the growth with generalisation is not unknown. The difficulties in the way of treating malignant formations by radium are only truly appreciated when we recall the life-history and the methods by which malignant tumours invade local and distant parts. How can we with present methods hope to pursue these successfully with radium? If a patient is the subject of an inoperable tumour we are grateful for the benefit radium may give in the relief of pain, in the cessation of discharge, in the cicatrisation of an open sore, and we should rejoice if cure seems probable. But when called upon to treat patients with operable malignant growths, are we justified in advancing radium as a substitute for excision? Personally, I would not at present take this responsibility. My main objection to the use of radium, even tentatively in such cases, is the constant danger of lymphatic and vascular dissemination which may occur in the period occupied by the treatment. My conclusion would for the present limit radium to the treatment of the least hopeful conditions until much wider experience has been obtained. I believe this will be best in the interest of our patients. It would also be of advantage, for the present, if treatment by radium were left in the hands of the few rather than the many. The cost of a really useful supply of the material, the uncertainty at present of the best methods of application, the real possibilities of doing harm as well as good, all combine to enforce the wisdom of this course. To those who have the means and opportunity I would appeal for the fullest information possible. We need to know their final as well as their immediate results; we want such a description of the minute anatomy of the growth itself and of any secondary infections, together with illustrations if possible, as will leave no doubt in the minds of others as to the nature of the disease treated.

A brief time must be given to consideration of the treatment advocated by Dr. W. B. Coley, especially for sarcoma. His method was based on observation of the occasional cure of ulcerated malignant tumours by an attack of erysipelas. From this Coley has evolved his treatment by the toxins of the streptococcus of erysipelas, intensified by an addition of toxins derived from the micrococcus prodigiosus. I suppose that many of us have administered Coley's fluid during the last few years. Personally, I must confess to having done so in a rather half-hearted way, but Dr. Coley's recent visit to this country, and an opportunity of personal discussion with him, stimulated me to further interest in the matter, and for the past few months I have given his most recent preparation of the toxins a fairly extensive trial, mainly for inoperable sarcoma. Those who have read Dr. Coley's communications and have met him personally will, I am sure, agree with me in regarding him as absolutely honest in the presentment of his case, but the use of the mixed toxins in this country has not given such results as those attained by the originator of the treatment. Cure of sarcoma is occasionally recorded, the microscopic and clinical evidence being such as to demonstrate the malignant nature of the growth, but I am bound to say that such experience as I have made, whilst partially substantiating, does not yet fully confirm the optimistic views presented by Dr. Coley. I have used the toxins prepared under his directions and have endeavoured faithfully to follow his instructions for its use. As far as my observations go no harm has befallen any of the patients treated, though the treatment makes considerable demands on their courage and persistence. In the majority of my cases no improvement has been effected, but in others I can speak of improvement which promises cure if further lapse of time confirms the results at present attained. With such experience as I have made, I could not advise any patient with an operable sarcoma to adopt Coley's treatment, and I would dissuade him from it as a substitute for operation; but if operation were refused, or the growth were inoperable, I would certainly advise the use of the toxins, with the expectation that some patients would be greatly benefited, though at present I am unable to discriminate and say which will benefit and which will not.

With every desire to use all means available which may relieve patients of the distress, anxiety, and possible mutilation which operation inflicts, with the belief that time will provide happier and gentler means than we now possess, I am compelled to say that at the moment we have to rely upon operative measures as the great remedy for malignant disease. Our limitations may be frankly acknowledged. Sometimes owing to inaccessibility, at others to the vital nature of the parts involved, often because of the fact that malignant disease is essentially the disease of advancing age, we are powerless, and sorrowfully have to recognise our impotence. But when all this is accepted a great and expanding field is open to the surgeon. What are the results to which we can point? These may be considered, as they concern the patient's life, and as they promise cure of the disease. First, owing to the teaching of Lister and the constant improvement in technique, the mortality following operation in almost every region of the body has been, and is being, reduced in the most substantial degree. If we consider as an example the removal of the cancerous breast, which we may take as a type of the modern operation for cancer, what do we find? With the very extensive removals now effected a mortality which ought not to be higher than 2 to 3 per cent., and has been by some operators reduced materially below this. If we consider the mortality after removal of carcinoma of the tongue, of the intestine or stomach, or after amputatiou of the extremities for sarcoma, we find a parallel reduction.

But what concerns us most closely is this—if the patient survives operation has he a fair prospect of being permanently relieved of his disease? Without relying upon Volkmann's teaching, that three years' freedom from recurrence implies cure, we may recognise the infrequency of later return of the disease, and, if we assign five years as the period after which recurrence very rarely takes place, we may absolutely accept the curability of cancer by operation. In cancer of the breast there is ample evidence of the truth of this statement, not from the results of one but from those of many operators, some of whom can show that from 40 to 50 per cent. of the cases submitted to operation are cured. The results are not so satisfactory in other regions. If we take, for instance, cancer of the rectum, cure may be attained in a ratio of from 20 to 40 per cent., varying with the experience of the operator and the care with which he selects cases suitable for excision. Unfortunately, only a small proportion of the cases of carcinoma of the rectum is suitable for excision; the large majority at present can only be treated by palliative measures. In epithelioma of the tongue the results are not so good, though a much larger proportion of the cases is submitted to operation.

One could pursue this possibility of cure in practically every region of the body, but I am here only concerned to show in a general way that cure can be effected by operation—a fact not yet, I believe, so fully accepted as it should be by the members of our own profession, and certainly not by the public at large. This at once raises the question, If cure is attained in some cases, why not in many or in all? What are the factors responsible for failure? Or, to put the question in another way, What are the resources we may adopt to better our present results? We need an increased knowledge of the life-history of the various forms of malignant growth and the exact method of extension of each in the various regions of the body. Thus we shall learn whether gland infection is early or late, on which groups of lymphatics to concentrate our attention, which tissues in the locality of the growth must be most widely extirpated. We need also to make our operations as thorough as the conditions permit. Only one real opportunity of cure is offered—it is at the first operation, and this should be pressed to its fullest extent. For instance, in carcinoma of the breast a palliative operation may occasionally be performed for an ulcerated or bleeding growth, but with this exception nothing excuses, in an otherwise healthy patient, a mere excision of the breast for carcinoma without simultaneous extirpation of the lymphatic area which has been shown to be specially liable to invasion. Amputation of the tongue, even in the earliest stage of epithelioma, without extirpation of the appropriate gland area, either at the time or immediately after, is a dereliction of a plain duty. Amputation at the shoulder-joint for a sarcoma high up the humerus, instead of an interscapulo-thoracic amputation, is a positive invitation to local recurrence.

But when we have learnt all that there is to know of the

life-history and extension of malignant growths, when we have adapted our operative measures to the most thorough extirpation possible, we still have left a third factor, more important than either in its bearing on the cure of cancer—early recognition of the disease. In that direction is our great hope for the future. In the earlier stages, before it has interfered with the functions of organs, cancer is generally a silent disease. This is at present our genuine excuse for failure to recognise the disease at its beginning, but the excuse often does not apply. Who amongst the operating surgeons here to-day has not frequently to deplore the time wasted between the first observation of a suspicious symptom—swelling or ulcer—and the removal of the disease, which has been postponed to a time when the expectation of cure is reduced to shadowy proportions. The responsibility for delay falls partly upon us as a profession—we are not penetrated by the firm belief, the certain knowledge, that cancer is curable by operation, and that the early and not the later stages of the disease provide the great opportunity. We fail to urge special methods of investigation by instruments of precision, by radiography, by exploratory incision, or even by prophylactic excision. The responsibility for delay is, however, only partly ours. The public, in dread of a diagnosis of disease for which they still think there is no real remedy, often conceal their fears and their disease until what they dread has come about—a stage of malignant growth almost or quite hopeless of cure. Or, in ignorance of the great benefit which surgery can confer on them, they submit themselves to vampires, who prey upon their credulity, and exploit them in the most cruel manner.

Nothing is more mortifying to the surgeon than to find, after the successful local extirpation of the disease, that his patient is doomed by secondary growths in other parts of the body. Take, as examples, two very diverse conditions—epithelioma of the tongue and periosteal sarcoma of the femur. In the first case the patient remains free of disease in the mouth, to die from gland invasion in the neck; in the second the amputation flaps are free from recurrence, but the patient dies from secondary growths in the lung. The explanation is, of course, the same in both cases—surgical interference has arrived too late. A few months, a few weeks, or even a few days earlier, the secondary invasion might have been anticipated, and a successful local removal converted into a complete and permanent cure of the disease.

I believe it is literally true that if all malignant growths could be excised at a certain stage in their development all could be cured. I have mentioned our great difficulties in the pursuit of this counsel of perfection. For the sake of our suffering race we pray, we hope, that our present limitations will be removed, that means for interrogating the body as to the presence of malignant disease in its early stage will be provided by the ever-increasing band of devoted workers in biological chemistry. Finally, we look forward to a time when the distress and anxiety inflicted by resort to operative measures may be substituted by gentler means provided by the sciences of biology, physics, and chemistry, to which we owe an ever-increasing debt of gratitude.

THE PATHOLOGY OF PROSTATIC ENLARGEMENT.

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THE very multiplicity and diversity of the theories offered in explanation of the pathology of prostatic enlargement are sufficient in themselves to indicate that its etiology is not yet satisfactorily accounted for. The principal views may be grouped under the following headings: gonorrhœal infection; catarrh; secondary sexual changes; neoplasms. But I venture to assert that every surgeon of experience sees too many exceptions to each of these views to be able to accept any one of them as a sufficient cause for this common complaint, met with in all sorts and conditions of men, rich and poor, strong and weak, saint and libertine alike.

Watson and Cunningham, in their important work on the genito-urinary system, say: "Among the many theories advanced to explain the occurrence of senile enlargement of the prostate gland, the only one that can be said to bear close scrutiny, and that is common to all cases, is that of age." But this is not an explanation of the cause of prostatic enlargement. It is one of the facts associated with it. Age *per se* cannot cause it, because the great majority of old men escape it altogether. The opinion most generally accepted is undoubtedly that the enlargement is due to a neoplasm. As Adami puts it: "Hypertrophy of the prostate takes two forms, the most common being perhaps a condition of multiple fibro-myoma, analogous to the fibroids of the uterus, and a more diffuse glandular or adenomatous overgrowth. ..... Probably the myomatous form, if not the adenomatous enlargement, is a true tumour." If we put the adenomatous type as the more frequent, in place of the fibro-muscular, and as the more probable form to be truly neoplastic, this would, I believe, represent the views of most recent writers.

But really the theory that prostatic hypertrophy is a true tumour will not bear scrutiny. Especially in the fibrous variety it is clear that the entire gland is usually involved from the first, the disease affecting it as a whole more after the manner of a chronic inflammatory change; whilst in the adenomatous kind the gland is also generally involved, though the greater part of the enlargement is accounted for by isolated adenomatous overgrowths. There is no essential difference between the two forms. In each there is the same chronic change in the gland, though in one we have the addition of the enucleable adenomatous tumours. Therefore in prostatic hypertrophy we recognise two special pathological processes: (1) a chronic change in the gland, and (2) the presence of enucleable tumours. I regard the second process as a sequence and the first as the essential condition. The enucleable tumours may be, and possibly they are, truly neoplastic; but they are the consequence, and not the cause, of the affection. Multiple adenoma is met with in other glands as well as the prostate, especially the breast and the thyroid; but in my experience they always appear to be secondary to some general change—in the breast to chronic mastitis and in the thyroid to parenchymatous goitre. The very fact that multiple adenomata are present in a gland always suggests, to my mind, that the gland itself was primarily unhealthy.

When examining an enlarged prostate with the microscope it is important to examine especially the tissue between and surrounding the adenomatous growths, as this represents the altered original gland structure. It is too much the practice to have the sections cut from the tumours alone, neglecting the tissue in which they are embedded. The latter consists of altered prostatic gland tissue, in which the principal changes are as follows:—Primarily there is an increased vascularity and leucocytosis, which is accompanied, or shortly followed, by alterations in the stroma and the acini; and according as to whether the energy of the process is expended on the one or the other the variety of hypertrophy is determined. When the stroma is chiefly affected a tough fibrous enlargement results, but when the acini are specially involved cysts and adenomata characterise the hypertrophy.

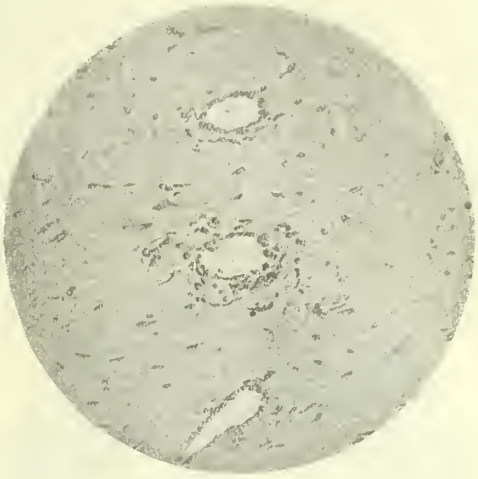
The stroma is always increased. In the first instance it presents a vascular, swollen appearance, with collections of escaped leucocytes, suggestive of a chronic inflammatory state. All the tissue appears to be too well nourished and in a condition of irritation passing on to overgrowth. In most cases the glandular elements respond to this, and quickly assume the leading rôle; but in some the changes in the acini are limited to a catarrhal process with perhaps a little micro-cystic development, or it may be they are shrunken and compressed. In such the stroma alone accounts for the hypertrophy, and both unstriped muscle and fibrous tissue are in large excess. These prostates do not attain a very great size; but they are tough and hard and are difficult to enucleate.

It is, however, when the gland acini are stimulated to overgrowth that the most remarkable changes occur, and the largest sizes are attained. These changes involve a great increase in the acini, such as can only well be compared with the increase which takes place in a lactating breast. At the same time many of the acini individually enlarge, and the growing epithelium forms budding vegetations into them. Others become cystic, the cysts varying in size, but only rarely attaining a greater diameter than half an inch. Micro-cysts are numerous, some of them being lined with flattened epithelium, whilst in others the cells may be elongated and produce vegetations or intra-cystic growths. The climax of these epithelial changes is to produce isolated tracts of overgrowth which are more or less separable from the rest of the

FIG. 1.

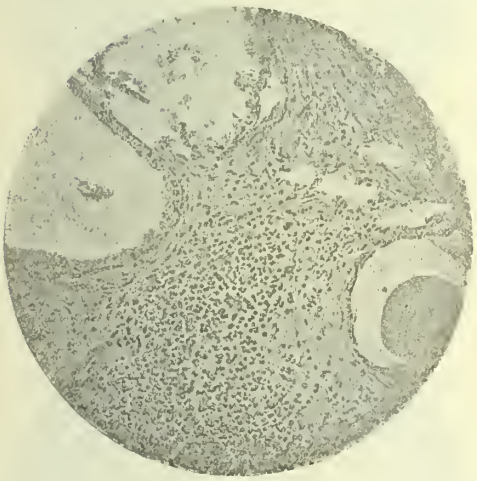
Fibrous hypertrophy of prostate.

FIG. 2.



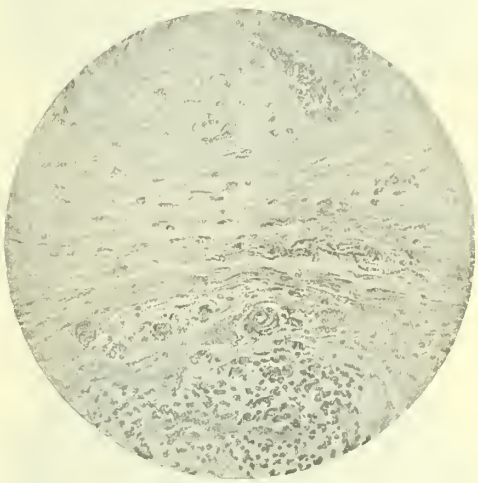
Fibrous involution hypertrophy of breast.

FIG. 3.



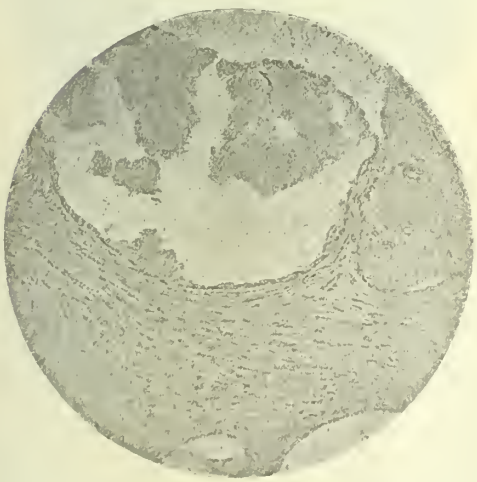
Irritative changes in prostatic hypertrophy.

FIG. 4.



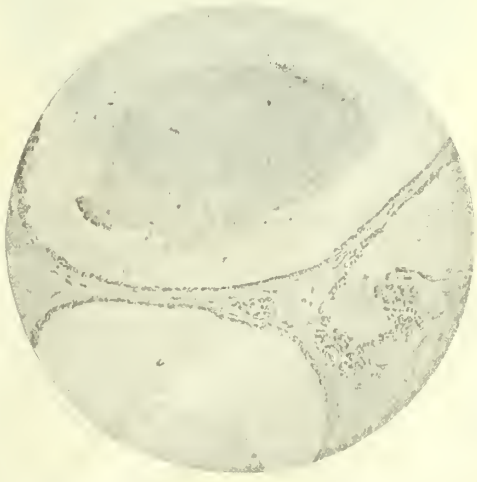
Irritative changes in climacteric breast.

FIG. 5.



Cystic changes with flattening of the epithelium in prostatic hypertrophy.

FIG. 6.



Similar appearances in mammary involution cysts.

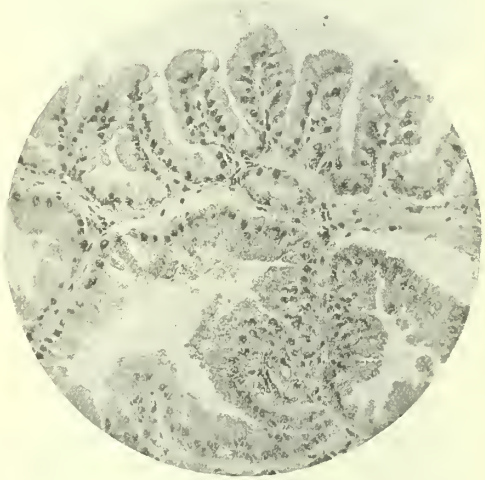
structure, and form the enucleable tumours or so-called adenomata.

These processes, however, are essentially different from those concerned with the growth of a true tumour. All neoplasms, innocent or malignant, at first affect only a small local area of tissue. As the former grow they press the normal structures aside and are always at once recognisable as an adventitious growth, the gland itself being unaltered. Here we have a general pathological change affecting the whole organ and rendering every part of it abnormal. Ultimately, as a secondary process, there is usually a typical over-growth of the secreting elements which assumes tumour-like characteristics. I know of only one true parallel to this in human with micro-cysts in the acini. In these cases a tough, hard, fibrous breast results, comparable with the fibro-muscular hypertrophy of the prostate. In other examples every variety of epithelial activity is present, leading to all forms of overgrowth of acini, frequently including carcinoma, and not rarely adenoma. Ever since I first investigated the microscopical changes in chronic involution mastitis, I have recognised the fact that we meet with micro-adenomata in such breasts. It seems to me that while in chronic involution mastitis one sees a change to carcinoma frequently, and to adenoma only occasionally, in the allied prostatic affection a change into carcinoma is occasional, but to adenoma is so frequent as to overshadow the primary condition altogether.

FIG. 7.

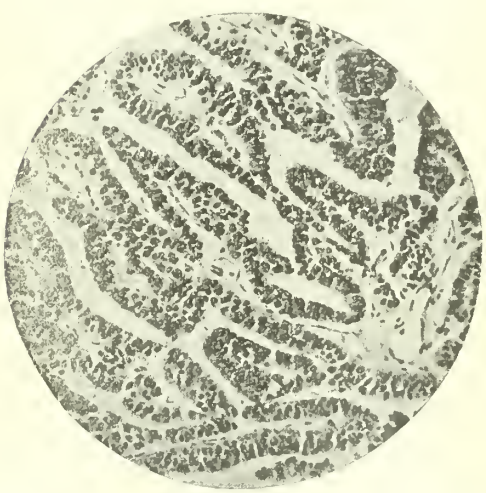
Prostatic cysts with hypertrophic epithelium and intra-cystic vegetations.

FIG. 8.



The same in involution mastitis.

FIG. 9.



Excessive cancerous-like overgrowth of acini in prostatic hypertrophy.

FIG. 10.

The same in involution mastitis.

(All the photographs are of the same magnification, ¼ inch.)

pathology and that is in the involution changes met with in the female breast at the climacteric period. These are very nearly the counterpart of those described as occurring in the prostate. Indeed, so remarkably similar are they that I have often hesitated, on first looking at an unnamed section, whether to ascribe it to a mammary or a prostatic change. In the involution hypertrophy of the breast as in the prostate, the initial change is one of increased vascularity and leucocytosis of the supporting connective tissue of the gland, causing general enlargement and induration. In some breasts the hypertrophic process is limited to the connective tissue, Apart from this important clinical difference, I consider the pathological change in each to be essentially of the same nature. How much they resemble each other histologically is at once appreciated if microphotographs are examined of the two affections in their various stages side by side. (See Figs. 1–10.)

The prostate is an elaborate secreting gland consisting of numerous lobules, each possessing its own duct, the general arrangement being not unlike that of the mammary gland. It is highly vascular, and its stroma is characterised by the large amount of unstriped muscle present in it. It secretes a

fluid destined for the nutrition of the spermatozoa, a sort of culture-medium for them. It is a secondary sexual gland, its evolution being absolutely under the control of the testes. This influence is exerted through the effect of the internal secretion of the latter. Before puberty, that is, until the testes are functionally perfect, the prostate continues in its fœtal condition. It then rapidly enlarges and assumes adult proportions. Castration in early youth prevents the prostate from ever attaining maturity. Castration (double) after manhood causes atrophy of the prostate, though not necessarily or even usually of the hypertrophied organ. Any operation or abnormal condition which leads to the atrophy of both testes, snch as ligature of the testicular vessels on both sides, or cryptorchidism, is also followed by non-development or atrophy of the prostate; whilst any circumstances which affect only one testicle, or which, like vasectomy, only destroy fertility without influencing the internal secretion, in no way interfere with the normal evolution of the prostate. These facts indicate the close dependence of the prostate npon the testes for its normal physiological activity.

It is a matter of common observation that these organs are equally closely associated in unhealthy states, for chronic prostatitis is the most frequent of all troubles associated with sexual irregularities. Any excessive indulgence is sure to be followed by a sense of weight and aching in the perineum, a full and tender prostate can be felt through the rectum, exquisite pain is caused by the passage of a sound, and threads of catarrhal mucus are seen floating in the urine. The prostate is an organ dominated at all times by the testes. When they are dormant it is dormant; evidenced not only by changes at puberty, but by the seasonal changes in animals which are only sexually active at certain periods of the year. When the testes are normally active the prostate follows suit. When they are abnormally excited it suffers from the excess. Is it not, then, reasonable to look for changes in the prostate as the result of the attainment of the climacteric period in men allied to those which occur in women at that time in organs equally influenced by the internal secretion of the ovaries?

Information relating to the influence exerted by the internal secretion of the ovaries upon the mammary glands is less full and exact than in the case of the testes and the prostate—at least from the physiological standpoint. On the pathological side we have naturally more evidence, since the more ready accessibility of the breasts directs attention to every abnormality in them. There is, however, sufficient for our purpose. The breasts, like the prostate, continue in the fœtal condition nntil puberty, when they rapidly undergo a marked evolution in the normal female. When the ovaries are removed during childhood the mammary glands never develop. I have not met with a definite statement as to the effect of double ovariotomy npon the breasts in the adult; but from what little I have seen of such cases, it would support the view that atrophy occurs as in the prostate under allied conditions. In the *Practitioner* for 1901 there is a very interesting paper by Dr. W. E. Dixon, from the laboratories of Cambridge University, in which it is clearly shown that the evolution of the mammary glands depends upon the internal secretion of the ovaries, and that the latter exert a direct influence over the former in some way not entirely understood.

The influence of the ovaries upon the breasts is constantly brought under our notice in medical practice. Every year I see a great many cases of chronic mastitis. Clinically I divide these into three classes—infective, irritative, and involution. The chronic infective cases are rare. They are tubercular, septic, or due to syphilis or actinomycosis. The irritative cases occur in women up to 35 years of age. They are secondary to ovarian irritation, and are particularly common in women who take "precautions" against pregnancy. The involution cases are those that are so frequently associated with the climacteric change. Why the mammary glands should undergo such an erratic struggle at this period it is not easy to say; but it is a fact, for we are all very familiar with the abortive evolutionary changes which take place in them as the menstrual function is coming to an end. Perhaps it is not very wonderful that, as the control of the dominant organ weakens, as that internal secretion which has been so potent is withdrawn, these tissues which have been so subservient throw off allegiance, and run riot for a time before merging themselves in a general senile impotence. There are plenty of instances in nature showing the intensity with which every effort towards reproduction is sustained. It is not the multiparous woman, the mother of a dozen children, in whom we usually meet with involution mastitis, but rather in the spinster, or the sterile wife, or those with the smallest families. The microscopical picture in involution mastitis or hypertrophy is constantly that of an abortive lactation. It is a wild effort towards functional activity, a final flare-up preliminary to inevitable decadence.

How similar is the sequence of events in prostatic hypertrophy! Prostate and breast are each secondary sexual glands similarly influenced by the dominant organs as regards their development, their functions, and their health. When the climacteric period arrives each is liable to a peculiar pathological change. The general features of that change are alike in each, though the naked-eye appearances and ultimate evolution may and do present marked differences. As I said at the commencement of this paper, we cannot accept any of the ordinary explanations of the etiology of prostatic enlargement, because we all see so many exceptions to each theory offered; but it seems to me that every detail fits in with the suggestion that it is an involution change, and is in the male the counterpart of involution mastitis in women.

In conclusion, I snm up the points as follows:—1. The accepted theories as to the canse of prostatic hypertrophy all fail because each can only apply to a limited number of cases. 2. The prostate and the breast are both controlled by their respective dominant sexual glands and respond to their influence in a similar way in health and disease. 3 Both organs are subject to a disturbing influence at the climacteric period, which may, and frequently does, result in a hypertrophic change. 4. In such change the microscopical appearances in the two organs show a remarkable resemblance in all essential details. 5. Prostatic hypertrophy, like the mammary involution hypertrophy, occurs only at the climacteric period, whereas there is no known neoplasm which is so strictly limited to an age-period.

For these reasons I consider prostatic hypertrophy is not due to a chronic inflammation of septic or specific type nor to a neoplasm, but that it is an involution change similar in character to that with which we are familiar in the mammary gland.

Liverpool.

HELMINTHIC INFECTION AND ITS RELATION TO EOSINOPHILIA:

A STUDY BASED ON THE EXAMINATION OF THE FÆCES OF 562 CASES AND OF THE BLOOD OF 102 CASES IN SOUTH CHINA.

BY G. DUNCAN WHYTE, M.B., CH.B. EDIN.

THE work on which this study is founded was undertaken in the first place to ascertain whether the Clonorchis sinensis (syn. Opisthorchis sinensis) is or is not responsible for any degree of eosinophilia. As will shortly be explained, it is difficult to secure an adequate number of cases of unmixed infection with this parasite, and in cases of mixed infection it is not possible to determine exactly what proportion of the eosinophilia is to be attributed to each of the parasites present.

The examination of such text-books as were available (Cabot, Coles, and the volume on "Blood" in Nothnagel's System), and numerous books on medical diagnosis, all showed references to intestinal parasites as a cause of eosinophilia, but practically gave no idea as to the average degree of eosinophilia to be expected in various infections. In the medical journals differential blood counts were occasionally given in reports of parasitic infection, but as a rule too few cases were reported upon by any one observer to form an adequate standard for comparison.

In view of the absence of available facts I was compelled to undertake a series of examinations myself, and to compare two series of groups of cases that only differed from one another by Clonorchis sinensis being present in the one series and absent from the other. By this means one was able to show that this parasite has little, if any, influence on the degree of eosinophilia. It was felt that the results of this study might be of interest to others, so the facts, somewhat rearranged, are herewith submitted.

Before giving the tables embodying these results it is

TABLE I.—*No Parasite.*

Years of age.	Affection.	Asc.	Tric.	Ank.	Clon.	W.B.C.	P.	L.	M.	E.	T.	Eosinophiles per c.mm.
							Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
41	Stop opium.	—	—	—	—	12,000	84·6	11·0	4·0	0·0	0·4	0
55	Dyspepsia.	—	—	—	—	4,600	62·2	29·4	7·0	1·0	0·4	46
43	Fistula in ano.	—	—	—	—	4,800	60·4	31·4	6·6	1·0	0·6	48
50	Entropion.	—	—	—	—	6,000	69·0	19·4	5·6	6·0	0·0	360
42	Dyspepsia.	—	—	—	—	3,850	55·3	34·6	7·0	2·6	0·3	100
21	Anæmia.	—	—	—	—	7,500	60·6	31·6	3·0	4·6	0·0	345
40	,,	—	—	—	—	3,500	62·3	26·6	6·0	4·3	0·6	150
	Average of the seven cases					6,040	65·0	26·3	5·6	2·8	0·3	150

TABLE II.—*One Parasite.*

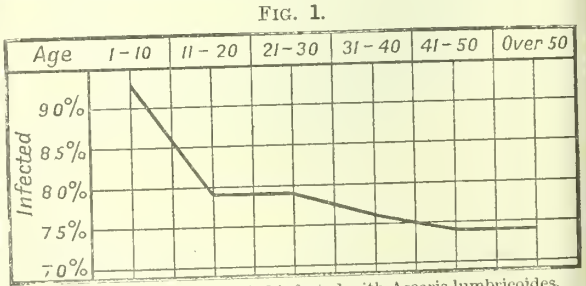
Years of age.	Affection.	Asc.	Tric.	Ank.	Clon.	W.B.C.	P.	L.	M.	E.	T.	Eosinophiles per c.mm.
							Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
23	Healthy.	—	—	—	P	6,700	54·6	27·0	7·0	11·0	0·4	737·0
40	Phthisis.	—	—	—	P+	4,100	82·8	6·6	8·8	1·4	0·4	57·5
48	Syphilis.	—	—	—	P	10,000	66·8	25·8	3·2	4·2	0·0	420·0
36	Fracture.	—	—	—	P+	8,200	40·0	47·8	6·6	5·4	0·2	442·8
10	Syphilis.	P	—	—	—	18,000	72·6	20·0	6·3	1·0	0·0	180·0
18	Tuberculous hip.	P+	—	—	—	8,600	59·8	26·0	5·6	7·8	0·8	670·0
20	Healthy.	P++	—	—	—	8,200	50·8	36·2	6·4	6·6	0·0	541·0
37	,,	P++	—	—	—	6,600	51·6	43·6	3·6	1·0	0·0	66·0
20	,,	P	—	—	—	16,000	61·0	22·3	8·0	8·6	0·0	1376·0
25	Phthisis.	P++	—	—	—	10,600	65·6	22·6	5·6	6·0	0·0	636·0
48	,,	P++	—	—	—	13,700	75·0	14·6	8·3	2·0	0·0	274·0
16	Healthy.	P+	—	—	—	10,700	50·0	34·6	4·0	11·3	0·0	1269·0
42	,,	P	—	—	—	6,800	61·0	22·0	1·3	15·6	0·0	1060·0
34	,,	P+	—	—	—	4,100	58·0	27·6	4·0	10·3	0·0	422·0
15	Bronchitis.	P+	—	—	—	7,900	40·3	38·3	8·0	13·3	0·0	1051·0
36	Leucoma.	P+	—	—	—	7,400	53·0	34·6	7·0	5·3	0·0	392·0
26	Healthy.	—	P	—	—	5,000	39·4	34·0	9·0	17·2	0·4	860·0
31	Stop opium.	—	P	—	—	11,500	54·6	27·3	8·6	9·3	0·0	1069·0
60	Entropion.	—	P	—	—	3,100	58·3	28·3	3·6	9·6	0·0	287·0
27	Necrosis.	—	—	P	—	15,000	71·3	18·3	5·3	3·3	1·6	495·0
33	Dyspepsia.	—	—	P	—	6,400	53·4	32·2	8·2	6·2	0·0	397·0
26	Anæmia.	—	—	P	—	6,300	46·0	37·0	13·5	3·5	0·0	220·0
36	,,	—	—	P	—	4,500	57·0	26·0	8·6	8·0	0·3	360·0
29	Ankylostomiasis.	—	—	P+	—	9,800	43·0	20·6	10·0	26·0	0·3	2548·0
	Average of the 24 cases					8,700	57·3	28·0	6·5	8·0	0·2	702·0

necessary to say a few words on the marked degree of helminthic infection found amongst the samples of population dealt with. Those examined included hospital patients, medical students, schoolboys, coolies, &c.

In only 2·1 per cent. out of 512 cases examined do the fæces fail to show the ova of one parasite or another. It is probable that this percentage, small though it be, overstates the number of people free from parasitic infection, since parasites may be present, although for any of the three following reasons the eggs are not found: 1. The presence of only male or immature worms. 2. The very small degree of infection. This does not apply to cases of infection with female round worms, in which at least six eggs may be found when only one adult is present; but in the case of Trichocephalus trichiuris and Ankylostoma duodenale a second slide may occasionally show ova where the first failed to do so. Possibly a third slide may show eggs not found in the first two. 3. In the case, at least, of ankylostomes there is occasionally a suspension of conjugation and "egg-production." The degree of infection is shown not only by the smallness of the percentage free from parasites, but also by the large percentage (90 per cent.) in which at least two varieties of parasites were present. Of the farmers 50 per cent. showed simultaneous infection by at least three species of parasite. A note may be added on each of the parasites referred to in the tables.

Ascaris lumbricoides was found in 76 per cent. of the cases, and was equally prevalent among students, merchants, and farmers. The age-incidence is shown in Fig. 1. Reference

FIG. 1.



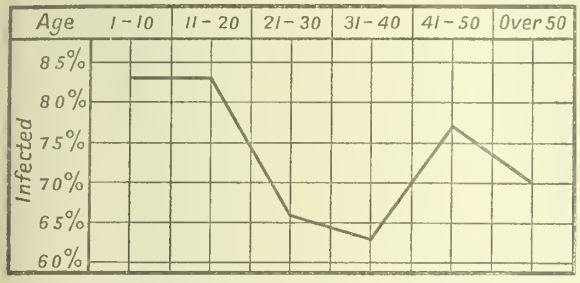
Percentage at each age-period infected with Ascaris lumbricoides.

may be made to the unfertilised egg of the adult female worm. It was found sometimes by itself, and sometimes along with the "ordinary" ascaris egg.

No. of cases with ascaris.	Showing "ordinary" egg only.	Showing unfertilised egg only.	Showing both forms of eggs.
403	42 per cent.	13 per cent.	45 per cent.

Trichocephalus trichiuris (syn. T. dispar) was found in 72·6 per cent. All classes were equally infected by it. The age-incidence is shown in Fig. 2. The relation

FIG. 2.



Percentage at each age-period infected with Trichocephalus trichiuris.

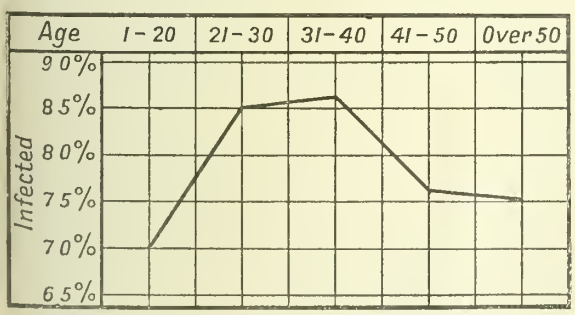
of Trichocephalus trichiuris to appendicitis is a question which is raised from time to time by surgeons and pathologists in different parts of the world. It would be absurd to deny that occasionally the perforation of the mucous membrane of the appendix by this parasite may afford a foothold to pyogenic organisms, but, in view of the wide prevalence of this parasite in South China and the extremely rare occurrence of appendicitis there, it is obvious that these two conditions can only rarely be causally related. Specimens of this parasite were expelled in about 15 per cent. of such cases of ankylostomiasis as were treated with thymol.

Ankylostoma duodenale and *Uncinaria americana*.—One or other of these parasites was found in 60·4 per cent.; both were often present in the same individual. In the following tables no effort has been made to differentiate between infections due to either or to both of these parasites. A most striking fact brought out by these fæcal examinations is the large proportion of farmers infected with this parasite, doubtless due to their working continually with their feet immersed in the mixture of mud and diluted fæces in which rice is grown. It is probably the degree of dilution that saves the farmer from the "ground-itch" which frequently precedes ankylostomiasis in other parts of the world. The prevalence of this parasite among farmers is shown in the following table, in which, by way of contrast, the figures showing infection with Clonorchis sinensis are also given.

Occupation.	Infection with Ankylostoma duodenale.	Infection with Clonorchis sinensis.
Leisure	45·6 per cent.	42·1 per cent.
Miscellaneous ...	53·3 ,,	40·0 ,,
Business	57·7 ,,	40·0 ,,
Artisans	66·6 ,,	11·0 ,,
Farmers	74·5 ,,	13·8 ,,
Burden-bearers	76·2 ,,	0·0 ,,

The age-incidence is shown in Fig. 3. The average amount of hæmoglobin shown by patients suffering from ankylostomiasis was 43 per cent., the figures ranging from 25 to 60 per cent. As evidence of the fact that one may have infection with ankylostomes without "ankylostomiasis," it may be noted that several infected cases had from 70 to 90 per cent. hæmoglobin; this may be compared with Leonard Rogers's statement that 60 per cent. hæmoglobin may be considered a normal standard for the vegetarian natives of tropical climates.

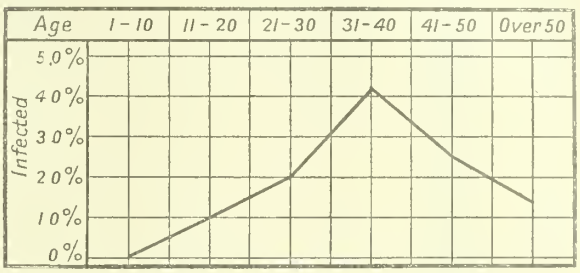
FIG. 3.



Percentage of farmers at different age-periods infected with Ankylostoma duodenale or Uncinaria americana.

Clonorchis sinensis.—This parasite was found in 16 per cent. out of 267 cases examined at Chao-chow-fu, but only in 2 out of 295 cases in the hospital at Suabue, of which I was subsequently in charge. Both these cases were imported from the Chao-chow region. The natives of both regions have the same dietetic and other habits. The occupation incidence has already been dealt with; the age-incidence amongst non-farmers is shown in Fig. 4.

FIG. 4.



Percentage of non-farmers in the Chao-chow region infected with Clonorchis sinensis.

In the accompanying tables, P in any column represents from 1 to 10 eggs of that parasite found in the examination of a layer of diluted fæces covered by a 1½ inch by 1 inch cover-slip; P+ from 11 to 60 eggs; and P++ more than 60 eggs. It is obvious that no approach to scientific accuracy can be made by the examination of an unmeasured quantity of fæces diluted to an undetermined extent; but it is equally obvious that such a statement as "The presence of 50 ankylostome eggs per c.mm. was found to correspond to an infection with 200 worms," while doubtless true of one particular patient on a specified diet, would not be true, even of the same individual, if fed on a diet that left a greater or less bulk of unabsorbed residue. A more accurate result might be obtained if the motion were weighed, and the eggs enumerated in a definite fraction of this weight, but even then fallacies would occur owing to the non-uniform admixture of eggs with the remaining constituents, and to other obvious causes.

As regards that part of the accompanying tables dealing with the state of the blood, little explanation is required. A Thoma-Zeiss hæmocytometer was used, 1 part blood being diluted with 99 parts of an acetic acid solution of methyl violet. With the help of an Ehrlich's eye-piece the slide was examined till an area representing 6000 small squares had been dealt with. About half these enumerations were made by my assistant, Kuan Hien-Theng, who also prepared and stained most of the films. The remaining enumerations and all the differential counts—based on the examination of 300 or 500 cells—were made by myself, thus eliminating errors due to different personal equations. The simplest and most elementary classification of leucocytes has been used in these counts, because their object was not a detailed examination of the blood but simply a study of eosinophilia. For further simplification "transitionals" have frequently been included under "mononuclear." Various factors are liable to minimise the value of a study of eosinophilia, but as these have recently been dealt with elsewhere[1] further reference need not be made to them in this article.

Conclusions.

In conclusion, let us look at the influence of various conditions upon the degree of eosinophilia.

1. *Influence of number of varieties of parasite.*—As one advances from table to table the percentage of eosinophile

[1] Filarial Periodicity and its Association with Eosinophilia, by G. Duncan Whyte, Journal of Tropical Medicine, June 15th, 1909.

TABLE III.—*Two Parasites.*

Years of age	Affection.	Asc.	Tric.	Ank.	Clon.	W.B.C.	P.	L.	M.	E.	T.	Eosinophiles per c.mm.
							Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
44	Entropion.	—	P	—	P	11,800	41·0	38·4	6·8	13·6	0·2	1604·0
24	Healthy.	—	P	—	P	7,200	69·8	21·0	4·8	4·4	0·0	316·8
46	Entropion.	P+	—	—	P+	6,200	58·6	27·2	5·0	8·6	0·6	533·0
25	Healthy.	P+	—	—	P+	11,400	53·2	34·2	5·0	7·4	0·2	844·0
25	Hæmorrhoids.	P+	—	—	P+	10,800	50·0	32·6	5·6	11·6	0·2	1253·0
15	Healthy.	P	P	—	—	15,800	46·0	28·2	5·2	20·2	0·4	3191·6
17	Leg ulcer.	P	P+	—	—	16,600	39·0	41·4	6·6	12·8	0·2	2124·8
36	Entropion.	P+	P	—	—	12,200	67·0	18·4	5·4	9·0	0·2	1098·0
17	Fracture.	P	P	—	—	8,200	66·8	21·2	6·0	5·6	0·4	517·0
30	Syphilis.	P+	P	—	—	7,200	67·0	20·0	5·0	7·0	1·0	504·0
48	Healthy.	P++	P	—	—	16,800	48·0	34·0	7·0	11·0	0·0	548·0
15	,,	P+	P	—	—	9,000	40·0	41·6	6·6	11·6	0·0	1044·0
15	Dyspepsia.	P++	P	—	—	15,700	39·6	41·0	4·6	14·1	0·0	2292·0
56	Entropion.	P+	P	—	—	8,600	66·3	25·6	3·6	4·3	0·0	370·0
43	Fistula in ano.	P	P	—	—	8,900	59·6	32·6	2·3	5·3	0·0	472·0
24	Leg ulcer.	P++	P	—	—	6,300	44·0	44·0	3·0	9·0	0·0	567·0
48	Mitral incompetence.	P+	P+	—	—	7,500	78·0	17·3	2·3	2·3	0·0	173·0
30	Anæmia.	P	—	P	—	8,800	44·8	43·0	8·8	3·2	0·2	282·0
13	Keratitis.	P+	—	P	—	16,000	47·5	31·3	4·5	16·7	0·0	2680·0
30	Leg ulcer.	P++	—	P+	—	7,800	52·0	20·0	5·3	22·3	0·3	1583·0
39	Leg ulcer.	P	—	P+	—	6,000	51·0	22·0	7·3	19·0	0·6	1140·0
39	Syphilis.	P	—	P+	—	6,200	51·6	26·0	7·0	15·0	0·6	930·0
28	Ankylostomiasis.	P++	—	P+	—	9,800	58·3	24·3	5·6	11·3	0·3	1007·0
23	Bronchitis.	P+	—	P	—	9,100	53·0	25·0	8·8	13·3	0·3	1210·0
32	Phthisis.	P++	—	P	—	15,600	70·0	16·6	10·6	2·6	0·0	406·0
29	Anæmia.	P+	—	P	—	3,400	57·6	36·3	3·3	2·6	0·0	88·0
33	Leg ulcer.	P	—	P	—	4,950	57·6	29·6	3·6	9·0	0·0	446·0
48	Entropion.	—	P+	P+	—	7,500	78·0	17·3	2·3	2·3	0·0	173·0
51	Entropion.	—	P	P	—	7,600	65·0	22·6	4·8	7·2	0·4	547·0
27	Anæmia.	—	P	P+	—	4,700	42·4	33·6	8·4	15·2	0·4	714·0
34	,,	—	P	P	—	4,400	43·6	26·0	8·6	21·8	0·0	959·0
40	Leg ulcer.	—	P	P	—	12,000	60·3	27·6	5·6	6·0	0·3	720·0
28	,,	—	P	P	—	10,100	40·0	38·6	4·6	16·6	0·0	1677·0
34	Aortic stenosis.	—	P	P	—	4,000	49·0	36·0	7·0	7·0	1·0	280·0
36	Healthy.	—	P	P	—	12,500	53·0	30·6	6·0	10·3	0·0	1288·0
48	Fracture.	—	P	P	—	5,200	69·0	21·6	2·6	6·6	0·0	343·0
22	Healthy.	—	P	P	—	10,500	31·3	30·3	3·3	35·0	0·0	3675·0
	Average of the 37 cases					9,360	54·2	29·2	5·6	10·8	0·2	1968·0

cells, as well as the number of such cells per cubic millimetre, progressively increases. This is well shown in Fig. 5.

FIG. 5.

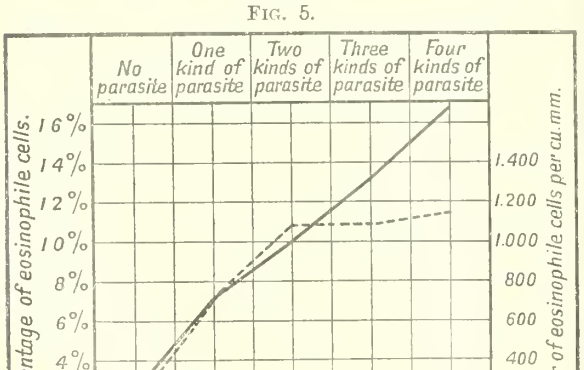


Chart showing degree of parasitic infection. Continuous line shows percentage of eosinophile cells; dotted line shows number of eosinophiles per cubic millimetre.

If one distrusts the value of the "average" as given in the tables and in Fig. 5. the following table may be studied. In this the cases from each table have been arranged into groups according to the degree of eosinophilia manifested. The group containing the largest number of cases from each table has been indicated in each instance, so that one can see at a glance that the progressive rise in the average does not depend on the chance occurrence of a few extraordinary cases, but upon an increasing frequency of moderately higher degree of eosinophilia.

—	0·0–3·3 per cent.	3·4–6·6 per cent.	6·7–9·9 per cent.	10·0–13·3 per cent.	13·4–16·6 per cent.	Over 16·6 per cent.
Table I.	4	3	—	—	—	—
Table II.	5	7	5	4	1	2
Table III.	5	6	8	7	5	6
Table IV.	1	4	7	5	3	6
Table V.	—	2	1	1	1	8

2. *Influence of total number of individual worms.*—I have based my opinion on this question upon the number of cases in which more than ten eggs of more than one worm were found in examining a slide (i.e., the occurrence of P+ or P++ in more than one column). These cases selected from each table showed on the average 119 per cent. of the average eosinophilia for the whole table. On the other hand, those cases in each table which had only P or not more than

TABLE IV.—*Three Parasites.*

Years of age.	Affection.	Asc.	Tric.	Ank.	Clon.	W.B.C.	P.	L.	M.	E.	T.	Eosinophiles. per c.mm.
							Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
27	Dyspepsia.	P+	P	—	P	10,200	73·2	17·2	4·6	4·4	0 6	449
16	Entropion.	P+	P	—	P	11,200	44·6	45·2	6·4	3 6	0·2	403
28	Corneal ulcer.	P++	P	—	P	8,200	63·0	22·8	5·4	8·4	0·4	689
35	Phthisis.	P++	P	—	P	10,800	70·8	19·6	7·8	1·0	0·8	108
35	Syphilis.	P+	P	—	P+	8,800	63·6	23·2	4·8	8·4	0·0	739
27	Healthy.	P	—	P	P+	8,000	44·0	40·0	6·0	10·0	0·0	800
45	Necrosis.	—	P	P	P	5,800	74·8	12 8	5·4	7·0	0·0	406
49	Dysentery.	—	P	P+	P	8,100	61·0	26·8	5·0	7·0	0·2	567
41	Healthy.	—	P	P+	P	6,500	46·0	23·8	9 2	20·4	0·6	1326
26	,,	—	P	P	P	10,400	62·6	29·2	2·4	5·4	0·4	562
52	Entropion.	—	P	P+	P	8,800	74·6	14·4	5·4	5·4	0·2	475
5	Catarrh.	P+	P	P	—	7,600	62·0	20·8	5·6	11·6	0 0	882
33	Bronchitis.	P	P+	P	—	6,800	61·8	24·0	7·2	6·8	0·2	462
27	Adenoma.	P+	P	P	—	3,600	63·8	17·8	9·0	9·0	0·4	324
9	Fracture.	P++	P++	P	—	13,600	42·2	43·0	5·6	8·6	0·6	1170
25	Healthy.	P+	P	P	—	9,000	43·2	34·8	6·6	15·2	0·2	1368
24	Dysentery.	P	P	P	—	8,600	64·0	13·2	5·1	17·5	0·2	1505
27	Mitral incompetence.	P	P	P+	—	5,400	48·6	19·0	7·0	25·3	0·0	1368
31	Ankylostomiasis.	P++	P+	P+	—	6,100	53·0	15·6	6·0	25·3	0·0	1543
38	Anæmia.	P+	P	P	—	11,400	59·0	21·3	5·6	14·0	0·0	1596
62	Ankylostomiasis.	P	P	P+	—	12,900	66·6	20·3	2·6	10·3	0·0	1329
30	Leg ulcer.	P+	P	P+	—	5,000	61·3	20·3	5·6	12·6	0·0	630
30	Anæmia.	P+	P	P	—	2,800	37·5	44·5	5·0	13·0	0·0	364
19	Syphilis.	P+	P	P	—	11,500	56·6	18·0	5·6	19·6	0·0	2254
40	Syphilis.	P+	P	P++	—	9,000	56·0	24·3	4·0	15·6	0·0	1404
21	Corneal ulcer.	P+	P	P+	—	8,700	40·8	24·3	7·0	26·4	1 5	2297
	Average of the 26 cases....					8,415	57·5	24·5	5·8	12·0	0·2	963

TABLE V.—*Four Parasites.*

Years of age.	Affection.	Asc.	Tric.	Ank.	Clon.	W.B.C.	P.	L.	M.	E.	T.	Eosinophiles per c.mm.
							Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
29	Symptoms of gangrene.	P+	P	P	P+	5,000	25·6	19·2	4·8	49·6	0·8	2480
23	Adenoma.	P+	P+	P	P	12,800	82·6	8·0	4·0	5·4	—	691
40	Tuberculous ankle.	P++	P+	P	P	13,200	78·8	10·6	4·2	6·2	0·2	819
19	Fracture.	P++	P+	P	P	5,600	47·0	24·4	6·6	21·6	0·4	1,210
27	Ankylostomiasis.	P+	P+	P++	P	4,600	66·4	16·8	7·0	9·8	—	451
42	Entropion.	P++	P	P	P+	4,000	44·6	32 8	5·8	16 8	—	672
25	Syphilis.	P+	P	P	P	8,900	61·6	23·0	5·0	10·0	0·4	890
44	Chronic rheumatism.	P++	P	P	P	13,800	54·2	26·6	4·4	14·8	—	2,042
	Average of the eight cases					8·500	57·6	20·2	5 2	16·8	0·2	1,157

one P+ or P++ showed only 90 per cent. of the average eosinophilia for the table.

3. *Influence of the age of the individual.*—In studying this question the individuals in each table may be divided into three groups, and the average eosinophilia of the cases in each group may be expressed as a percentage of the average for the whole table. The average of the percentages thus obtained for each age period in each table is as follows: Those over 40 years of age average only 84 per cent.; those below the age of 20 years 103·4 per cent.; while those between 21 and 40 years reach 115·4 per cent. In confirmation of the conclusion thus obtained it may be stated that 80 per cent. of those aged 40 years or over showed a less degree of eosinophilia than the average for the cases in that table.

4. *Influence of tuberculosis.*—In a manner similar to that already explained the eosinophilia of the tuberculous cases in each table is expressed as a percentage of the eosinophilia in the whole table. The tuberculous cases average only 40 per cent.

Summary.

The more varieties of parasite that infest a man, and the more numerous the individuals of each variety, the greater degree of eosinophilia he is likely to show. This will be especially marked if he is between 20 and 40 years of age, and will be less noticeable if he is older or is suffering from some form of tuberculosis.

Explanation of Abbreviations in Tables.

The abbreviations at tops of columns in the tables are explained as follows: Asc.=Ascaris lumbricoides Tric.=Trichocephalus trichiuris. Ank.=Ankylostoma duodenale. Clon.=Clonorchis sinensis. W.B.C.=Number of white blood cells per cubic millimetre. P=Polymorphonuclear neutrophile cells. L=Small lymphocyte cells. M=Large lymphocyte cells (mononuclear). E=Eosinophile cells. T.=Transitional cells. The last column shows the number of eosinophile cells found in 1 cubic millimetre of blood.

A CASE OF VOLVULUS OF THE CÆCUM AND ASCENDING COLON.

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THE rarity of volvulus of the cæcum affords sufficient justification for recording the present case.[1]

The diagnosis is so difficult, without opening the abdomen, that practically it is never made except by operative or by post-mortem inspection. A history of previous constipation and sometimes of previous similar attacks may perhaps be met with, in addition to the vomiting, pain, metcorism, and constipation present, as well as more or less suddenness of onset. But such history and symptoms are found with stricture of the colon and other causes of intestinal obstruction, and even if well-marked early and local meteorism should lead to a strong suspicion of volvulus there is probably no trustworthy means of differentiating between volvulus of the cæcum and the reputedly less rare condition of volvulus of the sigmoid[2]; for the tumour in both cases appears more often in the left than in the right side of the abdomen; both conditions are more common in men than in women; the age incidence alone appears to be somewhat different, volvulus of the sigmoid, according to Sir Frederick Treves,[3] occurring most frequently between the ages of 40 and 60 years, whereas volvulus of the cæcum, according to Mr. Corner and Mr. Sargent,[4] occurs most frequently between the ages of 20 and 40 years, though no decade is exempt. Most cases are fatal within a week, from septic peritonitis and toxæmia, though some have lasted over a fortnight before general peritonitis, usually following gangrene and perforation, has proved fatal.

Volvulus of the cæcum appears, from the descriptions—often meagre—of recorded cases, to occur in several different forms. Perhaps the commonest is that in which the cæcum, together with more or less of the ascending colon, moves across the abdomen in the coronal plane of the body until it reaches the left hypochondrium or, less frequently, the epigastric, the left lumbar, or some other region. The cæcum thus travels in the arc of a circle whose centre is about the middle of the ascending colon, and whose radius is formed by the proximal half of the ascending colon. This movement of the colon is accompanied by some degree of rotation around its own axis, by means of which the anterior surface of the cæcum becomes superior and ultimately posterior. The effect is an acute kinking, with more or less torsion, of the colon, and in some cases also occlusion of the ileo-colic artery and vein, resulting in gangrene of the whole of the affected portion of the bowel.

In other cases the bending of the cæcum, together with some of the proximal portion of the ascending colon, is forwards in the sagittal plane of the body, so that the caput coli comes to lie upside down in the right hypochondriac or in the right lumbar region, its anterior surface becoming posterior. In a third group the twisting takes place round an axis formed by the vessels of the meso-colon, and so a loop becomes strangulated, consisting of the commencement of the large and the termination of the small intestine.

To these three forms of volvulus an abnormally long meso-colon, allowing of more than ordinary mobility of the cæcum, seems to be a necessary precedent condition.

In another group of cases the rotation is around an axis represented by the lumen of the ascending colon without any great movement across the abdomen. The torsion may take place, as in the case now reported,[5] at some part of the ascending colon. It then tends to occlude the right colic artery and vein, as well as the ileo-colic vessels, whilst the termination of the ileum is necessarily carried round the ascending colon, and helps in its strangulation. Or the torsion may take place at the junction of the cæcum with the colon, and in that case there seems to be a tendency for the cæcum, probably being unusually large, to fall into the pelvis.

Lastly, cases are described as being produced by twisting of the cæcum and part of the ascending colon round a coil of small intestine, but in some, at least, of these it is pretty clear that the condition was really (as in the present case) that of twisting of the terminal portion of the ileum round the commencement of the large bowel, a condition that must inevitably be produced where torsion in the axis of the ascending colon progresses to the extent of one complete rotation.

CASE.[6]—A married woman, aged 54 years, was admitted into the Sheffield Royal Hospital at 4 P.M. on Jan. 22nd, 1905.

History.—The patient had been comparatively well until to-day. For a few days she had been somewhat costive, but the bowels had acted each day, with some straining; on one occasion, three days ago, she had to assist defæcation with her fingers. She went to bed last night feeling quite well. She awoke in the morning at 8.30, got out of bed and micturated. On returning to bed she was soon seized with pain in the abdomen about the umbilicus. It was at first intermittent, but afterwards became continuous. At the same time the abdomen began to swell and had continued to do so ever since. The pain grew worse and was much increased by movement. She vomited a little twice in the afternoon—once after taking ground ginger and once after milk. The bowels also acted slightly twice. About 1 P.M. she sent for a medical man and was seen at 3 P.M. by my colleague, Mr. H. Lockwood. His first impression on exposing the abdomen was that the patient was pregnant and near term. On ascertaining her age and the arrival of the menopause he passed a catheter and drew off a few ounces of clear urine. Then, thinking there must be some abdominal catastrophe, such as rupture or torsion of an ovarian cyst, he sent her to the hospital.

Condition on admission.—The patient looked dull and depressed, but had not a typical abdominal face. Tongue dry in the middle, moist and clean at the sides. Pulse 84, respirations 24, temperature 98° F. Heart: apex beat in nipple line, fifth space; faint systolic apex bruit. (She had once been in the hospital, under my colleague, Dr. Arthur Hall, for rheumatic fever.) Lungs: nothing abnormal noted. Abdomen: greatly distended in hypogastric and umbilical regions, extending to left more than to right, looking very much like a seven months pregnancy, but more prominent. (Menstruation ceased four years ago, but for the past few weeks there had been an offensive discharge from the vagina.) At intervals the patient groaned, and then the distended part felt harder, like a tumour, but it was resonant all over. At other times it felt more soft and yielding and was then slightly movable. There was no visible peristalsis. The recti were somewhat separated. Liver and spleen: not apparently enlarged. Uterus and vagina: the vagina was smooth and the cervix felt to have disappeared and been replaced by a puckered cicatrix. Rectum: a little soft fæcal matter was present.

Diagnosis.—Phantom tumour, due to distension of a portion of bowel by flatus, without organic disease, was suggested, but the greatness of the distension was held to negative such a diagnosis. Physometra, suggested by the abnormal state of the cervix and the history of a foul-smelling vaginal discharge, was not confirmed by any apparent connexion between the cervix and the tumour. Volvulus, probably of the sigmoid, seemed to be the most likely condition, though the absence of absolute constipation was against it. The suddenness of onset, following sudden movement of the body, the high degree of distension, and the physical characters and localisation of the tumour were strongly in its favour.

Treatment.—With the diagnosis of volvulus it was deemed unwise to give a large enema, and immediate laparotomy was advised as the most reasonable means of affording relief or cure. This advice was accepted by the patient and her husband, and about an hour later—viz., at 8.30 P.M.—chloroform was administered. Anæsthesia was not readily induced, the patient struggling and screaming, and then vomiting a little clear fluid. (Her husband afterwards told us that her habits had been very intemperate with regard to alcohol.) When muscular relaxation had occurred, it was found that the tumour was much less prominent than it had been, and that it could be displaced to the right side of the abdomen. A rectal tube was therefore passed, and a little flatus escaped. Before the cutting operation was commenced the face of the patient became grey and she vomited. The pulse and respiration at once stopped and the pupils dilated. Artificial respiration was immediately resorted to and the head lowered, but in spite of such means, together with compression of the heart through the parietes, the patient died. Palpation of the abdomen immediately after death revealed nothing fresh, except the feeling of a band across the right side of the lower abdomen.

Necropsy.—A post-mortem examination was made the next day. The abdomen still presented a resonant tumour in the centre. Larynx and trachea normal. The bronchial tubes contained some mucus but no vomit. Lungs normal. Heart: left ventricle somewhat hypertrophied; atheroma of first part of aortic arch, with patches near the origins of the coronary arteries; valves competent. The pericardium presented some white patches. On opening the abdomen an enormous coil of

[1] In a paper on the subject in the Annals of Surgery (vol. i., 1905, p. 63) Mr. E. M. Corner and Mr. P. W. G. Sargent have collected but 57 cases from literature extending over many years.

[2] Sir Frederick Treves (Intestinal Obstruction, new edition, 1899, p. 7 and p. 135) and most other authorities speak of volvulus of the sigmoid as being the least rare of all the forms of volvulus of the bowel, but Mr. G. H. Makins (THE LANCET, vol. i., 1904, p. 156) states that at St. Thomas's Hospital more cases of volvulus of the cæcum have been met with than of volvulus of the sigmoid, and Fagge (Guy's Hospital Reports, vol. xxix., 1868) found four cases of volvulus of the cæcum and but one of volvulus of the sigmoid in the post-mortem records of 15 years at Guy's Hospital.

[3] Intestinal Obstruction, new edition, 1899, p. 8.

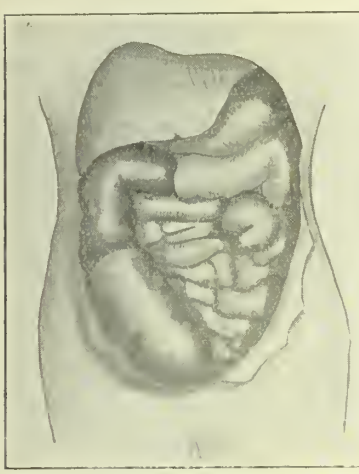
[4] Annals of Surgery, vol. i., 1905, p. 63.

[5] Sir Frederick Treves states (loc. cit., p. 133) that he has met with only one account of a similar case—viz., that reported by Curling (Pathological Society's Transactions, vol. iv., p. 317). Another is reported by Dr. J. Owen (THE LANCET, vol. i., 1886, p. 828).

[6] For notes of the case, which I brought before the Sheffield Medico-Chirurgical Society on Feb. 11th, 1905, I am indebted to Mr. Graham S. Simpson, F.R.C.S. Eng., surgeon (at that time house surgeon) to the Sheffield Royal Hospital; for a photograph taken at the necropsy to Dr. W. Harwood Nutt, medical officer in charge of the electrical department, Sheffield Royal Hospital (then house physician); and for the accompanying illustrations to Dr. H. G. M. Henry, assistant physician for out-patients, Sheffield Royal Hospital (then my dresser). The specimen is in the Pathological Museum of the Sheffield University, No. J 21.

black intestine, of most striking appearance, sprang through the incision and seemed to have occupied half the abdominal cavity, mostly on the right side (see Figures). Immediately above it the ascending colon was felt to be closely compressed by an encircling band. There was some blood-stained fluid in the abdomen, but no signs of general peritonitis. On closer examination it was found that the coil consisted of the cæcum and the lower part of the colon twisted completely round (360°) in the direction, viewed from below, of the movement of the hands of a clock. The peritoneal coat and the longitudinal muscular bands were ruptured in several places, but there was no perforation. The appendix, the tip of which was firmly fixed by old adhesions to the parietes external to the cæcum, had naturally followed the twist of the colon, as had also the last part of the ileum, which now lay below, parallel to, and in contact with, the appendix, these two structures forming the constricting band above referred to. They were wound tightly round the colon, above the cæcum, having passed

FIG. 1.

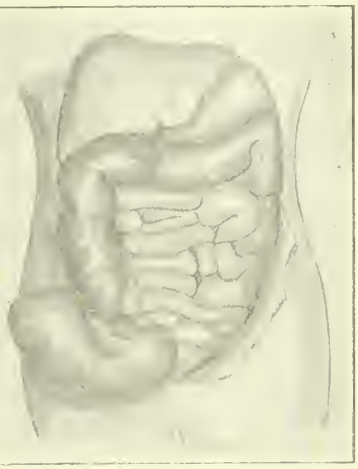


Appearance on opening the abdomen.

FIG. 2.

The same, the volvulus being pulled outwards.

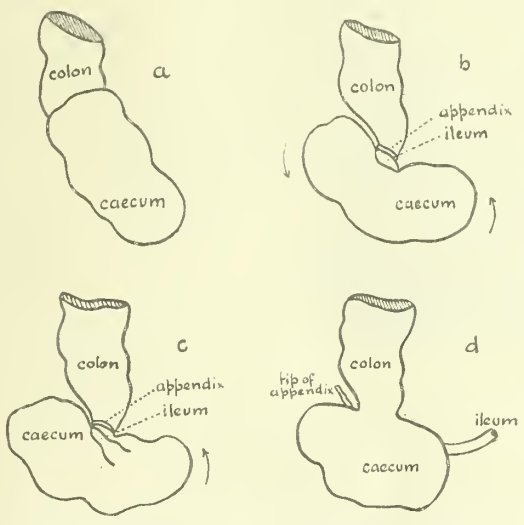
FIG. 3.



The same, the volvulus being partly untwisted (180°).

behind it outwards and then forwards, and lastly inwards on to the anterior aspect of the mass. The ascending colon was somewhat dilated and quite black above the volvulus to just beyond the hepatic flexure, but the degree of dilatation was here very much less than below the constricting band. This spreading of the gangrenous process appeared to be due to interference with the blood-supply, the right colic vessels having been compressed or stretched by the twisting of the colon, &c. Similarly, from interference with the circulation in the ileo-colic vessels, the last few inches of the ileum, as well as the appendix, the cæcum, and the lowest part of the ascending colon, were gangrenous, and a coil of ileum just above was in a state bordering upon gangrene. No definite anatomical abnormality was recognised, except the enormous size of the portion of large intestine below the twist. This measured 9 inches in length and 18 inches in greatest circumference. The cæcum when opened was found to contain only a small quantity of solid fæcal matter. The liver weighed 50 ounces and was fatty. Kidneys: right, 5 ounces; left, 6 ounces; the capsule stripped with difficulty, tearing the cortex.

FIG. 4.



Diagrammatic representation of the volvulus and its reduction. *a*, Position on opening abdomen, corresponding to Fig. 1. *b*, Cæcum pulled outwards, corresponding to Fig. 2. *c*, Rotation through 180°, corresponding to Fig. 3. *d*, Rotation through 360° (complete circle). The arrows in *b* and *c* indicate the direction in which untwisting was effected.

The chief factors in the production of volvulus of the cæcum appear to be: 1. Distension of the cæcum and adjoining colon by gas and fæcal matter, owing to impaired peristalsis and other causes. Some portion of the distending viscus must then move from its usual position to find accommodation elsewhere in the abdomen, and the more freely movable portion will tend to make its way towards the middle of the abdomen, its most yielding region. 2. Movement of the walls of the cæcum by the discharge of fæces through the ileo-cæcal valve. 3. Displacement of the cæcum as by a blow or a fall or by the action of the parietal muscles of the abdomen in any sudden movement of the body, and perhaps also by the emptying of a full bladder. In some instances (4) anatomical peculiarities, such as congenital or acquired malformations and misplacements, which render the cæcum more than normally moveable; and (5) pathological conditions, such as the existence of peritoneal and visceral adhesions. When the twist has once commenced, two other factors may come into play—viz., (6) the closure of the lumen of the adjoining colon resulting from a slight degree of torsion or of kinking, which prevents the forward passage of gas or other contents from the affected part; and (7) the peristaltic action of the terminal portion of the ileum.

In the present case there was no definite evidence of any anatomical peculiarity, but probably all the other six factors were present, including the sudden movement of the body in the patient's jumping out of bed and the emptying of the bladder. The pathological fixation of the tip of the appendix to the outer side of the cæcum probably played an important part in the mechanism, prior to its bringing about compression of the lower part of the colon after the volvulus had developed. By its means and the position of the appendix behind the cæcum, the posterior wall of the cæcum was tethered to the neighbourhood of the crest of the ilium. Increasing distension by gas would then cause the anterior wall of the cæcum to become more and more internal; in other words, a twist, in the direction found, would be begun. The weight of what little fæcal matter was present would tend to prevent any untwisting, even if gas passed onwards. Increasing distension and rotation of the cæcum would soon draw the lower end of the ileum behind the cæcum, and then each peristaltic wave passing down the ileum would tend to push the internal cæcal wall (in contact with it, and now become posterior) still further round in the same direction. Thus the rotation, once commenced, would go on increasing until stopped by the appendix and its mesentery being stretched to the full; and that is exactly the condition in which those structures were found, lying parallel

to the stretched lower end of the ileum, and tightly constricting the twisted colon. Had the tip of the appendix passed to its point of fixation in front of the cæcum, rotation of the latter must have taken place (as in several recorded cases) in the opposite direction.

The operative treatment of volvulus of the cæcum has proved more successful than might have been anticipated, close upon half the recorded cases having recovered. Untwisting, combined with fixation of the cæcum by at least two points to the parietes, is probably the best treatment, where the bowel is in good condition, but it may not be practicable until the viscus has been emptied by an incision, which is then carefully closed again. Excision of the affected parts may be required when gangrene or perforation is actually present, and where these conditions are threatening the temporary formation of an artificial anus at the cæcum may occasionally afford the safest means of relief.

Sheffield.

THE SUCCESSFUL TREATMENT BY COLON LAVATION OF SOME CASES OF ECZEMA, PSORIASIS, URTICARIA, ACNE, AND PRURITUS.

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THERE is ample proof that in some individuals ingested toxins absorbed in the alimentary canal show the chief evidence of that absorption by changes in the skin. The most familiar case we recall and one easily demonstrable in some people is that of urticaria. In this instance the toxin is received from without and introduced into the system by some article of food. But it seems to me probable that urticaria, particularly when chronic, may also be due to auto-intoxication, the result of changes in metabolism of gastric, or more frequently, intestinal origin. Those cases of eczema which have been considered to be associated with gout ("gouty eczema") are likewise caused by a faulty metabolism, if we admit, as most of us do, that the symptom-complex gout is due to a toxæmia of gastro-intestinal origin. Some people are born with an easily excited and irritable skin—a skin readily susceptible to internal and external pathogenetic stimuli or excitants. In such cases this predisposition may show itself in infancy and early childhood by an erythema or an eczema, which is corrected by attention to the gastro-intestinal canal, a fact which points to a toxæmic cause generated in that region.

A sensitive nervous system is commonly present in those subject to skin affections, and undoubtedly the condition of the mind influences very much the condition of the skin, and not infrequently we learn when taking the history of a case of eczema that the attack has been preceded by mental strain and anxiety. This is not difficult to explain, for no organs suffer more functional disturbance than those of digestion as a result of worry. A catarrhal condition of the mucous membrane of the stomach is not infrequent in such people, and if it becomes chronic loss of nervous energy and diminished muscular activity of the stomach may lead to its dilatation. Fermentative changes then take place, and the formation and absorption of toxins may follow. Bouchard believed auto-intoxication to be more common from a dilated stomach than the bowel even in the condition of constipation, and he noticed eczema as occurring in 13 out of 100 cases of gastric dilatation.[1]

But the benefit derived from colon lavation in certain cases of cutaneous eruptions suggests the skin disturbance to be more frequently associated with toxic absorption from the bowel than from the stomach, though doubtless the two absorptions are frequently associated.

Gastro-intestinal toxins seem to have a special affinity for the vaso-motor centres, thus resembling the toxins of malaria. And circulatory disorders are common with disturbances of the alimentary canal; therefore, it is not improbable that many cutaneous eruptions are due to irritation or stimulation of the vaso-motor centres by these toxins. It must be remembered, however, that we all possess lines of defence against auto-intoxication, and it may be presumed that symptoms of toxæmia become manifest only when one or more of the defences (such as the cells of the intestinal mucosa and liver) become weakened and inefficient. This may happen when the intestinal epithelium is stripped by abrasions and ulceration (not uncommon in chronic constipation), or the liver or the kidneys become inadequate.

Eczema.—This term covers a multiformity of cutaneous lesions due to a catarrhal inflammation of the skin, and one-third of the cases of skin disease fall into this category. For four or five years I have been making observations which have led me to the conclusion that disorders of the alimentary canal, and especially of the colon, must be given a high place in the etiology of many cases of eczema. Chronic constipation is common in such cases; and is frequently associated with a catarrhal condition of the mucous membrane of the colon in which the presence of mucus in the ejecta is very apparent. Mucus when normally secreted is invisibly mixed with the fæces, but when seen in any quantity is abnormal, and frequently I have found after some experimental douches in cases of eczema, usually with, but at other times without, constipation, a considerable quantity of mucus, and treatment directed to this abnormality has resulted in the cure of the skin manifestation. I have therefore been led to connect the abnormal condition of the colon with the eczematous condition of skin, and to consider the latter as due to a toxæmia of intestinal origin. When there is no skin eruption following a definite type with this condition of colon, there is usually a muddy appearance of the skin noticeable, and sometimes, in addition to this, an eczematous or other eruption.

A gentleman, aged 66 years, a free liver, was sent to me last October, when I found nearly the whole of the body affected with eczema. There was great pruritus, preventing sleep. The history pointed to a bowel infection, for, like not a few of these cases, there had been a local anal eczema and pruritus for a year or two, and the pruritus was so bad that an operation had been decided upon to relieve it. It had, however, been found by bacteriologial examination that the colon was unhealthy, and a course of intestinal lavation was decided upon. After each intestinal douche of alkaline sulphur water, which brought away considerable quantities of mucus, the patient had an immersion bath of a similar water, and he drank a stronger sulphur water each morning. The improvement was very rapid both internally and externally, for as the colon became healthier and free from mucus the eczema and pruritus gradually disappeared. The patient returned home on the eighteenth day after treatment with no eruption, but he was advised to continue intestinal lavation at home for some time as a precautionary measure.

Other cases of eczema of a more local character have been treated equally successfully in the same way, and some of these have had a definite association with catarrhal inflammation of the bronchial tubes and asthma, and in other cases with gastric dilatation.

Psoriasis.—Whilst authors vary very much as regards the etiology of psoriasis, the late Dr. H. R. Crocker showed a connexion between it and digestive disorders, particularly after the age of 40 years. He says:[2] "Gout or its predisposing factors dyspepsia and constipation and alcoholism together made up half of thirty consecutive cases that I was consulted about." Stelwagon says of psoriasis: "Digestive and nutritive disturbances of all kinds are certainly provocative as to recurrences and of probable causative influences."[3] Pringle, Whitfield, and Brooke point to little or no connexion with gout, whilst the other authors quoted do; but arthropathies are mentioned by them as being seen with psoriasis, and rheumatoid arthritis is specially mentioned, which may be considered as frequently due to intestinal infection.

There is, as in the case of eczema, an inherited predisposition to the disease, but an external cause may provoke its development. In several cases when the symptoms and experimental douching have pointed directly to an intestinal causation the treatment already described has been brilliant in its results. In other cases with no particularly well-marked colitis good results have often, though not invariably, attended washing out the colon.

A lady, aged 57 years, unmarried, consulted me last year for psoriasis of 45 years' standing; there was inheritance in

[1] Trans. Bouchard Auto-intoxication in Disease, p. 162, 1894.

[2] Twentieth Century Practice of Medicine, p. 269.

[3] Diseases of Skin, p. 221.

this case, for her mother had also suffered from it. She was of a nervous temperament and was much troubled with chronic constipation. The colon was considerably distended and the stomach somewhat dilated, and she was conscious of having passed mucus with the stools for years. She had been accustomed to come to Harrogate for many years and had derived a certain amount of benefit from drinking sulphur water and having sulphur baths. I ordered the colon to be washed out with 30 ounces of alkaline sulphur water and, as is the custom, this was repeated after all fæcal matter had been removed, and followed by an immersion bath of the same water. With a steady improvement in the condition of the bowel there was seen a decrease in the cutaneous eruption, and with three weeks' treatment the general condition was very satisfactory and better than it had been for years. I advised intestinal lavation to be continued at home, and only a few days ago I heard from this lady that she was "worlds better."

A very successful case with colitis was that of an army officer who had a history of psoriasis for many years. It was one with an unusually marked tendency to the gyrate and circinate variety on the trunk, whilst in the extremities the ordinary scattered, rounded patches were seen. The patient was very much better for his first course of treatment and was quite free from eruption after the second.

I have not had a large experience of this treatment in cases of psoriasis, but in every case I have treated in this manner there has been a very considerable improvement. I am inclined to think, however, that the large doses of arsenic which so many of these cases receive are detrimental in aggravating any catarrhal condition of the mucous membrane of the stomach and bowel.

Urticaria.—I have already stated that a chronic condition of urticaria may be kept up in certain individuals as the result of changes in metabolism producing toxins which after absorption bring about vascular changes in the skin. I am now excluding the poisons of shell-fish and drugs which are introduced from without. I have found the cause in two cases of urticaria to depend upon a toxæmia due to an abnormal condition of the mucous membrane of the stomach and colon.

A married lady, aged 37 years, with a hypersensitive nervous system and unstable circulation, was sent to me last year, having had periodic attacks of urticaria for a year which could not be traced to any article of diet. The history showed constipation and slight gastric disturbances for several years, and on investigating the condition of the colon mucous colitis was found to exist. A course of intestinal douches with deep massage of the abdomen, in order to give better tone to the intestinal wall, soon cleared up the mucous discharge, and brought about a better condition of peristalsis which has become permanent. No recurrence of the urticaria has taken place since the treatment 12 months ago.

Another very similar case to this was that of a young married lady of much the same constitutional type, and in her case like treatment has been attended with equally successful results.

Acne.—A number of cases of acne vulgaris and of acne rosacea, the latter being in association with acne vulgaris, have been treated on these lines, and I agree with Whitfield in regarding seborrhœa as the primary cause of the acne disorder. Such patients are frequently of a nervous temperament, frequently suffer from gastric disorders and constipation, and instability of the peripheral circulation. Though some authorities (such as Bartholomy [4]) have frequently found dilatation of the stomach associated with acne, I have generally found that an unhealthy condition of the mucous membrane of the colon is a greater source of the toxins, predisposing the skin to parasitic invasion, than is gastric dilatation. Intestinal lavation has been prescribed with success, but as in practically all these cases there is found a lack of proper attention to the scalp, this as well as the face must receive special attention.

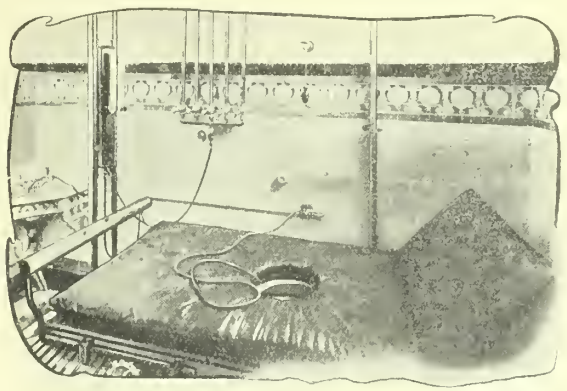
A lady living in India and much exposed to weather consulted me last summer for acne rosacea. Her age was 42 years, she was gouty, and her circulation was poor. She had marked constipation, but had but little digestive trouble. The eruption was more of the scaly papular kind than nodular, and without suppuration. There was an unhealthy condition of the scalp, and attention to this and the face, together with intestinal douching, caused a fairly rapid improvement, which I learn continues.

Similar treatment has been equally successful in two cases with suppurative nodules and acne vulgaris, and in other cases of acne simplex, and in some this was after vaccine treatment had failed to do good.

Pruritus.—The causes of pruritus are many, but undoubtedly the nervous and gouty temperaments are specially favourable to its development; and in the majority of cases auto-intoxication the result of gastro-intestinal and hepatic disturbances is the leading cause of this distressing ailment. There is no primary lesion of the skin, but by scratching, which is difficult to avoid, eruptions do arise, and it must be borne in mind that pruritus is frequently the precursor of a well-recognised attack of eczema, lichen, or urticaria. It may be general, affecting more or less the whole body, or local, involving the anus, the vulva, the palms of the hands, or the soles of the feet. Very frequently there are marked vaso-motor disturbances, and in the case of a lady with pruritus confined chiefly to the lower extremities, and associated with mucous colitis, a very variable peripheral circulation existed.

With pruritus ani there is not infrequently a certain amount of eczema around the anus, and the rectal mucosa is often involved in the itching. In all cases where eczema has existed I have found it to be the external and visible sign of a catarrhal condition of the mucous membrane of the colon, and internal douches of alkaline sulphur water, followed by immersion baths of the same water, have brought about such a marked change in the condition of the colon that the local skin lesions and irritation have soon cleared up.

The *method* adopted in carrying out this special treatment by lavation for mucous colitis, associated or not with skin eruptions, is as follows. An alkaline sulphur water is generally used both for the intestinal douche and for the immersion bath which follows it. The object of the internal douche is to wash away old fæcal matter and mucus from



Internal douche: intestinal treatment.

the colon and to give the mucous membrane an antiseptic dressing. This is done in the following way. A long rubber tube, after being sterilised by boiling, is passed into the sigmoid and is attached to a hydrostatic douche, when from 20 to 40 ounces of sulphur water at a temperature of 105° F. pass into the colon at a pressure of 2 feet, the patient lying first on the right side, then on the back, and lastly on the left side during the operation. This is repeated, and the ejecta after each douche are carefully examined and reported upon by a skilled attendant. Antiperistalsis of the colon normally exists, as pointed out by Hertz,[5] and is an important factor in this treatment, enabling rectal injections to reach the ascending colon and cæcum when diseased. A warm immersion bath of sulphur water follows the internal douche, and when in this bath a hot douche at a higher temperature plays upon the wall of the abdomen under water from a large nozzle with fine perforations, and is chiefly directed over the site of the colon.

The immersion bath not only opens out the peripheral circulation, and thus relieves any congestion of the viscera

[4] Étiologie et Thérapie de l'Acné. Archives Générales de Médecine, vol. ii., 1889, p. 641.

[5] Brit. Med. Jour., vol. i., 1908, p. 193.

which may exist, but is beneficial to the skin and nervous manifestations the result of auto-intoxication. I have shown before in these columns,[6] when dealing with catarrhal and dilated conditions of the stomach, that in most of these cases there is a serious loss of balance in the circulation under the domain of the splanchnic nervous system in the causation of which toxins play an active part, for there is too much blood in the splanchnic area and too little in the periphery, and the restoration of the circulation is therefore all-important.

In all cases it is endeavoured to make the treatment educational, and patients are advised to continue it at intervals after leaving Harrogate, but a second course of treatment is desirable in all chronic cases of colitis and skin disease if there is any tendency to recurrence.

Harrogate.

A NOTE ON

CÆSAREAN SECTION UNDERTAKEN IN THE PRESENCE OF SEPTIC INFECTION;

WITH A REPORT OF A CASE.

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ALL authorities agree that the maternal risks of Cæsarean section are increased directly by previous examinations unless conducted with the most scrupulous care; a few hold that previous obstetric manipulations or instrumentation definitely contra-indicate the operation where an alternative embryotomy is feasible. The morbidity and mortality of such infected cases are almost invariably brought about by soiling of the peritoneal cavity by an infected amniotic fluid, which in many cases, investigated post mortem, has been proved to be staphylococcic in nature. The sole risk, and it is no inconsiderable one, lies in this direction, and since it has been recognised a copious literature has sprung up on this subject in the last year or two, and fresh operations have been devised all with the object of preventing peritoneal inoculation by the selection of an extraperitoneal route and field of operation. It has been suggested that this should be attained by approaching the uterus from below the anterior parietal peritoneal reflection and by displacement of the bladder secure easy and safe access to the lower uterine segment. The criticism here is obvious—an incision is made into that part of the uterus least capable of retraction; the hæmorrhage that may ensue is difficult to check and has sometimes necessitated hysterectomy when the operator has gone "too low" even in the performance of the classical operation.

An alternative suggestion recommends opening the peritoneal cavity and in various ways "tenting" off the operation field by suturing the anterior parietal peritoneum to the uterus above the level of the proposed incision. Against this I would advance the arguments that such suturing, to be accurate and above all watertight, will be almost impossible to carry out; while the time employed may be considerable—a most undesirable event in a Cæsarean section where a fœtal factor has to be considered.

The strongest point that can be raised against the extraperitoneal technique and which equally applies to such alternatives as symphysiotomy and pubiotomy is, that in the presence of such an emergency as obstructed labour which not only the obstetric surgeon but the less practised accoucheur may have to face, it is imperative to reduce technique to the simplest form consistent with safety to the patient.

Have we then, if we reject the extraperitoneal technique, no alternative but to perform embryotomy in these doubtful cases? Surely, if the danger lies with the infected amniotic fluid, we can at least make an endeavour to get rid of it or reduce its toxicity, or failing that to prevent its access to the abdominal cavity.

Now, as regards attempts to wash out liquor amnii (or "after-waters," as they are in these cases) with the fœtus still *in utero*, the difficulties are much greater than at first appears to be the case. Very little indeed is known of the dynamics and hydrostatics of the second-stage uterus. Matthews Duncan, Lahs, and Olshausen are the chief authorities we have to rely on for information on these points.

Is there always a collection of "after-waters" capable of being irrigated after the patient has been in labour many hours, or does the uterine wall closely come in contact with the superficies of the child, reducing the upper uterine "cavity" to a merely potential space? One's own observations made on Cæsarean sections conducted on second-stage patients certainly do not support the view of Lahs, that "after-waters" are present to any appreciable extent. Most of these uterine incisions result in a perfectly "dry" extraction of the fœtus with no noticeable gush of amniotic fluid.

Now, if it be that there is no amniotic collection to wash out, the only means of irrigating the infected cavity, with the fœtus *in situ*, will be by passing up a douche nozzle to the fundus and irrigating the cavity freely with some aseptic neutral fluid. In the case I am about to describe this was effected by using a soft pewter douche-tube (a glass tube would be dangerous). The douch-tube was introduced by my assistant (Dr. H. Stevens, resident medical officer at the hospital), the tip being clearly felt at the fundus through the parietes. A copious flow of sterile salt solution was allowed to run, at a temperature of 105° F., for a couple of minutes, and the flushing effect on the uterus was obvious. The laparotomy was performed as soon as the nozzle was withdrawn, and the uterus was "eventrated" and incised at once. It was remarked that the extraction of the child was perfectly "dry," although barely a minute before the fundus must have contained several ounces of salt solution. The report of the case briefly is as follows.

The patient, aged 30 years, I-gravida, was admitted to Queen Charlotte's Hospital on June 18th, 1910, at 6 P.M. She was markedly rachitic, with characteristic deformity of the lower extremities. The true conjugate was estimated at just under 3 inches. The patient's condition could not be considered "favourable" as labour had been in progress for 40 hours and the membranes were ruptured. The head was "floating" above the brim and the uterus was temporarily almost inactive. There was a history of attempted forceps extraction; on examination there was no trauma of the cervix or lower genital tract. The pulse was 110, and the temperature was normal. The fœtal heart-rate was normal and regular, between 120 and 130. There was, however, considerable maternal distress. In the presence of an apparently unharmed fœtus embryotomy was decided against; the abdomen was painted with tincture of iodine, while preparations for immediate Cæsarean section were carried out.

Prior to the section one hour later the abdomen was again painted with iodine and the uterine cavity washed out with sterile salt solution. The temperature was 105° F. It was felt that at this temperature, which would be reduced inside the uterus to approximately 100°, no risks of provoking premature fœtal respiration would be caused. The head was displaced and the soft pewter douche nozzle was passed with ease to the fundus; several quarts of saline solution were washed through the uterus and escaped freely. An 8-inch incision was made in the parietes in the middle line, 4 inches above and 4 below the navel. The uterus was "eventrated" through the incision and the edges of the wound were carefully packed round with sterilised towels. A median sagittal fundal incision was made, the placenta being encountered at the lower end. The incision was practically bloodless and the fœtus was easily extracted, with no apparent escape of fluid accompanying it. The uterine wound and abdominal incision were closed in the usual way, using stout and finer silkworm-gut sutures throughout. The patient was not sterilised.

The fœtal head showed well-marked moulding and a forceps "grip" over the right frontal eminence. Some anxiety was felt for the child during the first 48 hours owing to pyrexia (maximum temperature 105°) very suggestive of the septic broncho-pneumonia to which so many of these children succumb (even in the absence of trauma) after long labour and exposure to infected liquor amnii. The child, however, made a rapid recovery and has thriven well on the breast, supplemented by the bottle owing to defective nipple

[6] The Influence of the Nervous System and External Temperature upon Certain Circulatory Changes Concerned in the Etiology of Catarrh, Ulcer, and Simple Dilatation of the Stomach, THE LANCET, vol. i., 1906, p. 1031.

formation. The mother had a mild sapræmic temperature for the first two days, but subsequently she made an uninterrupted recovery.

I have thought the case important as illustrating that between embryotomy on the one hand and Cæsarean section followed by hysterectomy on the other there may be an intermediate group of cases such as this one, where special prophylaxis adopted against an infected liquor amnii might have a distinct place in treatment.

Wimpole-street, W.

THE PREVENTION AND CORRECTION OF DEFORMITY FOLLOWING ARTHRITIS OF THE HIP-JOINT.

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IN the treatment of tuberculous and septic arthritis of the hip-joint too little care is usually taken to get the femur into a good position during the active stages of the disease, so that when the disease is cured or quiescent the limb is often in a very bad position. Frequently there are flexion and adduction of the thigh on the pelvis to very considerable degrees, so that the limb is several inches shorter than the other one. This is a very great disadvantage to the patient, and gives rise to the characteristic limping gait of late hip disease. This is all the more deplorable because it is preventable by the application of a proper apparatus during the active and contracting stages of the disease. The thigh can be secured in a position of slight abduction and extension, so that no shortening need result, even in tuberculous cases with some want of development of the neck of the femur. Incidentally it may be remarked that there need never be any suppuration or pathological dislocation of the hip joint in tuberculous disease if it is treated early enough with complete rest and suitable instruments. I need hardly say that excision of the hip in children for tuberculosis is a very bad operation, leading to excessive shortening before adult life, and very often to persistence of the disease with sinuses and secondary sepsis. For early cases conservative treatment is immeasurably better. The causes of shortening in maltreated cases of tuberculous hip disease may be classified into two kinds. 1. *False shortening* caused by flexion and adduction of the thighs on the pelvis. 2. *Real shortening* due to the following causes: (*a*) Cessation of growth of the whole limb from want of use. This is only marked when there is much shortening or chronic suppuration preventing the use of the limb for some years. The readiest indication of it is obtained by measuring the two tibiæ with the knees flexed, so that the upper ends can be easily identified. (*b*) The want of development of the neck of the femur. (*c*) Absorption and changes in the shape of the head and neck of the femur due to tuberculous disease. These are, to a great extent, avoidable by early treatment and the entire prevention of standing upon the diseased limb. (*d*) The pathological dislocation of the head of the femur on to the dorsum ilii. This is entirely preventable by early and continuous treatment by rest in a proper apparatus.

Shortening, however, should be very slight in all cases of tuberculous disease of the hip-joint if treated properly from the first. The same is true for septic arthritis. Unfortunately the ideal treatment is not carried out, for one reason or another, in a great many cases; so that deformity and shortening are common, and are evident to everyone who looks about him in the streets. The worst of these cases are those which were unfortunately submitted to excision of the joint in childhood, when that operation was popular from 10 to 20 years ago. I have seen a great many patients with from 2 to 11 inches of shortening by the time they have grown up. By this shortening I mean the difference of the level of the heels, and the amount of compensation that is required by means of the high boot, or some other instrument. This, of course, includes all the shortenings mentioned above, both the true and the false.

A good deal can be done to improve the condition of those patients who are the unfortunate victims of deformity and shortening, in the absence of active disease of the hip, by subtrochanteric osteotomy and division of some of the tight adductors. This allows the correction of the flexion and adduction. Occasionally the fascia in front of the hip may require subcutaneous division. If the femur be divided obliquely, it can be appreciably lengthened by sufficient and well-directed extension. The ordinary extension stirrup is applied 24 hours before the operation. Through a small incision below the right trochanter the femur is divided. The section runs obliquely downwards and outwards from just below the neck of the femur, and thus well away from the old disease. The adductors are divided subcutaneously to the extent that is necessary for the over-correction of the deformity. The extension is then applied in the following way. When the right hip is the diseased one, the pulley for the weight extension is fixed at the right lower corner of the bed, while the pelvis is kept near the right border by means of broad straps. A well-padded perineal band extends from the left side of the perineum to the left upper corner of the bed. In this manner the adduction is over-corrected. To diminish the pressure of the perineal band and to make use of the body-weight, the foot of the bed is elevated. To correct the flexion the pulley at the foot of the bed is placed as low as possible and the right lower quarter of the bed has no mattress, so that gravity tends to straighten the limb.

FIG. 1.

Before operation. Old neglected tuberculous disease of the right hip with considerable flexion and adduction, and 2½ inches of shortening. Note acute angle between the thigh-bone and pubic ramus, and the absorption of the neck.

FIG. 2.

After the operation of subtrochanteric osteotomy. Note the correction of the adduction. The shortening is now only half an inch. Note the wide angle between the thigh-bone and the pubic ramus. The photographs do not show the correction of the flexion, which was severe.

This treatment is continued for about three weeks, when a plaster spica is substituted. About 12 weeks after the operation the patient is allowed to put some weight on the foot; but care must be taken to delay this as long as possible on account of the risk of bending at the union. Figs. 1 and 2 show the X ray appearances before and after treatment in this way. A girl, aged 11 years, had 2½ inches of shortness of the right leg. She now only has a quarter of an inch and needs no high boot. In worse cases the method has been equally successful in reducing the shortening. For instance, in a girl aged 15 years a shortening of 3½ inches was reduced to three-quarters of an inch. This made a great deal of difference to her comfort and appearance. This is so far satisfactory even in cases of ankylosis, but it is far more successful when there is some mobility of the hip-joint. One of my patients with considerable deformity improved her condition very much by falling down stairs and breaking her thigh-bone in the upper third. She fell in a sitting position, the right heel coming against the right femur below the great trochanter. This patient was a middle-aged woman, who from want of exercise was excessively stout. She had been sent to me by Dr. C. T. Brookhouse of Bromley, and I had ordered an apparatus, designed to conduct most of the weight from the tuber ischii and the root of the thigh to the heel of the boot. This had afforded considerable relief to the pain at the hip- and knee-joints, which was due to mechanical strain upon these joints in a flexed position. The apparatus was, fortunately, not on when the fall occurred. The fracture was treated by weight extension. The result of the accidental correction of the deformity is very satisfactory. The limb is longer, stronger, and straighter than before the accident, and the pain has almost ceased. The patient can now walk several miles in comfort.

Queen Anne-street, W.

ON PRE-TUBERCULOSIS AND PRE-PULMONARY TUBERCULOSIS, AND THEIR DIAGNOSIS IN RELATION TO SCHOOL INSPECTION.

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IT is essential to realise the practical distinction between (*a*) the identification of tuberculosis and (*b*) that of pulmonary tuberculosis. *In children*, much more than in the adult, the prevailing method begins at the wrong end. Their initial tuberculosis is almost invariably pre-pulmonary in clinical date. As I pointed out in a paper read before the Ilford division of the British Medical Association in April, 1909, our ideal should be the recognition of the *pre-tubercular stage;* but our practical ideal duty is to identify, where it exists, the *pre-pulmonary tubercular stage*, that of tuberculosis in possession, although not yet in pulmonary possession.

This consideration touches our urgent problems of school inspection. In its all-surpassing object, that of the suppression of tuberculosis, the inspection is a matter not of perfunctory examination but of special skill, for two reasons—(1) the difficulties and the fallacies of pulmonary diagnosis; and (2) the fact that the methods of pulmonary diagnosis are not only imperfect or even misleading, but too often are on the wrong scent.

1. These difficulties and fallacies have been pointed out by others whom I may quote, but in this limited space I cannot undertake their systematic discussion. Among many valuable communications special reference must be made to those from Dr. R. W. Philip [1] and from Dr. J. E. Squire and from Dr. John Allan.[2] Both Dr. Allan [3] and Dr. Philip lay stress on the point that the results obtained by medical inspectors are not at present comparable, because there is no uniform standard on which a diagnosis can be based. Dr. Philip proposes, as standard tests, the following "stigmata" of puerile tuberculosis: "(*a*) palpation for evidence of glandular enlargement of the anterior cervical and supraclavicular areas (only cases showing at least a dozen such enlarged glands to be included as positive); (*b*) percussion of the apices; and (*c*) auscultation of the apices." Dr. Allan also writes:—

> It is much less easy to diagnose pulmonary tuberculosis in the child than in the adult owing to the greater difficulty of interpreting the physical signs met with. There is no single sign or symptom pathognomonic of this disease in the child, and I am not convinced that the association of dulness on percussion, bronchial breathing, and crepitations which may or may not be intermittent, in an emaciated anæmic child is absolutely diagnostic of pulmonary tuberculosis. To cite only one example, I have seen the above picture in children who suffered from enlarged tonsils and adenoids, but in whom after operation the physical signs disappeared within a few days and the symptoms rapidly improved. Under such circumstances I hardly think a diagnosis of tuberculosis is justified.

Dr. Squire agrees "entirely with Dr. Philip that the standard of clinical training in the physical examination of the chest needs raising; but we must, on the other hand, avoid such refinement that every chest is pronounced diseased which presents any sign differing from what belongs to the ideal healthy chest—often termed 'normal' in error; for few children, and practically no adults, satisfy this ideal of healthy lungs entirely and always."

2. The exclusion or the non-exclusion from school is a medical administrative question, and therefore a question of medical opinion. But an exhaustive and so far as possible *correct diagnosis and report* of the actual condition are a question as to facts. They are a great responsibility upon the inspector, to whom exclusively the examination of the child is entrusted. They must therefore bring into his purview the possibility of a pre-pulmonary tuberculosis, and particularly of the most common form of it, which is the glandular form. That duty weighs heavily upon the minds of Dr. Philip and of Dr. Allan when they dwell upon the necessity of a searching examination for enlarged glands. Dr. Allan had also previously [4] "endeavoured to show how important it is to recognise early tuberculous mediastinal glands, and referred to some of the aids that might be employed to substantiate or reject the provisional diagnosis. Some of these additional diagnostic weapons, which include the X rays, &c., cannot readily be used by the medical inspector, in particular, for instance, the tuberculin tests. These can best be applied by the family doctor or, if necessary, by a specialist." He adds:—

> Children who are physiologically delicate, "pre-tuberculous"—call them what you will—are prone to, and may under adverse circumstances, develop pulmonary tuberculosis. They are physically defective and are not able to compete on equal terms with their more fortunate companions who are in good health. They do not, as a rule, require to be kept from school, but they should be under medical supervision, and this supervision can best be carried out at the hands of the family doctor or, in necessary cases, by the medical staff of the local hospital.

These views are an important recognition of the inevitable thoroughness which should belong to the inspection when properly understood. To bring this into clearer light it is not inopportune to call attention to the subject of the *tracheo-bronchial glands* and of the practical importance of their examination.

Both the theoretical and the practical aspects of enlargements of these glands were opened up long since by Guéneau de Mussy's views on the broncho-adenopathic causation of whooping-cough, and at a later date in their relation to pulmonary tuberculosis by Ch. Fernet,[5] who pointed out the association of three signs in early phthisis: (1) a dulness at the apex; (2) a dulness at the scat of the tracheo-bronchial glands either on the right or on the left side of the spine; and (3) an engorgement of the base of the corresponding lung. The second of these seems to be the most important, and has been the least utilised.

In a paper on *dorsal percussion* [6] I demonstrated that normally the fifth dorsal spine is relatively dull on percussion, with a slight extension of dulness to the right of the tip of the spinous process. Fernet's second sign in reality consists in an intensification of that normal dulness, which I believe may be correctly attributed to the presence of the infra-trachcal glands below the resonance of the bifurcating trachea. This points to the necessity for a careful routine examination of all anæmic children for any abnormal degree

[1] THE LANCET, vol. i., 1910, p. 751.
[2] THE LANCET, vol. i., 1910, pp. 886–7.
[3] Cf. Brit. Med. Jour., Dec. 11th, 1909.
[4] Cf. THE LANCET, vol. ii., 1909, p. 1209.
[5] Bulletin de l'Académie de Médecine. Oct. 11th, 1898
[6] Brit. Med. Jour., vol. ii., 1899, p. 1168.

of the "fifth spine dulness," and for its abnormal extension either to the *right or to the left of that spine.*

I need not dwell upon the *surgical aspects* of vertebral percussion which are mentioned in a paper communicated to the present annual meeting of the British Medical Association. They include, among others, tubercular glandular abscess and spinal abscess, and early spinal tuberculosis. But, as an excuse for my renewed advocacy of this valuable but neglected method of diagnosis, I may be permitted to call to witness some striking illustrative evidence recently published, although its publication was not made in connexion with any reference to the question as to school inspection.

Dr. H. C. C. Mann's two cases of "tuberculous mediastinitis" reported in *Guy's Hospital Gazette* for February[7] are not perhaps so remarkable for rarity, since the lesions described are not in themselves uncommon, apart from their unusual mediastinal extension and from the paroxysmal severity of the clinical symptoms—as they are instructive in their varied practical lessons. The most important of these are: 1. That the medical diagnosis and the surgical diagnosis of common and probable affections are capable of being long delayed even when the patients are under observation. 2. That the method which alone seems to be able to trace the early changes is not generally valued, as it did not call for any mention among those resorted to, although it may have been used in these cases. I say "alone" because in the first case the X rays, whilst showing the large mediastinal mass, did not avail to advance the diagnosis; and because the second case was so severe that every method must have been tried to arrive at a conclusion. In similar cases a successful spinal percussion is capable of furnishing useful suggestions for an early diagnosis. 3. Their severity and their fatal tendency are enough to impress upon us the duty of not neglecting the spinal examination either in similar beginnings or in presence of any general threatenings of puerile tuberculosis.

We are told that in the first patient, a boy aged 8 years, examined on July 8th, 1907, after symptoms of bronchitis for two years, and attacks of nocturnal dyspnœa with wasting for six weeks, "fibrosis of the right lung with some local bronchiectasis was suspected." On the 25th, the severity of the paroxysmal dyspnœa having greatly increased, with symptoms of mediastinal pressure and of respiratory and venous obstruction, and with para-manubrial dulness, "mediastinal growth, probably originating in the thymus, was diagnosed."

Examination with the X rays showed *diminished trans-radiancy of the upper chest.* In the next fortnight the symptoms increased: the face was very œdematous, the superficial veins were tortuous and enlarged, the attacks of dyspnœa were very urgent, and the pain was severe. The breathing stopped twice, and the house surgeon was about to perform tracheotomy, but the child recovered. The temperature rose in the evening to 101° F. On August 24th the gait was noticed to be peculiar; the knee-jerks were brisk, and there was ankle clonus on the right side. The attacks of dyspnœa became less urgent. On August 30th the child first complained of pain in the back, and tenderness was found over the last cervical and first two dorsal vertebræ. At the end of September there was kyphosis involving the last cervical and upper three dorsal vertebræ. The child was kept on his back for four months and then fitted with a poroplastic jacket and jurymast. Stridor was heard on both sides of the chest as late as May, 1908. The jacket was worn until July, 1909. All signs of active disease disappeared.

The length of this quotation, which Dr. Mann may kindly condone, was necessary to justify (1) the inference that a tubercular bronchial adenopathy due to bronchitis probably pre-existed, and may have accounted, as in many similar cases, for the spasmodic, as distinct from the permanent obstructive, dyspnœa; (2) the view that the mediastinitis may have been of the usual glandular abscess type, with a subsequent gradual and latent evacuation through the trachea, and that late vertebral infection, *viâ* the lymphatics (F. Wood Jones), may have supervened; (3) or the alternative view that the spinal disease, as *fons et origo*, and the spinal percussion changes had existed long before noted; and (4) the conclusion that, in either case, the fifth spine and its vicinity must have been very dull, for glandular, for spinal, and for mediastinal reasons.

In Dr. Mann's second interesting case, that of a boy, aged 3 years, pain in the back and paraplegia developed in November, 1909, after an attack of scarlet fever beginning on Sept 23rd. When admitted on Nov. 22nd his paroxysmal dyspnœa was due to a latent abscess causing manubrial and para-manubrial dulness with cyanosis and with œdema of the face and neck. On Nov 29th the respiration stopped. Tracheotomy was performed and a catheter was passed down into the bronchus without effect. The necropsy showed miliary tubercles in the spleen and liver, and a few tuberculous ulcers in the small bowel. The trachea was flattened and pushed forwards by a large mediastinal abscess. The second, third, and fourth dorsal vertebræ were carious." As the lungs and glands are not reported as diseased, this reads like a case of vertebral tuberculosis, perhaps primary, or perhaps secondary, viâ the thoracic duct, and due to a primary intestinal tuberculosis. In either case percussion of the spine should presumably have yielded vertebral dulness long before the onset of paraplegia, and established the surgical diagnosis of spinal disease in the absence of any kyphosis. It is noteworthy that both these cases appear to have been instances of pre-pulmonary tuberculosis, as the lungs are not stated to have presented permanent lesions.

The value of these extreme illustrations is that they are unequivocal. Cases such as these are not unknown to us. Though they end in the hospital their beginnings are at the school, and that is our time. School and school inspection are the providential opportunity given to us for remedying in the race the failure of robustness and for arresting the beginnings of disease. As regards tuberculosis, it may be said of our material that by definition it is almost invariably in the incipient, and therefore deceptive, stages—truly a material for fine diagnosis. Having recognised that fact, let us be consistent in using all the best methods of diagnosis, guided by pathology and by practical clinical sense; in short, let us investigate for the right thing in the right way.

As the incidence of glandular tuberculosis prevails over that of the pulmonary form in the proportion of the relative youth of the children we should expect and suspect the presence of tubercular adenopathy much more frequently than that of phthisis in the average school-fit weaklings. Advanced pulmonary disease is in itself likely to stop mechanically the attendance of the hopelessly unfit.

Malignant infective tubercular adenopathy, as opposed to non-malignant or scrofulous tubercular adenopathy, is invariably either mesenteric or bronchial, or else a combination of both. These are clearly the leading lines for our investigation. Therefore, within the thoracic range of our examination, our chief care should be to ascertain if possible the condition of the *infra-tracheal glands*—and they are happily within the reach of practical diagnosis by percussion. In view of the importance of the matter, any relative difficulty that may be inherent to the method can hardly be advanced as a sufficient reason for its omission.

General vertebral percussion and "mesenteric" vertebral percussion must also claim attention in their special connexion with spinal disease and with mesenteric disease respectively. They are not, however, within the scope of these brief remarks. The school inspection question has many and varied aspects, with which this is not the place to deal. The purpose of this communication is exclusively restricted to the aspect of early clinical diagnosis, in the service of which some of the suggestions which have been offered may be found of practical use.

Upper Brook-street, W.

[7] Cf. THE LANCET, vol. i., 1910, p. 874.

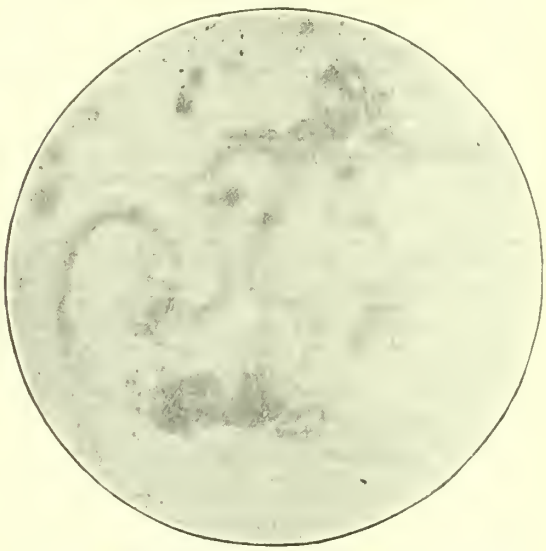
MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the Executive Committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on Friday, July 15th, Dr. F. de Havilland Hall being in the chair. During the last month the claims have shown signs of steady increase and are now nearly up to the normal expectation. The new proposals show a tendency to fall off and are fewer in number than for the corresponding period last year. It does not seem to be generally known that dental surgeons are eligible for membership of the society. In order to clear up any doubts about this it may be as well to point out that all duly registered dental surgeons are eligible to join. The rates charged by the society are considerably less than those charged by any other insurance company for similar benefits, and it is hoped that members of the medical and dental professions will soon recognise the expediency of joining a society which can offer such liberal terms and excellent security, and which is and has been run entirely and solely for their benefit, for just over 26 years. Prospectus and all information can be obtained from the secretary, Mr. F. Addiscott, 33, Chancery-lane, London, W.C.

A METHOD OF STAINING DEEP COLONIES IN PLATE CULTURES *IN SITU* IN AGAR MEDIA.

BY EDWARD DODSON,
FELLOW OF THE ROYAL GEOGRAPHICAL SOCIETY.

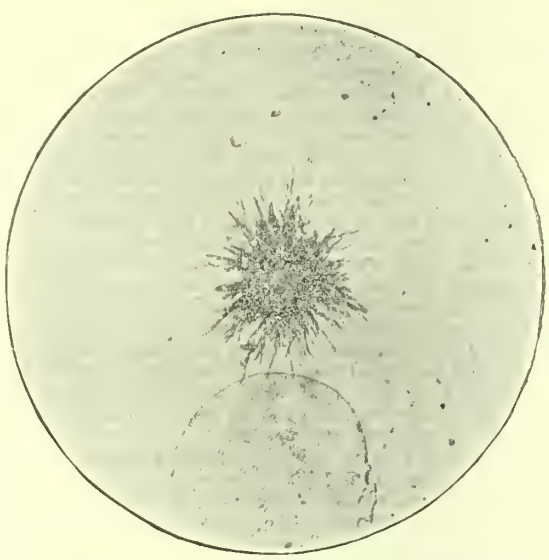
IN the course of investigation of yeasts and moulds the necessity for finding some means of accurate observation under high power and preserving the characteristic colonies developed deep in agar plate cultures became evident to me.

FIG. 1.



A deep colony of B. anthracis in nutrient agar grown 24 hours at 37° C. 1-12th oil immersion lens. No. 4 eye-piece. (Swift.)

FIG. 2.

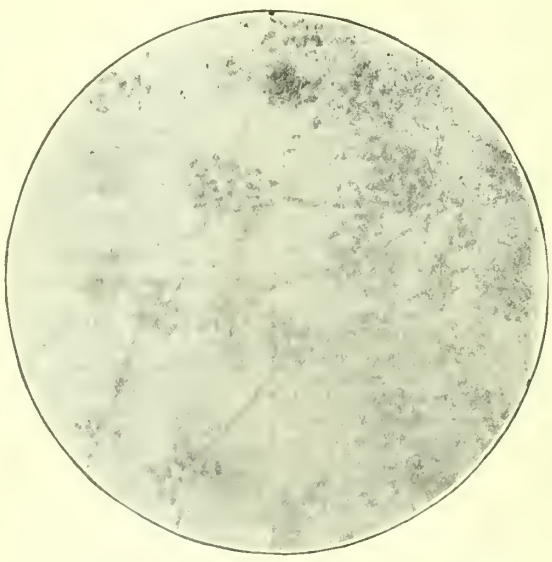


Organism from sour milk; deep colony in whey agar 24 hours at 37° C. 16 millimetres objective. (Zeiss.)

The usual impression preparations can necessarily only give one an imperfect representation of the surface growth. I have failed to find anywhere a description of a method for staining the deep colonies. I therefore tried to work out such a one. In the hope that the method discovered will be of assistance to other workers I am not delaying publication until a large series of preparations has been made and the value of the process fully worked out. The initial difficulty arose from the fact that most stains are taken up with equal avidity by the agar and the organisms and are given up with nearly equal facility by both during decolourisation and dehydration.

By a method comparable to Romanowski's stain I was able to overcome this difficulty. I believe that the acid eosin used combines with the basic methylene blue and forms a deposit on the organisms. For some reason this deposit is not formed in the agar medium itself but only on the orgauisms and in the fluid surrounding the agar while staining. The resulting eosinate of methylene blue is only slightly soluble in methylated spirit, and consequently when decolourising the colonies are left stained, while the unaltered methylene blue is rapidly extracted from the agar.

FIG. 3.



Same organism as Fig. 2; deep colony whey agar 2 days at 37° C., 3 days at room temperature. 2 millimetres objective. (Zeiss.)

Note.—The organisms are not all in one plane, and the consequent difficulty of focussing militates against perfect photographic reproduction of these stained deep colonies.

The plates are made in Petri dishes in the usual manner. Ordinary agar can be used; the method is equally successful with modifications of agar, such as glucose, glycerine, and whey agar. It is better not to pour them too thick, about 1/16th inch is best, as although during the drying the slab of agar becomes much thinner, the colonies being on different planes, those on the lowest will be inaccessible under the 1/12th immersion lens if the medium is too thick. Unless the plate culture is to be kept alive for a series of colonies at different ages it is better to fix by pouring methylated spirit into the Petri dish and allowing half an hour to elapse before cutting out.

With or without preliminary treatment with spirit, take a sterile scalpel and cut a square of the desired size round the colony and lift out the slab of agar by inserting a wet chisel under it. By careful manipulation induce the agar to slide up the chisel, and holding the chisel at an angle of about 45° to the wet surface of a glass slide push the slab out to the slide, taking care to include no air bubbles. After this allow to dry in 37° C. incubator or other hot place, and soak in methylated alcohol for 20 minutes. Next put in 5 per cent. solution of acetic acid for about 10 minutes to dissolve off surface crystals. It is necessary to watch this part of the process carefully to avoid dissolving the medium. Wash and dry in incubator until the agar is quite dry, which usually takes about 20 minutes.

Staining method.—Pour on "Stephens's scarlet writing fluid"— which acts better than ordinary water soluble eosin—and allow to remain on until the deep colonies are well stained. This usually takes from 10 to 20 minutes, according to the thickness of the agar. It is advisable until one has become accustomed to the naked-eye appearance of the stained colonies to inspect under low power to see if the ink has penetrated to the deepest layers. Pour off and blot the

edges and press lightly with soft paper to express any ink that may have run under the edges of the slab. Now pour on Löffler's methylene blue, diluted with an equal volume of distilled water, and tilt the slide well until the ink is discharged from the agar, and it turns violet. Before this end is attained it may be necessary to pour off the first portion of blue and to put on a second. Then wash in a small stream of water directed from a wash bottle to carry away any deposit of altered methylene blue that may be formed on the surface of the agar. Decolourise in spirit until the colour ceases to come out in a visible cloud; finish dehydration in aniline oil, pass into xylol, and mount in Canada balsam.

It will be found that the organisms are stained a deep purple and the agar medium a very pale green. With a 1/12th oil immersion lens the individual organisms can be perfectly seen, while the colonies of those bacteria and yeasts that send off streamers and chains through the medium are very beautiful. Each individual organism is as plainly visible as in an ordinary stained film preparation, but it is a distinct advantage to be able to see the organisms in their exact relative positions; those organisms that are dichotomous, for instance, form interesting subjects of study when stained in this manner. In some of the fermentative organisms isolated from milk there is shown to be at first a proliferation of oval yeast-like cells, but when—either through exhaustion of the food-supply or the poisoning of the medium with the products of metabolism—the environment becomes unsuitable, then long rod-shaped cells are formed which radiate from the colony (Figs. 2 and 3). A number varying from 8 to 20 of the yeast-like cells bud off from the end of the rod and then another of the long cells is pushed through the medium. Although this organism in liquid cultures gives both forms of cell, yet it was not until a preparation of a deep colony in agar plate was stained that I was able to understand the use in the life economy of the fungus of the two types of cell produced. I give this illustration as a possible use in research work of the staining method described.

I have to acknowledge my indebtedness to Dr. David N. Nabarro for suggestions, help, and cultures, and to Dr. A. C. Stevenson for photographs Nos. 2 and 3.

A CASE OF THROMBOSIS OF THE INFERIOR MESENTERIC VEIN.

BY ARTHUR A. STRATON, M.B., B.S. LOND., M.R.C.S. ENG., L.R.C.P. LOND.,
SENIOR HOUSE SURGEON TO THE SUSSEX COUNTY HOSPITAL.

THE patient, a man aged 48 years, was admitted to the Sussex County Hospital on the morning of April 1st, at about 1 o'clock, complaining of great pain in the lower part of the abdomen and in the scrotum.

History.—The patient had been quite well until about 9 o'clock in the evening, when he began to feel pain in the lower part of the abdomen, chiefly on the left side. At the same time, or soon after, he noticed that the left half of his scrotum had begun to swell; but as he had had for several years a left inguinal hernia producing no inconvenience, and always reducible without difficulty, he did not trouble himself about it. The pain did not come on after any sudden effort, but was of gradual onset. As it became rapidly worse he was brought to the hospital. He was a labourer, and had never worked in lead; his bowels had always been regular, and had been opened that morning; he had never had any illness of any kind all his life.

Condition on admission.—At 1 o'clock, about four hours after the onset of the attack, the patient was writhing with pain which was of a most intense griping character, referred to the lower part of the abdomen, more on the left than on the right side, and also in the scrotum. The inguinal canal and scrotum were filled with a huge hernial swelling, the scrotum itself being swollen to the size of a cocoa-nut, and extremely tense; the penis was obliterated by the swelling. This swelling gave some slight impulse on coughing and was in places resonant. The abdomen appeared somewhat distended, but not markedly so, and there was a definite fluid thrill to be made out; no rigidity of the abdominal walls was present, nor was there any area of tenderness or of hyperæsthesia. With the exception of the hernia there was no localised tumour, and no definite signs of obstruction were present; there was no vomiting, fæcal or otherwise. The pulse was 96, but of good tension; the temperature was 96·6° F., and the skin was cold, clammy, and sweating freely. There were no signs of disease of any sort in the heart or lungs.

The patient was prepared for operation immediately, but was unable to pass urine. Immediately before going to the theatre he passed a pint and a half of bright blood per rectum, whilst on the table he vomited a considerable quantity of food in an undigested state.

Operation.—Anæsthesia was induced with chloroform, and as soon as the patient was unconscious the greater part of the scrotal swelling disappeared, but as blood in great quantity had been passed per rectum it was decided that the hernial tumour should be explored. A catheter was passed but only a few ounces of normal urine were drawn off. A vertical incision was made over the swelling; the hernial sac was freed from the surrounding structures and then opened. Blood-stained fluid escaped in some quantity, and a knuckle of gut was found presenting at the neck of the sac, slightly purple and congested, but not to all appearances past recovery. This was drawn down to expose the gut beyond it in each direction, but this, instead of becoming less congested, was the reverse, and presented patches of dark purple and even black discolouration where the damage done was very extensive. Nearly three feet were drawn down, but as the same conditions were found to prevail beyond this limit, and since a very extensive resection of gangrenous gut was obviously necessary it was decided to open the abdomen in order to complete the operation.

The abdomen was then opened through the sheath of the left rectus muscle, the incision being about five inches in length and reaching from the level of the umbilicus nearly to the pubes. On opening the peritoneal cavity a large quantity of blood-stained fluid escaped, the whole cavity being filled with it. The portion of gangrenous gut presenting through the hernia opening was drawn back into the abdomen and out through the new incision. The extent of the affected gut was found to comprise about five feet extending upwards from a point some six inches above the ileo-cæcal junction, whilst definite congestion and even ecchymoses of some size were present in the mesentery attached to the affected gut, so that a resection of the whole extent of affected gut and mesentery was necessitated. This was begun a few inches above the upper limit, between two pairs of intestinal clamps, a purse-string suture being first inserted immediately above the upper clamp and tightened; the gut was then cut across below the upper clamp, the peritoneal cavity being protected by a gauze packing. A second purse-string was then inserted through the intestinal wall, half an inch above the first, the clamp removed, and the blind end intussuscepted into the gut above it. A third suture was then inserted in the same way to prevent any chance of leakage. The mesentery was then resected between a clamp below and successive stout silk ligatures above, in the same way as a broad ligament, until the base of the mesenteric attachment was reached. The same procedure was then taken with the lower end, and in this way two blind ends of small intestine were left lying in the abdomen requiring an anastomosis.

The ascending colon was found to have a very short meso-colon and could not be drawn out of the wound, so that the transverse colon was brought outside and the small intestine above the blind end was placed in contact with it. The two portions of gut were then clamped and a lateral anastomosis formed between them, the opening made being about two and a half inches in length. The anastomosis was completed in the ordinary way, an extra row of sero-serous stitches being inserted for safety, and tension stitches put in at each end.

The abdomen was mopped free of fluid as far as possible, and the abdominal incision was closed by through-and-through silkworm gut sutures. The hernial opening was closed except for a space left for a drainage tube, which was passed into the abdominal cavity through the remains of the hernial sac, after the latter had been for the most part closed. A pint and a half of saline was given intravenously during the operation, and strychnine hypodermically, while after return to bed a pint of saline was introduced under each breast, and digitalin was given hypodermically four-hourly.

The resected gut was reported as non-viable in its whole extent, while the mesentery for about three inches from the edge of the gut was purple and deeply congested, with several definite ecchymoses scattered throughout its substance, some of the patches being nearly two inches in diameter. Thus in the absence of all signs of a volvulus the lesion must have been a thrombosis or embolism of one of the larger mesenteric vessels, although on examination after the operation no definite thrombosis could be found.

Subsequent progress.—The patient slept a little after the operation, and was fairly comfortable during the day. He was given hourly feeds of milk and water and of albumin water, which he kept down without difficulty. In the evening he was given a turpentine enema, after which he passed flatus. To relieve pain in the evening morphia (¼ grain) was ordered. On April 2nd the patient had had a fair night and his strength was well maintained. An enema of soap and water was given in the morning with a fair result. Calomel (¼ grain) was given four-hourly through the day. At night the pulse was not so strong, and saline was given under the breast—one pint with half an ounce of brandy and three drachms of adrenalin solution (1–1000) on each side; the effect of this was good. On the 3rd the patient had two fluid fæcal motions and the feeds were increased in consequence. Benger's food and plasmon with jellies and beaten egg were given. The pulse again became weaker at night and saline with brandy and adrenalin was given as before (a pint into each flank). On the 4th the pulse was much improved after a fairly comfortable night's rest. The abdominal wound was red and somewhat swollen, so one of the stitches was removed, allowing some turbid serum to escape; some of this was collected and found to contain bacillus coli. A culture was made and a vaccine produced, 5,000,000 dead bacilli being injected into the arm. The patient had two loose actions in the morning and two in the afternoon, so a mixture of bismuth and opium was given by the mouth to check the tendency to diarrhœa. On the 5th the diarrhœa continued to be troublesome, though the motions were quite free from blood and mucus. An enema of starch and opium was given, and a mixture of catechu, chalk, bismuth, and opium was exhibited with but little benefit. The pulse became more rapid, rising to 120, and the patient was exhausted by the frequent actions. There were no abdominal distension and no rise of temperature to suggest a peritonitis. The diarrhœa persisted through the night and the patient obtained but little rest. On the 6th the diarrhœa continued and lead and opium was given in addition to the mixture but with little effect, the condition becoming more grave in consequence. About 6 o'clock the patient became very restless and the pulse-rate increased with onset of dyspnœa. A little later a very definite air-hunger supervened with pain in the chest; he became rapidly weaker and died at 9 o'clock.

Post-mortem examination.—On opening the abdomen it was found that the anastomosis had held well and that there was no leakage around it. Both blind ends were quite healed without leakage, and the stump of the mesentery was in a satisfactory state. The vessels of the mesentery were carefully examined but no definite thrombus was found in any vein or artery. There were, however, old dense adhesions all over the peritoneum with well-marked fibrous perihepatitis and perisplenitis, evidently of considerable standing. There was no recent peritonitis. In the thorax the heart was quite normal, and the aorta showed no signs of atheroma. The lungs on section showed numerous small embolisms, apparently quite recent; and as the area of congestion around each was still quite small and a bright red in colour these probably occurred almost immediately before death, and would account for the pain in the chest and air hunger felt by the patient during his last few hours.

Although no thrombosis was actually found in the vessels of the mesentery there can be little doubt but that the original lesion was one of thrombosis of the inferior mesenteric vein, especially in view of the normal condition of the heart and aorta found post mortem.

Remarks.—The chief points of interest in this case appear to rest in the question of diagnosis, especially in view of the rarity of the causative lesion. The predominant symptom was pain referred to the lower part of the abdomen, of a gradual onset, but culminating within the comparatively short space of two hours in an agony of the most intense acuteness, associated with a tumour in the left inguinal and scrotal region, which had grown since the onset of the pain to the size of a small cocoanut.

The history of the case was of interest especially on account of its extraordinary negativeness. The entire absence of any previous illness or even malaise, of indigestion, of vomiting, of melæna, and of pain was of great help in limiting the diagnosis, as rendering unlikely such acute lesions as perforation of an ulcer of the alimentary tract, whether gastric, duodenal, or typhoid in character. In face of the alleged freedom from urinary troubles, from jaundice, and from venereal affections, such conditions as renal and biliary colic and the gastric crises of tabes appeared equally improbable; whilst the muscular development of the patient rendered a Deitl's crisis of nephroptosis very unlikely. Thus one was left, before making any examination of the patient, with the following as the most probable lesions: acute fulminating appendicitis, strangulated hernia (external or internal), intussusception, acute pancreatitis, volvulus, and mesenteric thrombosis or embolism.

Of these lesions intussusception in adults is almost invariably the secondary result of an intestinal neoplasm, malignant or benign, and such growths in almost every case give rise to symptoms on their own account before producing those of an intussusception; and here the absence of melæna, of diarrhœa, of constipation, of straining, and of the passage of mucus was apparently definite.

On examination of the patient two points were at once striking—the presence of a very large and tense left inguinal hernia, and the presence of free fluid in the peritoneal cavity. At first sight the hernia, if strangulated, presented an obvious explanation of the pain and swelling, but did not account for the free fluid, unless the latter had previously been present but unnoticed, and this seemed unlikely. The situation of the pain in the lower part of the abdomen was not like an acute pancreatitis, where the pain is most often referred about or a little above the umbilicus, though such a lesion might give rise to the free fluid. The absence of tenderness and rigidity over the right iliac fossa practically negatived an appendicular affection, especially in the absence of any fever. The negative history of rheumatic and venereal disease, and absence of all physical signs of cardiac or arterial lesion, rendered the likelihood of mesenteric thrombosis or embolism very small. Volvulus could not, however, be eliminated in this way, and remained a probability with strangulated hernia, internal or external.

The next question was whether the fluid in the peritoneal cavity was due to the presence of the hernia, whether it was itself the cause of the hernia, or whether the two phenomena bore no relation to one another at all. On closer examination of the hernia it was found to be resonant in places, which was against strangulation, and further than this there was the definite statement by the patient that the pain started *before* the appearance of the hernial swelling. These two very important facts, then, made it seem more than probable that the hernia might be merely a secondary effect of some grave intra-abdominal lesion, which was capable of producing in a short space of time a very large outpouring of fluid into the peritoneal cavity. Such might be the result of a very large internal strangulation by bands, &c., of a volvulus, or of a mesenteric vascular lesion, though the latter was unlikely in view of the previous health of the patient and of his excellent cardiac and vascular condition. Thus until the operation was performed it was practically impossible to arrive at any exact diagnosis of the condition, though the passage of the large quantity of fresh blood immediately before reaching the theatre rendered certain the presence of some acute intestinal lesion.

With regard to the operation, the tangible presence of the hernia led to the first incision being made over the swelling with a view to its exploration. Had the blood not been passed per rectum just previously the self-reduction of the greater portion of the hernia under the anæsthetic might have led to the condition being left without further interference, but under the circumstances operation became inevitable. The lateral form of anastomosis was preferred to the end-to-end form because of the impossibility of gauging the exact extent of the damaged gut, and because with the lateral junction no special strain was inflicted upon the doubtful portion. In the after-treatment the great difficulty to contend against was the diarrhœa that so often occurs in cases of intestinal resection, and it was this that so greatly reduced the vitality of the patient. Indirectly the enormous

drain upon the body fluids very probably aided a tendency towards further thrombosis, which gave rise to the final and fatal pulmonary embolisms.

The recorded mortality after operation for arterial thrombosis is 92—95 per cent.; whilst in venous thrombosis it falls to 81—88 per cent. Without operation, of course, no recoveries are reported. The fact that this patient lived for six days is probably due to the absence of the heart lesion which is usually present in such cases.

Reviews and Notices of Books.

Protozoology. By GARY N. CALKINS, Ph.D., Professor of Protozoology in Columbia University, New York. Illustrated. London: Baillière, Tindall, and Cox. 1910. Pp. 349. Price 15*s.* net, or $3.25.

A CERTAIN fascination surrounds the amœba, as we watch its movements upon the stage of the microscope, in the idea that this collection of protoplasm has been living since life first appeared in our world and possesses the potentiality of immortality. Professor Calkins refers to this, but he says that the same sensations might be experienced upon gazing at our fellow beings or at any other living thing. He thinks that the difference is not so great after all, because protozoa, like metazoa, may die from old age. Certainly they *may*, but none of the ancestors of the particular amœba we see can have done so, and while the living metazoan body is destined to disintegration in a comparatively short time the amœba has in its whole body the potentiality of immortality.

Had Professor Calkins called his book "Parasitic Protozoa," or used some name for it that indicated that parasitic protozoa, perhaps particularly the tropical forms, were dealt with in detail, while the free-living forms were treated of only in such a manner as to serve but barely as an adequate introduction to their more dependent relatives, our part would have been easy, for we should have little to do but praise. This misnomer, for no other term can be applied to the title of the book, is the more surprising and disappointing because of the hope very naturally raised by Professor Calkins's earlier work on Protozoa published in the Columbia University Series. There he dealt with this difficult subject in a new and very satisfactory manner, and we had hoped that the present volume would prove to be an adequate amplification of the valuable introduction he had already provided.

Unfortunately there are many circumstances which militate against the proper treatment of the protozoa by any single author. A man could hardly hope to obtain a really thorough knowledge of the Phylum in one short lifetime, even were the existing knowledge in a readily available and satisfactory condition, which it is not. The classification, even in some cases where broad and important points are involved, is in a hopeless state of confusion. Many of the most active workers are medical men whose technical zoological training only began when they commenced to make original observations upon parasitic protozoa in connexion with the diseases they cause. We fear that in too many cases a sound foundation in a knowledge of the free-living protozoa is regarded as quite unnecessary and a waste of time by such men. Yet a moment's thought makes evident the supreme importance to medicine of a familiarity with the life-cycles and general facts relating to the free-living protozoa; for the parasitic forms must necessarily have been derived originally from the non-parasitic.

At the present time a grave confusion in morphological terms exists, particularly with regard to the parasitic protozoa, a confusion which may be attributed to the invasion of zoological fields by observers who have not received a special zoological training; but against this must be set the fact that our great clinical lessons have all been taught us by just this energetic and self-sacrificing class of workers. The morphological terms that were already available before the medical investigation of the parasitic protozoa were comparatively simple and reasonable. We had the nucleus and cytoplasm of the cell. The latter, from which the motile and other organs of the unicellular organism are developed, was further divided into endo- and ecto-plasm; and sometimes we find, particularly in vegetable cells, a definite cell membrane. Minute bodies, generally on the limit of microscopic vision, the centrosomes, are almost invariably found in the cytoplasm. We know of these structures in two very different relations: (1) as occupying the centres of force or great activity in the mitotic figure; and (2) in connexion with the motile organs of individual cells. This connexion with motile organs is most marked in the case of the flagella (e.g., spermatozoa), but they have several times been described as multiplying beyond the usual pair in the case of ciliated cells, one centrosome being found at the base of each cilium. Professor Calkins leaves his readers in great doubt as to what he thinks about the centrosomes in protozoa, and, indeed, about the whole process of mitosis in them.

Maupas's classical work upon the fertilisation of unicellular animals gave us the lead in the investigation of the life-cycles of the protozoa. Zoologists were already familiar with the micro- and macro-nuclei present in so many of these forms. He first showed that the function of the macronucleus was almost certainly entirely concerned with the nutrition of the cell, while the micro nucleus only took part in conjugation and subsequently gave rise to macro-nuclei in the new generation of individuals. We therefore have macro- and micro-nuclei already named, and also the centrosomes.

With regard to identifying the two nuclei of Trypanosomes, Trypanoplasma, and other parasitic protozoa with the macro- and micro-nuclei of *Paramecium*, for instance, objections certainly exist, but they are rather of a negative than a positive nature. We believe that we are right in saying that in no case has an account of fertilisation in these parasitic forms received general acceptance. While our knowledge is in this state it would appear more reasonable and less likely to produce confusion if the old terms were adhered to. Let us take a concrete case. In Trypanoplasma there are two nuclei—one large one, generally spherical in shape; the other smaller, elongated and curved. The latter stains far more densely than the former, so much so that with the methods usually employed it is difficult to make out any structure in it at all. Outside the small nucleus are two minute bodies situate at the base of the two flagella, or, rather, one at the base of the flagellum, the other at the base of the filament which runs along the edge of the undulating membrane. There seems every reason to believe that these small bodies are centrosomes; at any rate, there is nothing whatever against such a supposition. Yet they have recently been called "blepharoplasts," and, unfortunately, this term is very often, perhaps generally, applied to the small darkly staining nucleus, which is also known by the complicated name of "kinetonucleus." This one examle shows in what a puzzling condition the morphological nomenclature of these forms is. There is, therefore, a splendid chance for anyone with sufficient authority to rectify these matters by going back to the old and well-known terms where they can be used, and by refusing countenance to all new ones, except in the cases where undoubtedly new structures with new functions are found. Blepharoplasts, kinetonuclei, and the rest may some of them be such structures, but the proofs are yet to seek. Professor Calkins, it seems to us, has missed this chance of simplifying

nomenclature in an authoritative way, for he has left morphological terminology in the same state as he found it.

On p. 89 Professor Calkins says: "Since the hereditary characteristics are now known to be connected in some way with the chromosomes, the mitotic figure becomes the mechanism of heredity." A general consensus of opinion is here assumed which certainly does not exist. Meves, Godlewsky, and many other observers of high repute have insisted as recently as this year that the cytoplasmic structures play just as important a part in the transmission of hereditary characters, and their evidence is weighty and apposite. He deals with the parasitic protozoa thoroughly, if somewhat briefly, and the volume for its size contains a very complete and up-to-date account of the work that has been done upon these forms. The bibliography is excellent, but the nomenclature in describing the work of various authors is not made uniform and the matter is sometimes rather disconnected. On p. 204 "epitheliomata" is written where "endotheliomata" is evidently intended.

Eléments d'Obstétrique (*Elements of Obstetrics*). By Dr. V. WALLICH, Professeur Agrégé at the Faculty of Medicine, Paris. Second edition With 135 figures. Paris: G. Steinheil. 1910. Pp. 720. Price 8 francs.

IN bringing out a second edition of his book Professor Wallich has amended it in several particulars. It is a text-book which contains a great deal of information carefully and clearly written and well arranged. Many of the illustrations are extremely good, and it is interesting to note that they are drawn from a wide range of authorities, including some of the best-known plates from the works of Smellie and Hunter. As might have been expected, the author lays great stress upon the practice of abdominal palpation and quotes with approval many of the dicta of Pinard and of Pajot. In the chapter on the hygiene of pregnancy a special section is devoted to the important question of puericulture, upon which Pinard in particular has written so much, "a science (as he terms it) which has for its aim the accumulation of knowledge regarding the reproduction, the preservation, and the improvement of the human species." English readers will receive with interest the full account, with four illustrations, given of the instrument devised by Ribemont-Dessaignes for clearing the air-passages of the newly-born and for carrying out intratracheal insufflation.

In describing the precautions to be taken to avoid the risk of septic infection the author calls attention to the fact that Professor Lucas-Championnière was in reality the first to introduce the use of antiseptics into midwifery practice, which he did in the maternity of the Hôpital Cochin in the year 1874. In the preliminary washing of the hands Professor Wallich does not recommend the use of a stream of running water, but maintains that the use of a basin is preferable, since a strong soapy solution forms the best cleansing agent. The whole chapter on the practice of antisepsis is eminently practical, and the difficulties surrounding the conduct of a midwifery case with complete antiseptic precautions are fully recognised. In cases where it is necessary to draw off the breast milk the author recommends the suction pump of Rohan, an apparatus which permits of the milk being drawn off and the child being able to suck simultaneously, By this Professor Wallich has obtained very excellent results. and has been able to obtain as much as 800-900 grammes of milk in the 24 hours from the mother. The apparatus is certainly an ingenious one and merits trial in this country.

The first portion of the second part, dealing with the various abnormal medical and surgical affections of pregnancy, is especially good. and forms one of the best sections in the book. The whole, however, is, as we have said, well written and forms a text-book of great merit, containing within a comparatively small compass a large amount of information. The binding and paper, too, are better than is usual in many French scientific works, as is also the index.

A Manual of Sanitary Law. Specially arranged for candidates for Public Health Qualifications by ROBERT P. MCDONNELL, D.P.H., F.R.C.S. Irel., Fellow of the Society of Medical Officers of Health; late Medical Officer of Health Bray No. 2 Dispensary District, Rathdown Union. Dublin: Edward Ponsonby. 1910. Pp. 89. Price 2*s.* 6*d.*—*Handbook of Scotch Sanitary Law.* By THOMAS W. SWANSON, Associate Royal Sanitary Institute; Member Sanitary Association; Cert. Victoria University. London: The Sanitary Publishing Co., Limited. Third edition. 1910. Pp. 63. Price 2*s.* 6*d.*

THE object of the two small volumes under review is to supply in an abbreviated form the law relating to sanitary matters for the benefit of students preparing for their examinations in Ireland and in Scotland respectively. Both cover practically the same ground, and it is interesting to note that the two authors approach their subjects from slightly different points of view, and supply conveniently condensed information in dissimilar forms.

Mr. Robert P. McDonnell's Manual of Sanitary Law professes to rescue the student of Irish sanitation from the necessity for wading through irrelevant matter in the larger volumes relating to the law of public health by extracting from them those portions of the law upon which he may reasonably expect to be questioned when being examined for the Diploma of Public Health or before appointment as a sanitary inspector. We prefer rather to picture the candidate in question as gathering the law for himself at first hand and in its fuller form and as using Mr. McDonnell's work as an analysis, mentally and physically portable, to remind him of what he has read and to save him from the labour of condensing and analysing for himself. Learning from an analysis alone is a rather severe exercise for the memory, and the portions which necessarily escape its grasp in such circumstances may prove to be of material importance. Used as a reminder the synoptical handbook is invaluable, and the one under review is compiled upon sound methods for use as such. It would be better adapted for serving as a guide to the sources of fuller information if references were given in all instances to Acts and Sections. Several examples of D.P.H. examination papers are appended, and there is a comprehensive index.

Speaking generally, we may apply the above observations equally to the Handbook of Scotch Sanitary Law which Mr. Thomas W. Swanson has compiled with special regard for the requirements of candidates for sanitary inspectorships north of the Tweed. He prefers, however, a different literary method from that of Mr. McDonnell, and presents the essential features of the law abridged into a succession of paragraphs, epitomising it in a readable form, and inserting references to sections for the use of those who desire to consult the full text of the statutes bearing upon particular subjects. In fact, his work might be described as fitted to form an introduction to a more comprehensive study of the law for one who had time to indulge in it, whereas the method of Mr. McDonnell would render his book more serviceable to the learner who had already gone to original sources for himself. Either book, however, is capable of being used by itself without going further by those desirous of acquiring their knowledge in an abbreviated form with the least possible amount of trouble, but in each case the student must remember that the high road is generally safe and the short cut generally perilous. A useful feature in Mr. Swanson's work consists in the provision of blank pages for notes to be made by the student facing each page of text, but there is no index, an omission which is to

be regretted unless it be intended that the reader should assist his memory to retain the information provided for him by making one for himself. Perhaps each author might profit a little by comparing his own work with that of the other.

Annals of Tropical Medicine and Parasitology. Vol. IV., No. 1. (Amazon Yellow Fever Expedition.) Illustrated by 11 plates, 6 of them coloured. Issued by the Liverpool School of Tropical Medicine. Liverpool: At the University Press; London: Archibald Constable and Co. 1910. Pp. 150. Price 10*s.* 6*d.* net.

THIS number contains an interim report of the Amazon Yellow Fever Expedition which was despatched by the Liverpool School of Tropical Medicine to Manaos early in 1905. This expedition, which was the fifteenth to be sent out by the Liverpool School and the second to be despatched to the Amazon region, comprised two members, Dr. H. Wolferstan Thomas and Dr. Anton Breinl. Shortly after their arrival in North Brazil both of these intrepid investigators contracted yellow fever from which they fortunately recovered. Subsequently, however, complications supervened in the case of Dr. Breinl and he had to return to Europe, leaving Dr. Thomas to carry on the work of the expedition single handed from 1905 to February, 1909. The present report now published embraces only a portion of the researches carried out at the laboratory established at Manaos. It is hoped to complete later the account of all the investigations, and to publish at short intervals a series of papers on subjects affecting the welfare and hygienic conditions of the Amazon region.

The main object of the expedition was to investigate yellow fever and to advance our knowledge of the disease. Chimpanzees were successfully inoculated; rabbits and guinea-pigs also exhibited certain reactions when inoculated with infective blood from human cases of yellow fever or when subjected to the bites of infected stegomyiæ. The chimpanzees available in the laboratory were insufficient in number to allow experimental proof to be made of certain points that might have been followed up. With regard to the technique employed in the experiments, it is thought inadvisable to publish it until an exhaustive report can be presented. Investigations had to be suspended in 1909 for want of animals susceptible to the disease. A new expedition, however, has now been organised and arrangements made for an adequate supply of chimpanzees. By this means, and in view of the experience already accumulated, it is confidently expected that an early and satisfactory report will be published.

The present report, which is now printed in the fourth volume of the *Annals of Tropical Medicine and Parasitology*, does not confine itself to yellow fever alone. It comprises eight chapters, four of which are written by Dr. Thomas, the subjects of which are: (1) the sanitary conditions and diseases prevailing in Manaos (illustrated by a map of the town and a chart showing the fluctuations of the waters of the Rio Negro on which it is built); (2) pathological report of a case of œsophagostomiasis in man—this is handsomely illustrated with coloured and other plates; (3) "mossy" foot of the Amazon region, an infective verrucotic condition affecting the upper and lower limbs (illustrated with photographic reproductions of cases treated); and (4) on yellow fever. A fifth chapter is contributed jointly by Dr. Thomas and Dr. R. Newstead on the mosquitoes of the Amazon region, illustrated with a coloured plate. The remaining chapters comprise one entitled, "Étude Zoologique de l'Œsophagostome de Thomas," by M. A. Railliet and M. A. Henry; another, which is illustrated, is on Guarana, by Mr. Prosper H. Marsden, F.C.S., lecturer on materia medica in the University of Liverpool; and the other is on Some of the Chemical Constituents of Guarana, by Mr. Nierenstein, Ph.D., lecturer on biochemistry in the University of Bristol.

The chapter on yellow fever was delivered by Dr. Thomas in the form of a lecture to the students of the Liverpool School of Tropical Medicine. It gives much valuable information generally as to the disease, and many useful hints as to its treatment and prevention. The various clinical types of yellow fever are described, from those of a mild nature, liable to be mistaken for influenza or "gastric disturbance," to the more malignant and rapidly fatal forms of the disease. The treatment is summed up as consisting of good nursing and the administration of alkaline waters, such as Vichy. Prevention of yellow fever can only be secured by enforcement of "tropical sanitation," which Dr. Thomas defines as comprising a general cleaning up of the town, a campaign against mosquitoes, and the training of the inhabitants to recognise that certain practices are dangerous to themselves as well as to others. Dr. Thomas is to be congratulated on the large amount of serviceable work which he has done at Manaos under conditions of considerable difficulty, for his labours may form the basis of some important discoveries and advancements in the near future.

LIBRARY TABLE.

An Introduction to the Study of Hypnotism. By H. E WINGFIELD, M.D. Cantab. London: Baillière, Tindall, and Cox. 1910. Crown 8vo, pp. 175. Price 5*s.* net.—Dr. Wingfield's book is a most satisfactory treatise. It elevates his rather difficult subject into one that calls for scientific consideration, while it is written with the quiet impressive manner of a student who is at pains to state facts and to repress his obvious enthusiasm for the branch of study in pursuit of which his conclusions have been arrived at. Thus there is no sensational trimming to accounts in themselves sufficiently striking, and there is at the end of the book a chapter dealing with the case against hypnotism, in which the limits of hypnotism and its disadvantages are clearly pointed out. The last are, in Dr. Wingfield's opinion, two—viz., an increased tendency to hypnosis and an exaggerated susceptibility to suggestion in the waking state. The author defines hypnosis as "a psychical condition in which suggestions are not only more easily accepted, but are also realised with an intensity much greater than is possible to the normal state." A large portion of the work deals with experiments carried out at Cambridge, in many instances with the help of Professor J. N. Langley. The other portions of the book which will most concern the medical reader deal with treatment by suggestion and contain much recent information. Dr. Wingfield indicates plainly the kind of case likely, in his opinion, to be successfully handled by hypnotism. Dipsomaniacs, he says, provide some of the most gratifying instances of success, while morphinomaniacs appear to be less satisfactory under treatment. Insomnia and stammering are other states in which success is sometimes achieved to a degree possible, he believes, with no other form of treatment at present available. That there is a distinct field for hypnotic treatment scientifically carried out by qualified medical men few practitioners any longer doubt. That in the present condition of life in crowded towns this field is ever increasing we are inclined to believe; at any rate, Dr. Wingfield's belief is a fair collection of inferences—viz., that "there is a certain obscure province of pathology that no therapeutic power but that of hypnotism can penetrate. Only its relieving and strengthening suggestions can ..... unravel the twisted knots of insubstantial yet intolerable pain ..... and harmonise

those discords between bodily and spiritual life that beset a highly artificial and complicated civilisation." It is well that medical men should realise that they may have in hypnotism an agent which is speedily likely to succeed in that very class of case which is often unsuccessfully treated by more obvious methods, and which is apt to swell the numbers of the vaunted triumphs of "Christian Science" and allied measures.

Psychotherapeutics. A Symposium by MORTON PRINCE, M.D., and others. London and Leipzig: T. Fisher Unwin. Pp. 204. 1910. Price 4*s.* 6*d.* net.—This book is composed of a series of papers by American neurologists, and has as its introduction some remarks addressed by Dr. F. H. Gerrish to the American Therapeutic Society on the occasion of his reading a paper on the Therapeutic Value of Hypnotic Suggestion. This same paper forms one of the chapters of the volume and gives a clear account of modes of inducing hypnosis and illustrations of the kinds of case in which the treatment is to be recommended. Another chapter by Dr. Boris Sidis deals with the psychotherapeutic value of the hypnoidal state. By the "hypnoidal" or "sub-waking" state Dr. Sidis describes a condition in which mental life can be affected with ease—a state of increased "suggestibility" without the deeper effect upon consciousness that is characteristic of the true hypnotic condition. The hypnoidal state is a transitional intermediate condition. Dr. Sidis states that the therapeutic value of the hypnoidal state consists in the liberation of reserve energy requisite for the synthesis of the dissociated systems, and he devotes a considerable space to the discussion of the theory of reserve energy. Into this discussion it is easy to follow Dr. Sidis, but not so easy to emerge with a clear notion of the tenets of the theory, plain though these appear at first sight. It is not, however, the language of Dr. Sidis that is difficult to follow, but confusion easily arises from the extreme complexity of the psychological problems with which he deals. Considering this complexity, inherent as it is in the nature of the subject, we must regard this book as being a valuable addition to the material available for those medical men who wish without much previous training to get an insight into the laws and the problems and the practical applications of psychology. These latter cover a wide field, and we find in this little book a chapter dealing with the relation of character formation to psychotherapy, a matter widely distant from the application of hypnotism to neuralgia. We gather that, as is the case with continental nations, a lively national character renders the American more frequently subject to conditions that can be helped by psychotherapy than is the case with our own less emotional countrymen. Nevertheless, a knowledge of the matters dealt with in this book is of great value to medical men in Great Britain also, and there is little doubt that, owing to modern conditions of living, new forms of disease tend more and more to involve, or to be prejudiced by, the mental state

Hypnotism and Suggestion. By BERNARD HOLLANDER, M.D. Freiburg. London: Sir Isaac Pitman and Sons. 1910. Pp. 295. Price 6*s.*—This book contains a good account, for popular purposes, of the effects of suggestion and of different methods of procuring the hypnotic state. There is also a large amount of interesting matter concerning the history of treatment by hypnotism and suggestion, with plentiful reference to, and quotations from, Braid and those of his time. The French schools of hypnotism, Nancy and Paris, are also discussed, and both here and in the general trend of his remarks Dr. Hollander gives a very fair representation of what the position should be to-day in the mind of a medical man with regard to the whole subject of hypnotism and its application to the cure of disease. With some of the author's remarks *à propos* of allied subjects, such as apparitions, we find ourselves less in agreement, nor are we prepared to endorse his judgment as to the frequency with which persons in ordinary circumstances are liable to enter into a condition of hypnotism, or at least of heightened suggestibility. Dr. Hollander is of opinion that the exercise of hypnotism should be confined by legislation to qualified medical men: here we are at one with him. Yet, as he points out, danger to life is probably very remote even in ignorant hands, although he is able to quote one authenticated instance. Numerous examples are given to show the kind of case for which hypnotism is valuable and the good results that may be achieved. The book may be regarded as a safe, if not very deep, guide to knowledge on the subjects of which it treats.

Spirit and Matter before the Bar of Modern Science. By ISAAC W. HEYSINGER, M.D. London: T. Werner Laurie. 1910. Pp. 433. Price 15*s.*—The title of this book is deceptive. There is much talk of "spirit" and a certain amount of "matter," but there is no evidence whatever of modern science. The nearest approach to anything like science consists in quotations from scientific authorities of a not very recent date. A more confused and confusing kind of book than Dr. Heysinger's it would be hard to imagine. So far as we have been able to extricate a clear idea from his work we take his leading notion to be that all religions are founded on spiritual phenomena and that therefore spiritualism is true. Dr. Heysinger frequently mentions psychology, but we fear that his work is only likely to discourage and worry those who may wish to obtain an insight into the difficult problems attacked by the scientific psychologist.

First-aid to the Sick: or Diseases, their Description and Treatment. A Work of Reference for the Home. Written in plain language by D. HASTINGS YOUNG, M.B., M.S. Edin., &c. London: George Routledge and Sons. Pp. 280. Price 3*s.* 6*d.* net.—The scope and nature of this book are best indicated by its sub-title. The author in his preface explains that his object has been to afford the general public a plain and simple guide, which will enable them to render first assistance to the sick. Now, the essential use of first-aid, as we understand it, is for emergencies, and in this book Dr. Young has given brief accounts of the symptoms of the ordinary common diseases and of their treatment, including the use of drugs, few of them coming within the category of medical casualties or emergencies. In our opinion such a book is likely to be productive of harm rather than good, the more so that the directions given in regard to treatment are in some cases questionable. For the treatment of acute appendicitis, for example, a large enema of soapy water and olive oil is recommended, this to be repeated every four hours, and 10 to 15 drops of chlorodyne is suggested as "the only drug which had better be used," a smaller dose being given every three to four hours according to the severity of the pain. This is dangerous advice, and it comes as something of an anti-climax to be told that the early attendance of a medical man is absolutely necessary, as these cases are always serious. We are sorry for the practitioner who might be called in after the symptoms and signs had been masked by chlorodyne. There is no need for such a book as this, and the best form of first-aid in cases of sickness is the timely calling-in of the practitioner. Treatment must follow in the wake of diagnosis, and domestic diagnosis, even aided by books such as this, is even less satisfactory than domestic treatment.

JOURNALS AND MAGAZINES.

Bulletin of Entomological Research. Issued by the Entomological Research Committee (Tropical Africa) appointed by the Colonial Office. Edited by the Scientific Secretary. Vol. I., Part 1. April, 1910. London:

Longmans, Green, and Co., and Taylor and Francis. Pp. 88. Price 4s.—Some time ago we announced that this bulletin would shortly appear, and this, the first number, has for preface an interesting account by Dr. A. E. Shipley, F.R.S., of how the Tropical African Research Committee came into being. The insects with which the committee propose to deal are those which are both hurtful and profitable to man, using the expression in its widest sense, that is they will treat not only of insects which transmit disease and which injure plants, but also of those insects which destroy or prevent the development of other and harmful species. The first paper is one on the larval and pupal stages of West African culicidæ, by Mr. W. Wesché, F.R.M.S., founded on a large collection of these insects gathered by Dr. W. M. Graham. The paper deals with the anatomical and structural differences by which the various species can be recognised and is illustrated by carefully drawn plates. An appendix by Dr. Graham gives an account of the methods to be pursued by those who wish to study mosquito larvæ. Dr. Graham points out that there are two methods for the checking of mosquito larvæ—the one direct destruction, the other the destruction of their food-supply, which is, as a rule, living fresh-water algæ. He adds that "very little attention has been paid to the second method, though it is apparently worthy of further study. Unfortunately, any such investigation demands an exact knowledge of West African fresh-water algæ, a subject upon which very little information is at present available." In connexion with this subject we may mention the influence of copper upon the growth of algæ. In THE LANCET of Oct. 28th, 1905, p. 1269, we reported some experiments in which it was shown that the addition not only of minute quantities of copper salts but the presence of the clean metal also rendered the water free from algæ as well as odourless, colourless, and fit for consumption, and it was further reported that micro-organisms were destroyed. Apparently the addition of one grain of copper sulphate to one gallon of water was, under certain conditions, sufficient to destroy the vitality of the typhoid bacillus. This subject has received serious practical attention by the United States Department of Agriculture, and an interesting report was issued in 1906 by Mr. Karl F. Kellerman and Mr. T. D. Beckwith on behalf of that department. We have ourselves found that sulphate of copper in a very small proportion (roughly, an avoirdupois ounce in about 120 gallons of water—i.e., under a grain to the pint) will prohibit the growth of algæ in an ordinary garden rain-water tank, and possibly this method may be worth a trial. Other papers are those by Mr. R. E. Drake-Brockman upon blood-sucking diptera in Eastern and South-eastern Abyssinia; two papers by Mr. E. E. Austen upon two new species of African fruit-flies and a new species of Cordylobia, the latter being a dipterous insect whose larvæ are subcutaneous parasites in man and other mammals; two papers by Mr. G. C. Dudgeon upon hemiptera injurious to cocoa and upon parasites of silkworms; and one by Mr. R. Newstead upon coccidiæ from Uganda. There is also a list of collections received from various parts of Africa. Altogether, the *Bulletin* is of great interest, and the work of the committee will doubtless result in the collection of facts of real value, both economical and hygienic.

Edinburgh Medical Journal.—In the July issue of this journal is published an account of an interesting discussion at the Edinburgh Medico-Chirurgical Society on Artificially Prepared Hypnotics, introduced by Dr. Francis D. Boyd in a paper notable for its strong condemnation of the use of sulphonal and of the tablet form of administration of drugs of this class. Dr. John D. Comrie gives a historical sketch of early knowledge regarding phthisis, from Hippocrates onwards. Dr. T. Addis writes on the coagulation time of the blood in disease, noting that in bacterial infection no marked effect is produced in this phenomenon unless the germs are present in the blood itself; when this occurs the typhoid bacillus and pneumococcus hasten coagulation, while streptococci and staphylococci delay it. An interesting case of disease of the pituitary body, with symptoms referable to the thyroid gland and ovary, is recorded by Dr. J. Eason, with an ophthalmological report by Mr. J. V. Paterson.

The Medical Chronicle.—Two papers on diseases of the spinal column appear in the July number of this magazine. In the first, written by Dr. W. B. Warrington, a large number of different affections, traumatic and other, are enumerated and discussed. In the second Mr. C. Thurstan Holland deals with the value of radiography in the diagnosis of fracture of the spine and of some other common conditions. Both papers are well worthy of careful perusal, this group of affections presenting very puzzling features and giving rise to considerable difficulty in diagnosis.

Birmingham Medical Review.—Two papers on social problems affecting the medical profession are published in the June issue of this review. Mr. Gilbert Barling writes on Poor-law reform, with special reference to the treatment of the sick poor, and praises the scheme outlined in the Majority Report of the recent Commission. Mr. H. Bagster Wilson deals with the relations of the profession to the nation in general, pointing out, on the one hand, the extent to which medical opinion is ignored in the conduct of affairs, and, on the other, the debt which the public owes to its medical practitioners; he also sketches a scheme for a due coördination of all agencies dealing with health matters, which has already appeared in the form of a pamphlet.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following prizes were awarded for the summer session, 1910:—Barker Anatomical Prize (£26 5s.): T. Mather Thomson. Carmichael Scholarship (£15): M. J. Hillery. Mayne Scholarship (£8): J. S. Pegum. Gold Medals in Operative Surgery: J. S. Pegum and F. W. Warren (equal). Stoney Memorial Gold Medal in Anatomy: M. J. Hillery. Practical Histology: G. N. Smyth, first prize (£2) and medal; W. Morrow, second prize (£1) and certificate. Practical Chemistry: C. F. Coyne and M. J. Loftus (equal), first prize (£2) and medal. Public Health and Forensic Medicine: C. J. Sproule, first prize (£2) and medal; Vernon J. White, second prize (£1) and certificate. Materia Medica: M. J. Hillery, first prize (£2) and medal; Vernon J. White, second prize (£1) and certificate. Biology: L. S. O'Grady, first prize (£2) and medal; W. D. G. McCall, second prize (£1) and certificate. The lectures and practical courses of the winter session will commence on Oct. 15th.—The Barker Anatomical Prize of £21 is offered for competition in 1911 and is open to any student whose name is on the anatomical class list of any school in the United Kingdom. The preparations entered must be placed in charge of the curator on or before April 30th, 1911. The prize is offered for a dissection of the first, second, and third cervical nerves from behind. The preparations must be sent to the curator of the Museum, each being marked with a fictitious signature and accompanied by a sealed envelope bearing outside the same signature, and containing within the full name of the competitor and a declaration to the effect that the work of the preparation has been carried out by himself. The printed form necessary for this declaration can be obtained on application to the curator of the Museum, Mr. Arthur H. White, as can all the other particulars of the competition. The dissections for which prizes are awarded become the property of the College. Those competitors who enter dissections for which prizes are not awarded, but which show sufficient merit, may be refunded such amount of the cost of production as the examiners deem fit, but the cost and risks of transport must be borne by the student.

THE LANCET.

LONDON: SATURDAY, JULY 30, 1910.

The British Medical Association: The Address in Medicine.

RESEARCH in medicine has come in many minds to mean scientific investigation in laboratories, more especially physiological, pathological, and chemical. Dr. J. MITCHELL BRUCE in the eloquent, thoughtful, and suggestive Address in Medicine delivered before the British Medical Association at its meeting in London this week puts forward a weighty and well-considered plea for a wider conception of the scope and nature of research in regard to the problems of disease. He draws attention to the opportunities afforded to the family practitioner of contributing to the investigation of these problems, more particularly in regard to the complex subject of etiology. After a brief but striking review of some of the most important advances which have been made in medical science and practice during the 15 years which have elapsed since the Association last held its annual meeting in London, he draws attention to the general nature and character of the progress made. This, he rightly points out, has been chiefly characterised by a change in the general tendency and direction of investigation, so that instead of concentrating attention upon the lesions produced by disease we have advanced to the elucidation of the processes leading up to those lesions, the causes determining them, and the various influences controlling and modifying the actions of those causes. In other words, we are no longer satisfied with a knowledge of the effects of disease processes; we are more concerned with the manner of their development and with their causation. The recognition of the paramount importance of etiological considerations and of the closely cognate subject of functional pathology, as Professor J. G. ADAMI calls the study of the physiology of diseased organs, is regarded by Dr. MITCHELL BRUCE to be deserving of historical recognition as the dominant feature of the medical research of the past 15 years, and with this view we are in full accord. Moreover, the lay public has in some measure come to recognise the importance of these matters owing to the advances which have resulted in public and personal hygiene as a direct result of the application of modern knowledge, and they are as anxious to know the why and wherefore of cancer and other maladies of which the immediate cause is yet unknown as the most fervid investigator.

After demonstrating the fundamental importance of the doctrine of causation, Dr. MITCHELL BRUCE proceeds to analyse the nature of causative processes and of their relation to one another. Taking as an example acute infections, he differentiates three factors—first, the essential cause, which is specific in nature and extrinsic in origin; secondly, the patient's resistance, which is intrinsic; and, thirdly, those various conditions which favour the action of the exciting cause, and are usually classed as incidental, indirect, or predisposing causes. These are, of course, not essential, and may be either intrinsic or extrinsic. It is more particularly to this third etiological factor that Dr. MITCHELL BRUCE devotes the greater part of his address, pointing out the importance of these considerations to the practitioner, not only as most valuable aids to prognosis, treatment, and personal hygiene, but also as affording him valuable opportunities to participate in the advance of medical science. The bedside, the home, and the general environment of the patient offer fields for research as hopeful and as fruitful as the laboratory, and we cannot refrain from quoting Dr. MITCHELL BRUCE'S happy remark that the experienced practitioner "has learned that it is with a patient, not with a disease, that he is concerned, with a process, not with a lesion." Such a man appeals to the clinical laboratory when it can assist in the discovery of the exciting cause or in the determination of the organ at fault, but in his actual search for the cause of disease in his patients he has more often to rely upon personal observations of the subject, of his surroundings, habits, and mode of life, upon knowledge of particular family history, and perhaps upon general knowledge of human nature, the outcome of worldly experience.

These indirect, and often intangible, factors in the incidence of disease necessarily render the problems of causation complex, involved, and intricate: they can only be solved by a direct study of the patient, and consequently they come especially under the notice of the family practitioner and cannot be appreciated by anyone detached from direct association with patients. Dr. MITCHELL BRUCE gives many interesting and striking examples of the value of the information obtainable by such methods, while in no wise minimising the difficulties attending their application. At the same time he points out that not infrequently the conditions are sometimes such as almost to excite the envy of the scientist, since it is given to the practitioner to vary the conditions and circumstances of his patients' lives, and to study the effects with scientific precision. Among the many problems which are open to the practitioner to investigate he mentions the effects of the various conditions of daily life—work, diet, physical stresses, and "nervous" strains—upon the incidence of disease, upon the modification of its manifestations, and upon the actual symptoms, notably in regard to such events as relapses, complications, and recurrences. Again, the part played by inheritance can only be investigated on such lines, as well as the wider question of the influence of complex interacting causes upon the race and upon the individual. Public men are growing more and more to appreciate the sociological importance of such matters in relation to national health and hygiene, consequently the opportunities for research, which lie under the hand of the practitioner, must come to be of more and more pressing importance. It is especially to what we may designate as hidden causes that Dr. MITCHELL BRUCE directs attention. Our knowledge of the pathogenic properties of germs is of comparatively recent origin, and yet upon this fundamental discovery the whole fabric of

our knowledge of immunity, with its important practical results, has been erected. In like manner, Dr. MITCHELL BRUCE maintains, there are other causes concealed in numerous common occurrences, which only await discovery to yield fruitful information in regard to the prevention and treatment of many diseases; and it is important that the practitioner should realise his opportunities and his duties in these matters.

Dr. MITCHELL BRUCE'S choice of a subject for his address is fortunate and opportune. The delivery of such an address affords an admirable opportunity to some distinguished and experienced physician to call a momentary halt while he reviews the progress of medicine or ventilates some subject of public or professional interest. In drawing attention to the importance to the community as well as to the science and practice of medicine of the work of the family practitioner, he has performed a useful service. His weighty remarks are sure to attract attention, not only from their suggestive character and from the clear and eloquent manner in which they are expressed, but also because they tend to show the dignity of the calling of the ordinary practice of medicine, and to demonstrate that the daily round of work involves not only the practice of an art, but also the application of truly scientific knowledge and principles.

The British Medical Association: The Address in Surgery.

IN his choice of a subject for the Address in Surgery to be delivered before the British Medical Association Mr. H. GILBERT BARLING was very successful in taking an obvious course; for malignant disease, on which he spoke, is of prime interest to the operating surgeon, the consulting physician, and the general practitioner alike. The subject was therefore adapted exactly to the interests of a heterogeneous scientific audience, while the treatment was of practical value to that audience, for it consisted essentially of a review of the present position of our knowledge of the nature of and remedies for cancer.

Mr. BARLING points out, as will be seen by reference to the address which we publish in another column, that the idea prevailing at one time of the systemic nature of malignant disease had a harmful influence on surgical treatment, as it tended to limit the extent of the operations performed. For if a disease is really systemic in nature the removal of the local manifestations can have but little curative effect, while the frequent recurrence in the neighbourhood of the operation wound merely served to confirm the erroneous theory, for it was looked upon as a proof that the disease could return even though completely removed. That era of thought has now passed away, and all are agreed that the thorough local removal of malignant disease, when such removal is possible, is capable of effecting a cure. Much stress is laid by Mr. BARLING on the results obtained by experimental research on animals, and he describes some of the more important conclusions which these experiments have brought about, showing that the transplantation of carcinoma from one animal to another of the same species has been proved to be perfectly possible, but with this limitation, that success follows the experiment in only a limited percentage of the cases; and from this fact it may be argued that there is, in most cases, a natural resistance on the part of the tissues to the introduction of the foreign cells. As to the methods by which this resistance manifests itself, for the continued life of the inoculated tumour it is essential that a new stroma should be provided from the tissues of the host by proliferation of the connective tissue cells. When the transplanted tumour dies the death occurs partly from lack of nutrition and partly from the strangulating effect of the tissues amongst which it lies. An increase of the resistance of the tissues to the implantation of a malignant growth has been shown to be possible, and a very high degree of protection can be attained. We are now acquainted with the mode in which the immunised tissues overcome the transplanted growth, and this is well seen in the immunisation produced by radium; and Mr. BARLING describes how exposure to radium may cause the disappearance of some transplanted tumours, the most noticeable local change in these cases being an active proliferation of the connective tissue of the part, and an invasion of the parenchyma of the tumours by young fibroblast. As these develop they contract around and so destroy the cells of the malignant growth.

Closely analogous to these important results are various clinical observations. It is not, Mr. BARLING maintains, sufficiently recognised that in the human subject a struggle exists between the malignant growth and the tissues of its host. Cancer is not a constantly progressive disease, neither halting nor wavering in its course; but there is very definite evidence, both pathological and clinical, that the tissues do resist the invasion of new growths, and that between them and the malignant disease a real struggle goes on which occasionally ends in spontaneous cure. SAMPSON HANDLEY has shown that though the malignant growth spreads centrifugally from its point of origin into the lymphatics, yet many of the cells of the new growth are destroyed as a result of the action of the surrounding tissues. The new fibrous tissue attacks and destroys the cancerous epithelium. Unfortunately, the process is only partial; at one or even at many places destruction may be going on, and elsewhere the malignant cells may be multiplying freely. Malignant emboli lodging in the vessels of the lungs and other tissues become surrounded by a new connective tissue which has developed from the intima of the blood-vessels. And in many cases this new connective tissue suffices to put an end to the malignant cells of the embolus There is good evidence for thinking that this destruction of cancerous emboli is the rule rather than the exception, and that malignant metastases occur only in those few cases where the cancerous cells have survived. If it were not so, it is probable that metastases would be far more common than they are. All surgeons are aware that malignant growths vary greatly in their rate of progress, and sometimes a growth may even disappear spontaneously. These variations in the rate of progress of malignant disease are, in all probability, due to variations in the resisting powers of the tissues; and this explanation is rendered still more probable by the history of those cases in which recurrence of a cancer occurs many years

after a successful operation. Some small collection of cells has not been destroyed, but has been held in check, even for years, and at last, in favourable circumstances, it has renewed its activity.

Finally, Mr. BARLING discusses the question of the treatment of malignant disease. He acknowledges the value of the X rays in some forms of malignant growths, but he himself has never known a growth certainly malignant to disappear absolutely under the X rays, and therefore he does not assent to some of the claims made for the rays. As to the value of radium, he expresses his appreciation of its action in the relief of pain, in the cessation of discharge, and in the cicatrisation of an open sore, but he does not consider that radium should, in the present state of our knowledge, be employed as a substitute for excision in cases of operable malignant growth. Of the true value of excision he speaks with no uncertain words, claiming that our results at the present day show that with careful attention to the prevention of sepsis, and with extensive and thorough operations, the results now obtained are by no means unsatisfactory. Where complete excision is possible the proportion of permanent cures may be great, and the main desideratum for the future is an earlier recognition of the disease and its earlier removal. And he believes that the means for recognising the presence of malignant disease at a very early stage may be provided by the ever-increasing study of biological chemistry, especially looking forward to a time when the danger and the distress incident to operative measures may be replaced by gentler means provided by the twin sciences. The address consequently is encouraging and hopeful, and serves as a useful reminder of the progress which has been, and is being, made in the treatment of cancer, and in the acquisition of knowledge as to its natural history and characteristics.

Scientific Faith-healing.

THERE is probably no department of knowledge where exactitude is more required and at the same time is harder to come by than the department which concerns the influence of the mind upon the body. Nor, it may be safely said, is there one which provides the layman with greater interest or the medical man with greater perplexity. At the present time, when such an active concern both against and on behalf of the doctrine of "Christian Science" and allied cults is manifested on all hands, it behoves every medical man to consider carefully for himself what we actually know and what we do not know where the relations of mind with body are concerned. Moreover, it is well for him to reflect a moment upon problems which are usually regarded as beyond his sphere and to be ready not to relegate ghosts, spiritualism, and hypnotic phenomena into one vague conglomeration classed as "humbug"; on the contrary, he should take every opportunity of separating the known from the unknown and of showing the lay inquirer that the phenomena of hypnotism, for example, may be scientifically produced and studied, while "ghosts" and "spiritualistic" appearances are as yet, to say the least, unproved. Nearly related to these questions are the many intricate problems of psychology, where we pass insensibly into the domain of genuine organic nervous diseases with their multifold mental and physical symptoms. Here the medical man is on surer ground, but, where psychology is concerned and an intimate acquaintance with its facts and its laws is demanded, we are bound to admit that the present-day training of the medical practitioner still leaves much to be desired. Inevitably is this the case when we consider the mass of learning to be acquired by the student of to-day in matters of definite medical and surgical diagnosis and treatment. Psychology is largely shouldered out by her older sisters. Yet in dealing with human beings, as it is the medical practitioner's business to do, there is no more certain help to him in understanding and influencing his patients than an acquaintance with the methods and the knowledge of the modern psychologist. Human beings tend to lean upon the unknown. There is an inclination to trust that of which we are vaguely conscious, an inclination deeply rooted in human nature, a tendency from which sprang the earliest beliefs and practices of worship. It is on this soil that the growths of spiritualistic belief spring up, and it is from the same source that many of the offshoots of hysteria and of various psycho-pathological manifestations are nourished. How important, then, is it that the medical man should realise this attitude of the human mind and should be able to point out at once the truth of its existence and the uncertain nature of its products. We are not about to maintain that physical science has conquered the whole field of human wonder and speculation. We believe that the absolute materialist is as little perfect in his conception as the absolute idealist, and we know that the greatest products of the human brain, as well as the sweetest consolations of the humble mind, may arise alike from the promptings of that which we call faith. Nevertheless, it is all-important for us as medical men to be able to protest when faith claims as scientific truth that to which she has no right to put such a name; and still more is it our duty to contradict those who, falsely shielded under the banner of science, tamper with the minds of such credulous persons as entrust their bodily welfare to untrained and incompetent guardians.

Faith-healing, which results in beneficial effects upon a bodily condition due to an altered state of mind, has of course a large place in the art of medicine. There is no successful practitioner who does not exercise this function every day of his life. No one knows better than the medical man the importance of inspiring confidence in his patient; no one feels more fully how vastly the effect of his remedies and advice differs upon those who are ready to believe in his words and follow his instructions and upon those who listen grudgingly and follow with reluctance or not at all. Till to-day, however, this amount of faith-healing, this exercise of the practitioner's mind over the mind of the patient, has been used by the medical profession in almost an unconscious manner; at any rate few steps have been taken to define those cases in which this form of medical treatment may be supreme and essential from those more ordinary cases in which mental effect is merely a beneficial adjunct to remedies which will provide a cure even without its aid. The time has come, we believe, for a revision of our professional

attitude in this matter. When the public realise that medical practitioners can help those who need that kind of mental support which they are not generally prone to look for in the ranks of the medical profession, then there will be little scope for the "mental quacks" who abound and into whose hands falls many a case where the wanted something cannot be supplied by persons devoid of medical training. To treat these cases of persons who, if they cannot be definitely classed in the nomenclature of disease, are often on the verge of neurasthenia, hysteria, lunacy even, is no light task, and is not to be regarded as a function unworthy of the efforts of the trained medical man. Rather would we maintain that the importance and the interest of these cases increase directly in proportion with the psychological training and knowledge of those into whose hands they fall. It is such knowledge and training that enable a man to effect in someone who is under his influence changes for the better, of a kind more valuable than those brought by appropriate drugs. To turn the wavering, the despondent, the drug-seeking into the buoyant, the energetic, the independent, to snatch from the gloomy toils of melancholy or the lethe of alcohol men and women who have many years of life before them, and to render those years active and happy to the individual and of benefit to the community—to do this is, surely, to perform a task of which any medical man may be proud. Tasks of this nature ask frequently for performance in the social conditions of to-day, and fall in increasing numbers upon the shoulders of the medical profession. Cases there are, no doubt, where the help needed is of too purely spiritual a kind to be appropriately undertaken by anyone but a clergyman. There should be no difficulty here in relegating the task from the medical man to the priest, where it is known that the transference of the patient will leave him in the hands of a man fully qualified to undertake the highly responsible duties that devolve upon him. In no sense can this be said of the "Christian Scientist" or "healer" of to-day whose efforts, altruistic though they may ostentatiously be, too often result in effect in nothing but the passage of a certain number of guineas from the pocket of the sufferer to the coffers of the cult.

In another column we review four books on this subject of hypnotism. In one of them, Dr. I. W. HEYSINGER'S book, there is to be found little that will help our readers in the understanding of the treatment of psycho-pathological problems, though much, we are bound to admit, that will help them to see how easy it is to confuse the known and the unknown, and to state as facts ideas which are the issue solely of an enthusiastic but ill-equipped judgment. The other three books, fortunately of smaller size than Dr. HEYSINGER'S volume, contain valuable information. Dr. HUGH E. WINGFIELD'S little "Introduction to the Study of Hypnotism" gives a concise statement of what should be meant by hypnotism, and also of its value, its limitations, and the methods by which it should be employed. In a certain number of the cases to which we have alluded, hypnotism properly exercised by a medical man affords the best chance of relief. It is, as the reader of Dr. WINGFIELD'S book will see, not a mode of treatment to be lightly employed—a truth that will also be gathered from Dr. HOLLANDER'S popular exposition. But related, and perhaps less alarming, forms of what we may call suggestive treatment are frequently required. Of these both Dr. WINGFIELD and the writers in "Psychotherapeutics" give many examples, besides explaining the scope and action of suggestion in all its forms. We recommend a perusal of these books to our readers because we are convinced that too often the mere words "suggestion," "hypnotism," and so forth, convey to the medical man the idea of something which he had better avoid. In our opinion he should, on the contrary, realise that these forms of treatment contain nothing that is undesirable when properly applied in suitable cases. We have written these words in vain if we have not made clear our belief that suitable cases are not infrequent, and are likely owing to the conditions of modern life to increase in number. At present these cases are too often maltreated by the quack.

Annotations.

"Ne quid nimis."

BRITISH MEDICAL ASSOCIATION: THE PRESIDENTIAL ADDRESS.

THERE are a certain number of fortunate people who are able to begin the arrangement of their day by allotting so much time to sleep—as much or as little as they like; so much time to meals—and, again, as much or as little as they like; so much time to the cultivation of intellectual pursuits; and so much to the maintenance of physical health by recreation: any time that is left over is devoted to the duties of a workaday world, and sometimes those duties are none the worse discharged for the restful manner in which they can be undertaken. To this class but few members of the medical profession—practically none—can belong, while the leaders of that profession are day by day more inevitably forced to reverse the whole process just described, and to allot of their 24 hours day a substantial fraction like two-thirds of the day to work, the preparation of work and the finishing off of work, leaving sleep, meals, and intellectual and physical recreation to fight among themselves for the remaining fraction of time. These reflections come into our mind as we contemplate the sort of week which Mr. Butlin, as President simultaneously of the Royal College of Surgeons of England and of the British Medical Association, at the time of a meeting of that Association in the metropolis, must be living; but it is clear from his Presidential Address, which we publish in another column, that he is undertaking his onerous duties in no perfunctory spirit, that he knows the past and present of his Association, and that he has resolved that under his hands it shall proceed upon successful lines. His Presidential Address needs no exposition whatever, it is itself an exposition. It is a clear and faithful history of the progress of the Association during the past half-century. We recommend all members of the Association to read it carefully, for they will be able to understand by so doing the constitutional reasons for and against proposals of development in various directions, which means to say that they will appreciate what is and what is not the direction in which to move. One passage only of Mr. Butlin's address prompts us to a personal remark. In his Whistlerian etching of Mr. Ernest Hart he speaks rightly of the life and vigour which Hart infused into the pages of the *British Medical Journal*, and he indicates

surely that it was the rise of the *British Medical Journal* to the great paper that it is which enabled the Association to reach its present position. Mr. Hart came to the *British Medical Journal* as a fully equipped editor because he had been for some time the assistant editor of THE LANCET. He owed to his late position his intimate knowledge not only of the politics and mechanics of journalism but also of the *personnel* of the medical profession. It is undoubted that this fact was recognised with considerable soreness by THE LANCET in those bygone days; but the hatchet has now long been buried and we refer to the matter as one purely of historical interest and a source of complacency to ourselves. We are glad to notice that so wise and temperate an observer of men and things as Mr. Butlin attributes in the main the origin of the good fortunes of the British Medical Association to the work of the Journal of the Association, now edited with such conspicuous ability and fairness by Dr. Dawson Williams, assisted by Mr. C. Louis Taylor. It is in no way to belittle the work of others that we endorse this view, taking at the same time the opportunity to acknowledge the kindness and courtesy of the organ of the Association to THE LANCET on many occasions.

THE BUREAU D'HYGIÈNE.

THE municipal council of Havre is fully entitled to claim credit for its leading action in the creation of that centralised form of sanitary administration that goes in France under the name of Bureau d'Hygiène. We have now reached the thirtieth anniversary of the inauguration of the first French Bureau d'Hygiène, and the municipality of Havre has issued a pamphlet giving a brief history of the movement, written by Dr. Ch. Vigne, adjoint to the Mayor, and Dr. Andrien Loir, director of the Bureau d'Hygiène. It was on March 18th, 1879, that on the proposal of the three municipal councillors, Dr. Gibert, Dr. Fauvel, and Dr. Lafaurie, the municipal council decided to establish a Bureau d'Hygiène. No one acquainted with sanitary work in France will fail to remember how much the cause of public health owes to the late Dr. Gibert of Harve. In these columns we have often had occasion to describe the good work he has done. In 1877 M. Jules Siegfried, the well-known statesman, was Mayor of Havre, and Dr. Gibert was then agitating against the inefficiency and confused state of the public health services. M. Jules Siegfried fully appreciated the justice of these complaints and persuaded Dr. Gibert to plead the cause of reform within the municipal council. Dr. Gibert had no taste for party politics, but he presented himself as a sanitary reform candidate and used with some humour to boast that he owed his election to the working-class electors, for none of his patients voted for him. His next step was to travel to Turin and then to Brussels so as to study what had been done in these towns. In Belgium he had good cause to admire a Bureau d'Hygiène already established by the late Dr. Jaussens, with the aid of the Haussmann of Brussels, the Burgomaster Anspach. Dr. Gibert returned to France brimming over with enthusiasm, and explained that the Bureau d'Hygiène of Brussels was an administration that did not neglect the smallest detail, but in the interests of public health succeeded "in knowing everything, seeing everything, and inspecting everything." Strengthened by this example and with the aid of the other medical men who were municipal councillors, Dr. Gibert succeeded in persuading the council to vote in favour of establishing a Bureau d'Hygiène in the city of Havre. Here was concentrated the control of all the sanitary services and the vital statistics. Births, deaths, marriages, all compulsory notifications of disease, unwholesome dwellings, defective sewers, and so on, have to be recorded at the Bureau d'Hygiène. The staff at present consists, apart from a consultative commission elected by the municipal council, which may be compared to the sanitary committee of a borough council in England, of a permanent medical director, Dr. Loir, three medical members of the bureau, and three assistant medical members. Then there is M. Laurent, the administrative chief of the bureau, and a clerk to assist him. Further, we have a chemist and two inspectors of nuisances, a disinfecting staff, a mechanical engineer, a trained nurse, and a coachman. At a later date a chemical and then a bacteriological laboratory were opened in connexion with this institution. It naturally follows that other French towns began to imitate the example set at Havre. But a greater tribute to this initiative was to follow. When, after many postponements, the Government introduced a general Public Health Bill, destined to place French sanitary legislation on a level with modern requirements, it was decided that the Bureau d'Hygiène, founded at Havre by the late Dr. Gibert, should be the model of the sanitary administrative service in all towns. Thus the great Public Health Act of 1902 renders it obligatory for all towns with more than 20,000 inhabitants to establish a Bureau d'Hygiène on the Havre model. Much has been, and might be, written to describe what the Havre Bureau d'Hygiène has accomplished to be selected as an example. For the moment it may suffice to say that no great sanitary scheme has been carried out at Havre, such as a new water supply or general drainage scheme. The improvements effected are in matters of detail and in administrative efficiency. Nevertheless, the result is that when the Bureau d'Hygiène was instituted the average death-rate for the first five years, 1880 to 1884, was 31·1 per 1000 inhabitants., while during the last five years, 1905 to 1909, it was 24·05 per 1000.

FATAL ATTEMPTS TO SELF-INDUCE ABORTION.

FROM distant quarters of the English-speaking world cases have recently been reported of the fatal results of attempts to induce abortion by women who were pregnant, or believed themselves to be so, in which the methods used were unusual. In the *Journal of the American Medical Association* of April 9th Dr. B. Lankford has reported the case of a married woman who menstruated for two days instead of the usual four, and feared that she was pregnant. A week later, by the advice of a friend, she inserted two tablets, each containing 7·3 grains of mercury bichloride, into the vagina. Great pain followed and Dr. Lankford was hurriedly sent for, and saw her two hours later. He found the labia swollen to at least the thickness of an inch, very red, tense, and shiny. Owing to the swelling a vaginal examination was made with difficulty and the entire vagina and vaginal portion of the cervix were found in the same brawny state. Realising the urgency of the case he made a gallon of strong soap solution and emptied into it the contents of a box of cooking soda. This solution he used as a vaginal douch. Then he placed the patient in the genu-pectoral position, and using the handle of a bent tablespoon as a Sims' speculum poured the white of five eggs into the vagina (the white of one egg neutralises about 4 grains of bichloride). After this the patient was under the care of her own physician, and Dr. Lankford did not see her for a week. When he did he found a pitiable change. Previously a pretty woman, he could not have recognised her. The face, neck, and chest for several inches below the clavicles were swollen, the eyes were closed, and the tongue was so swollen and protruding that the lips were forced apart. The tongue and buccal mucous membrane were greyish-black and sloughing. The teeth were loose enough to be spit out, and the breath was fœtid. Bloody muco-purulent stools were frequently passed. The

mind was clear but articulation was rendered impossible by the swelling. She did not complain of pain and the abdomen had never been tender or tympanitic. The pulse was 130 and the temperature 101·5° F. The mouth was irrigated with solutions of potassium chlorate, phenol 1 per cent., and hydrogen dioxide 25 per cent. White of egg and milk, which could be swallowed fairly well, were given. The condition of the mouth improved, and the temperature fell to normal. The motions became more watery and the tenesmus diminished. But on the tenth day the pulse became quick and soft and the patient drowsy, and death took place two days later. A necropsy was refused. In the *Australasian Medical Gazette* for April Mr. A. Palmer has reported the case of a widow, aged 24 years, who gave herself a vaginal injection. She jumped up quickly and said she was in terrible pain and that her stomach was swelling. Almost immediately she collapsed, clenched her teeth, frothed at the mouth, and died. This history pointed to death from air embolism. At the necropsy small hæmorrhages were found beneath the visceral pleuræ and larger ones beneath the diaphragmatic pleuræ and the peritoneum. The lungs were œdematous and engorged with dark blood. The right side of the heart was distended with dark fluid blood containing bubbles. The liver was greatly engorged. The uterus was enlarged and unusually soft even for pregnancy. It contained a male fœtus 8½ inches long. The amnion was stripped off the lower pole of the uterus but was not ruptured. The placenta was situated anteriorly and was torn below. The mucous membrane of the vagina appeared to be whiter than normal. A packet of sulphate of zinc was found in the room and traces of manganese, while zinc had been used in a syringe. A similar case in which the drug used was potassium permanganate was recorded in the *Australasian Medical Gazette* for April, 1909.

HOUSE REFUSE DEPOSITS AND FLIES.

IN view of certain special reports on epidemic diarrhœa in the years 1904 and 1906 made by Dr. J. T. C. Nash to the town council of Southend-on-Sea, as well as numerous writings by him on the subject, the reported plague of flies at Postwick, a Norfolk village only a few miles out of Norwich, is invested with special interest. The contention of Dr. Nash, now the county medical officer of health of Norfolk, urged in his reports and elsewhere, that large deposits of house refuse are responsible for great plagues of flies in warm weather, appears to be confirmed in the present instance almost within the capital of his sanitary jurisdiction, for we learn that 40 tons of Norwich city refuse have been daily deposited on Whitlingham Marshes since the beginning of the year, so that by now several thousands of tons of putrefying filth lie on these marshes within less than three-quarters of a mile of Postwick village as the crow flies. No intervening village acts as a place of arrestment for flies bred in millions in this horrible festering mass of mess, but at least three factors save Portwick village from an even worse invasion of flies: (1) the flies have to cross the river; (2) the ground rises sharply on the other side to a height of 50 or 60 feet; and (3) since April the greater part of the huge heaps of refuse have been covered over with earth and turfed. An important point which has hitherto not been definitely decided is the range of flight of flies. Dr. Nash in the *Journal of Hygiene* for September, 1909, has said that from a large breeding place, such as tons of house refuse on a brickfield, flies will travel in countless battalions to the nearest houses which may be two or three hundred yards away. His view was that in warm weather the flies travelled further, and would be found in considerable but decreasing numbers in houses within one-third to half a mile distant, each street and terrace of houses forming a place of arrestment, "provided there is abundance of pabulum whether in the nature of filth or ordinary articles of human diet. Where few or no houses intervene flies in large numbers will travel considerable distances — even over half a mile." In the present instance there are no places of arrestment in the shape of houses in terraces between the village of Postwick and the refuse heaps over half a mile away, and flies have travelled the intervening distance in such numbers as to be a veritable plague, and to induce Dr. H. H. Back, the district medical officer of health, to make a strongly worded report to his district council. Dr. Monckton Copeman has investigated the matter for the Local Government Board. In these days of enlightenment it can hardly be looked upon as other than a sanitary sin for the house refuse of a large city to be disposed of by "dumping" instead of being destroyed by fire in properly constructed refuse destructors. Fortunately, the population of Postwick is very small, and the number of infants in the village can be counted on the fingers. Fortunately, also, the weather in the neighbourhood has been cool and frequently wet for some weeks past, confining the flies to their breeding-places, otherwise more might have been heard of the matter from an epidemiological point of view.

THE TRANSMISSION OF TRYPANOSOMA GAMBIENSE.

The Eighteenth Bulletin of the Sleeping Sickness Bureau contains among other interesting matter an important editorial article in which the transmission in nature of Trypanosoma gambiense is discussed. Our readers are aware that for some time it has been generally believed that with respect to the transmission of sleeping sickness in nature we could afford to disregard other species of glossina and concentrate our energies on G. palpalis, since the former were thought to be harmless. It would appear, however, that recent facts have given rise to doubt as to the correctness of this former opinion. A number of cases of sleeping sickness originating in Rhodesia and Nyasaland were believed to have been infected in one or other of two localities—viz., (1) the Luangwa Valley or (2) the shores of Lake Nyasa, in neither of which has G. palpalis, so far as is known, been found. Both of these localities are low-lying, as well as relatively warm and moist; and in both are found two species of glossina—viz., G. morsitans and G. fusca. It is considered not improbable that both of these species, and especially G. morsitans, may be responsible for transmitting sleeping sickness to man in these regions. There are, however, other localities abounding in G. morsitans where as yet no sleeping sickness has been detected, the explanation of this being, probably, that such places are at a comparatively high altitude, where the air is cool and the humidity low. So that the suggestion is that G. morsitans is harmless to man when it occurs on open and relatively high ground; and, on the other hand, it is probably dangerous, in the presence of a sleeping sickness "reservoir," when inhabiting damp and warm valleys. It is also suggested that possibly the development of the trypanosome in the body of the glossina, which development it is to be remembered according to our present knowledge occurs in favourable circumstances only in about 5 per cent. of these flies, does not occur at all in certain conditions such as relative cold or dryness. There are other known instances of such climatic influence upon insects. If, therefore, climate should prove to have such an influence in the case of human trypanosomes, G. palpalis must be regarded not as carrying sleeping sickness because it is the only species of tsetse fly suited for the development of this organism, but because it haunts low-lying moist valleys and is pre-eminently the species

which attacks man. This view has already met with some support from investigators, particularly from some of the workers of the Liverpool school. On this hypothesis, given suitable climatic conditions, tsetse flies of any species may harbour the human trypanosome and become the agent in its transmission to man. If, unhappily, it be demonstrated that species of glossina other than palpalis can actually, as suggested, under certain conditions serve as hosts of Trypanosoma gambiense it is evident that the difficulties of the prevention of sleeping sickness will be enormously increased. To settle any doubts on this important question it is obvious that detailed experiments will have to be carried out under the necessary conditions and in different localities with the other species of glossina, more especially with G. morsitans. The other subjects dealt with in this bulletin include trypanosome transmission experiments, trypanosomiasis in relation to other infections, eye affections in trypanosomiasis, the treatment of trypanosome infections, chemo-therapy, sleeping sickness news, and the usual monthly list of references.

SIGHT-TESTING AND THE LONDON COUNTY COUNCIL.

THE recent suggestions of Dr. J. Kerr to the London County Council, which that body is about to carry into effect, have produced quite a flutter of agitation amongst the sight-testing opticians. The proposals of Dr. Kerr to which such strong exception is taken contain the following sentences in speaking of the medical examination of the school children. He says that spectacles may be wanted but "should only be worn when prescribed by a doctor"; "they should never be obtained from an optician or eyesight specialist unless they have been prescribed by a doctor." To bring this home to the parents or relatives of every child half a million circulars are to be distributed. This is the cause of offence to the opticians and is the subject of an out-spoken leading article in the *Optician and Photographic Trade Journal* of July 15th. We are unable to see why such a proceeding should "stir up a sense of insupportable injustice" amongst the opticians, or why the issuing of such instructions should be regarded as nothing less "than a gigantic collective advertisement of medical men." The treatment required for diseases and defects of the eyes is and always has been part of the physician's and surgeon's duties. The opticians in claiming the right to regard these duties as properly belonging to themselves are distinctly invading professional territory. It is, in fact, a back-way of entry into the medical profession. Many cases no doubt are met by a supply of appropriate lenses, and by attention to visible and very obvious conditions to be relieved by simple means, but many require much more and quite other treatment. It is beside the mark to point to hundreds of cases relieved by the use of simple glasses if some cases, by reason of ignorance, are not only not relieved but positively damaged, however accurately the errors of refraction are compensated. Yet how are cases when failure of sight is dependent upon renal, cardiac, or cerebral disease to be adequately dealt with by an optician's assistant? The medical profession has, in the interest of the public, as well as for its own standing, safeguarded the entry into it of incompetent men by insisting that a certain curriculum shall be gone through. This course includes attendance upon lectures, the practice of dissection (which is tested, and severely tested, by examination on the dead body), and attendance in out-patient departments of special organs, of the eye, ear, larynx, and skin, and in the wards of general hospitals. In this way familiarity with general diseases, with therapeutics, and with the art of prescribing is acquired. In addition, the medical man is surrounded by a general medical atmosphere in societies, in friendly discussion, in papers read at meetings amongst students, and in the graver articles of the medical press. In every one of these means of education the young optician is defective; and yet on the strength of being able to recognise and rectify the errors in a physical point of view of a single organ, he desires to thrust himself, as we have said, by a back-way into the medical profession. The opticians may well be content with the proceeds of their labour. We do not doubt that a well-instructed optician will make out a case requiring glasses as well as any member of the Ophthalmological Society, but the selection of glasses is not all that is required—is not, indeed, the most important part of the treatment. We think that Dr. Kerr has given wise counsel to the County Council in recommending that such children as require glasses should be sent to a medical man in the first instance; in fact, we would go farther, and in the interests of national health, we think it imperative that every child should be examined from an optical point of view. It is, in fact, only by such wide observations that general results can be obtained which may prove of high importance in war, in the arts, and in estimating capability for work or proper compensation for injury.

A PERSONAL EXPERIENCE OF SPINAL ANALGESIA.

IN the *Journal of the Royal Army Medical Corps* for April Captain J. Dorgan, R.A.M.C., has reported an interesting personal experience of spinal anæsthesia. He was operated on for radical cure of right inguinal hernia under spinal anæsthesia. He lay on the right side on the table with his knees drawn up and lumbar region arched. Stovaine was injected between the second and third lumbar spines. He felt the slight prick of the needle in the skin, and after waiting anxiously for the further introduction of the needle into the spine, from which he expected pain, he asked the operator when he was about to inject the stovaine and was agreeably surprised to hear that it had been done some time previously. After a minute or two he began to feel a warm glow spreading down the right leg, accompanied by a sense of tingling and a feeling as if the leg was becoming swollen. Five minutes after the injection a pin-prick in the third right lumbar area was felt only as a pressure, as if pressure had been made with the finger-tip, whilst immediately below in the leg the point could be definitely felt as such. Loss of tactile sensibility rapidly passed down the leg to the toes and when a pin-prick was no longer appreciated he could still move his ankle and toes. The left side and leg, which so far were uppermost, were affected only to a slight extent. After about six minutes the right leg felt heavy, congealed, and immoveable, and anæsthesia was absolute. Captain Dorgan was then turned on his back, and the operation was commenced about ten minutes after the injection. Similar sensations now began to develop in the left side, but the effect never appeared to be so complete as on the right. He did not know when the operation was begun and was only able to guess by the sound of the forceps and the movements of the operator. The skin incision caused a slight feeling of pressure in the region of the left inguinal canal. Throughout the operation any sensation appeared to be referred more to the left side than to the site of operation. There was slight consciousness that the cord was being touched while it was being manipulated. He was asked to cough, and when he did so he felt as if the abdominal contents were being forced down on to a semi-congealed and solid mass in the pelvis. When the conjoined tendon was being stitched to Poupart's ligament he felt with each stitch as if the skin over the spleen was being pressed upon by a

warm body, and was not convinced that the feeling was unreal until he placed his hand over the part. Towards the end of the operation, about 40 minutes after the injection, sensation began to return. At first there was a feeling as if the part was being irrigated with a stream of tepid water. When the superficial stitches were being passed there was a feeling as if they were being forced through with a blunt instrument, but the sensation was not painful, and for the first time was referred to the wound. During the whole operation he felt no pain and was conscious of no constitutional effect. His pulse was normal and he chatted to those around him as if he was assisting at the operation. On being put back to bed he felt collapsed and sick for about five minutes, otherwise he was quite well. At this time the left leg had practically recovered, but the right was still immoveable and felt thrice as large as the other, and he was not conscious of its position. About two hours after the injection all signs of the action of stovaine seemed to have disappeared. As sensation returned intense pain was felt in the wound; it lasted for six hours and then gradually passed off. Though free from pain he suffered from insomnia for three nights. There was never any headache or backache.

BERI-BERI IN THE UNITED STATES.

ALTHOUGH beri-beri has of late years been frequently reported from South America, and more particularly from Brazil, little mention has been publicly made of the disease hitherto as occurring in North America. In the weekly issue of *Public Health Reports* for July 1st the Surgeon-General of the United States Public Health and Marine Hospital Service draws attention to the occasional occurrence of beri-beri in the United States, and invites health officers and others who have knowledge of such cases to report them to him at Washington in order that investigation may be made and the precise number of such instances, and the geographical distribution of the disease, may as far as possible be ascertained. He gives a brief reference to some of these outbreaks which have occurred during the past 20 years in North America. They have been chiefly reported from lunatic asylums, prisons, or other public institutions, though mention is made of one outbreak which affected fishermen in New England. Among the States of the Union in which beri-beri outbreaks have occurred in recent years may be mentioned Alabama, Arkansas, Texas, California, and South Carolina. As is well known, the disease is most commonly met with among the Asiatic races whose staple article of diet is rice. There are in the United States a considerable number of Asiatics, Chinese and Japanese, among the general population. It is, of course, possible that some of the reported beri-beri outbreaks in the United States have occurred among these Asiatics, and that the cause of the disease has been associated with the consumption of rice. It has to be borne in mind that beri-beri is not a disease which can be easily diagnosed by those who are unacquainted with its peculiar features, and that, as a matter of fact, it is liable to be confused with other maladies, such as ankylostomiasis and alcoholic neuritis. It is just possible that the malady may have been present in North America for a long time, unrecognised or classed under some other name, and that its presence has only recently come to be known. In the Surgeon-General's memorandum, already mentioned, a short sketch is given of the present views held by the medical profession respecting the etiology of beri-beri, and a brief account is given of the recent experiments, which were carried out in the Medical Research Institute of the Federated Malay States, and which led Fraser and Stanton to attribute the origin of the malady to a deficiency of phosphorus in the diet.[1] This deficiency was caused by the removal, in the process of milling, of the superficial layers of the rice-grain in which is contained the highest proportion of phosphorus. It is quite possible that it may be found that, altogether apart from a preponderance of rice, a dietary might be constituted in a public institution so as to contain an insufficient amount of the phosphorus which is necessary for the nutrition of normal nerve tissue, and that in this way an outbreak of beri-beri might arise among the inmates of the establishment. The dietaries of asylums, prisons, and the like are often monotonous and lacking in variety, and their continued use for protracted periods may lead to deterioration of health. It is therefore probable that careful investigation of reported beri-beri cases by competent experts, under the direction of the Surgeon-General, in the public institutions of the United States, may add to the common stock of knowledge respecting this interesting disease, more especially as to the way or ways in which beri-beri may occur among a white population not consuming rice as their staple article of diet.

[1] THE LANCET, Feb. 13th, 1909, p. 451.

THE TREATMENT OF LEPROSY BY NASTIN.

IN a recent issue of the *Transvaal Medical Journal* a highly interesting account is given by Dr. Gordon B. Messum, late visiting medical officer to the Pretoria Leper Asylum, of the simultaneous treatment of 20 cases of leprosy by Deycke's nastin. It appears that Dr. Messum had been favourably impressed by reading the various published reports of Professor Deycke's work, and had determined to give the treatment an impartial and prolonged trial. For this purpose he selected 20 patients from among the others in the asylum as representing the various types and stages of the disease. Arrangements were made to ensure a fresh supply of the remedy every month from Europe. The duration of the treatment varied in different cases from six months to a year and a half. The majority of the patients had weekly injections of 1 cubic centimetre of nastin B_1; in three cases nastin B_2 was used, and in one instance ketyn alone was employed. During the time this treatment was being carried out no other remedy was given, so that whatever changes might follow the use of nastin, to it alone could they be ascribed. In reviewing the results Dr. Messum remarks that in only three cases could anything like a "reaction" be observed after the injection of the remedy; but this "reaction" does not appear to have been the precursor of any improvement in the patient. With apparent reluctance Dr. Messum comes to the conclusion that from a clinical standpoint no decided or definite action can be attributed to nastin in any of his cases. It is worthy of mention that many of these 20 patients at first declared that they were greatly benefited by the nastin injections, and that their general health had improved. But this feeling after some months gave way to doubts with regard to the efficacy of the remedy, and finally most of them decided that they had derived no benefit at all from it. Some, indeed, asked to resume the chaulmoogra oil treatment. The apparently good effects at first produced by the injections were doubtless due to the confident and hopeful anticipations which the use of the remedy had inspired. This condition of mind is not unknown to practitioners of experience in cases where their patients enter on a new form of treatment with a blind and unfaltering faith in the drug. By way of testing this, Dr. Messum treated one of the other patients in the asylum who had been clamouring for nastin with injections of saline solution, the patient being under the impression that he was receiving nastin. Like the others, he at first expressed himself as feeling much benefited by the treatment. Dr. Messum's

results generally are not unlike those obtained by Dr. J. Ashburton Thompson in the New South Wales lazaret and reported by him in his annual report for 1908, in which he said that in his hands nastin behaved like an inert substance. Dr. Heiser of Manila also failed to obtain satisfactory results from a trial of this remedy in a number of cases. On the other hand, Professor Deycke's published reports showed most gratifying improvement in his patients after the nastin treatment. Other observers in various parts of the world have also reported favourably upon the use of the remedy; among these may be mentioned Major C. E. Williams, I.M.S., who treated several cases at Bushire in the Persian Gulf with marked benefit. We understand that Professor Deycke, with the approval of the Colonial Office, is carrying out the prolonged treatment of a series of leprosy cases in the Government institutions of British Guiana and elsewhere. As this trial has already lasted upwards of two years we may probably expect shortly to see Professor Deycke's detailed report, which should prove interesting reading. It must not be forgotten that nastin can only be obtained from Europe, and from one firm of manufacturing chemists in Germany, at Biebrich on Rhine; and that it is not improbable that in certain circumstances the remedy might lose some of its activity and undergo deterioration during the long voyage to a tropical country. This might explain the conflicting reports as to the activity of the remedy when employed in Africa or the Far East. There is another difficulty which arises in estimating the value of one drug or another in the treatment of leprosy. This disease left to itself is often erratic, at times remaining stationary for long periods or undergoing apparently a spontaneous arrest; at other times it breaks out in local exacerbations, or it may spread slowly and steadily to a fatal termination. Remedies applied at one or another of these phases of the disease might receive undeserved praise or blame, as the case might be. The question as to the true value of nastin as a specific cure for leprosy must be regarded as being still *sub judice*. In our opinion further experience of its use on a large and extended scale in leper establishments is needed in order to supply the evidence on which its acceptance or rejection by the medical profession must ultimately depend.

THE CONQUEST OF ROAD-DUST.

IT is satisfactory to learn from a notice sent to the county councils by the Secretary of the Road Board that the tar-painting of the roads throughout the country is proceeding apace and that already much useful work has been done. Indeed, a writer in the *Times* says that without indulging in any undue optimism we are within measurable distance of seeing all the main roads of England rendered dustless. If that is to be a near consummation, then we agree with the writer that "motorists, travellers of every kind, owners of wayside property, pedestrians, and ratepayers will be considerable gainers and the public health must also improve as well." Road-dust has probably been the most evil nuisance which the motor-car has thrust upon us, widespread mischief up and down the great roads of the country has been done, and it is fortunate that a remedy has so comparatively quickly been found and that public authorities have been so ready to apply it. The credit of pioneer in this work belongs to the Kent county council, whose officers have been hard engaged for some years upon practical inquiry into the several methods which have been brought forward. Tar-painting of roads is not without its drawbacks. It has caused damage to private horse vehicles and to personal clothing, but it must be admitted, we allow, that these incidents are trifling compared with the far-reaching mischief of the motor dust-storm. Moreover, tar-painting must preserve the road surface itself, and the sucking out of its binding material must be prevented by it. The possible poisoning of fishes in our rivers and streams is, however, a serious matter. It has been stated that where rain-water sweeping over a tar-painted surface has drained into a river the effect upon fishes has been fatal, and in one instance the poisoning of hundreds of trout has been reported. It is to be hoped that some steps will be taken to prevent this most undesirable destruction of fish life.

THE INTERNATIONAL HYGIENE EXHIBITION, DRESDEN.

IT will be remembered that a British Executive Committee was formed in May of this year for the purpose of organising the British participation in the International Hygiene Exhibition which is to be held in Dresden from May to October next year. At the inaugural meeting of this committee it was announced that negotiations were still proceeding with His Majesty's Government with regard to the invitation which had been issued by the German Government to participate officially in the exhibition. In the course of these negotiations the various departments from which assistance was desired were approached individually, certain Cabinet Ministers and other influential men being asked to obtain reconsideration of the refusal communicated in April of this year by our Foreign Office to the German Government. All efforts, however, of the British Executive Committee to obtain Government recognition and subsidy have failed. This is serious when it is remembered that every European Power of importance, as well as many extra-European Powers, including Japan, have accepted the invitation of the German Government and have voted sums of money to erect and equip national pavilions at Dresden. The question of money can hardly have influenced the Government, for we understand that some such sum as £10,000 would adequately meet the situation. We presume that this sum will be forthcoming through the private generosity of those more especially interested, but the feeling is strong upon us that in this instance the coöperation and support of Government would have been a statesmanlike move, as well as a proof of practical interest in science.

MEDITERRANEAN FEVER IN A VILLAGE NEAR LUCCA.

WE publish in this week's issue of THE LANCET an epitome of an outbreak of Mediterranean or Malta fever in an Italian village. The outbreak is in some respects unusual, and the account given of the clinical features of the disease is both lucid and interesting. The occurrence of mixed infection by both Malta and enteric fevers has been mentioned as a possibility before, but in the present series the coexistence of the two diseases was apparently established by recognised bacteriological methods in a few cases. It appears probable that the Malta fever infection was the primary one, and the clinical manifestations in these cases could be separated into two definite periods, the earlier one corresponding to Malta fever, the second to enteric fever. It is of interest that in one of these cases a pure culture of the Bacillus typhosus was isolated from blood removed by spleen puncture, but specific agglutination reactions were obtained with the organism of Malta fever, strongly suggesting a previous Malta fever infection, although the organism was not obtained and therefore the proof is not absolute. It is, however, in regard to the suggested origin

and spread of this Malta fever epidemic that the information given in the epitome is exiguous, and views are expressed that are at variance with those generally held in regard to the epidemiology of this disease. Recent work has demonstrated that the disease is not usually spread from person to person, or from the sick to the healthy, although that this is possible is not denied; but the importance of the milk of infected goats in the spread of the disease has been incontrovertibly established. In this Italian epidemic, however, the writers of the paper deny the possibility of goats being in any way concerned in its appearance and spread, and they assign a preponderating influence in these matters to direct and indirect contagion. It is known, however, that cows sometimes suffer from Malta fever, and that the Micrococcus melitensis has been fonnd in their milk, and this means of infection does not appear to have been considered. It would also have been of interest to know whether there was any special incidence of the disease upon that third part of the population which went to work daily in Viareggio or upon any special group of workers. In view of the unusual occurrence of direct infection from person to person, it is difficult to attribute the spread to this cause until all other possibilities have been disproved.

CORONERS' LAW AMENDMENT AND THE LONDON COUNTY COUNCIL.

THE Public Control Committee of the London County Council reported recently that the recommendations of the Departmental Committee on Coroners' Law Amendment substantially embodied the proposals on this subject made by the Council. The only points of difference were three in number. The Departmental Committee proposed "that every coroner should be empowered to appoint a second deputy to act in case of emergency." The Council, however, proposed that the office of deputy coroner should be abolished as far as London was concerned. At present the law permitted a coroner to appoint a deputy. Although such an appointment was now subject to the approval of the chairman of the Council, the person selected was practically a private individual exercising an important official function. Any payment he received was made by the coroner, and it had happened that coroners had received large salaries, had left much of their work to deputies, and had paid them an almost nominal sum for doing it. In London, at any rate, deputy coroners would appear to be unnecessary under the revised organisation suggested by the Departmental Committee, as during the illness or absence of the coroner arrangements might be made such as now existed in the case of metropolitan police magistrates, whose duties did not confine them exclusively to any particular court or district. With regard to the recommendation that the view of the body by the jury should be dispensed with except in special cases in which the coroner thought it necessary, the Public Control Committee did not think the decision should rest solely with the coroner, but that the view of the body should be dispensed with except where the coroner and "a majority of the jnry" thought it necessary. As to the recommendation "That Section 22 (2) of the Coroners Act, 1887, which provides that officers of medical institutions shall not be paid a fee for giving evidence or making post-mortem examinations, should be repealed," the Council on Nov. 5th, 1907, passed a resolution indicating that it was not in agreement with the payment of fees to officers of medical institutions. With the foregoing exceptions the committee thought the proposals of the Departmental Committee would result in valuable reforms of the existing law, and recommended that the Lord Chancellor and the Home Secretary be so informed and be asked to promote the necessary legislation. This was agreed to.

BABINSKI'S SIGN IN DIPHTHERIA.

AN interesting paper in the *Review of Neurology and Psychiatry* for July by Dr. J. D. Rolleston contains the results of a systematic investigation of the plantar reflex in cases of diphtheria. The occurrence of Babinski's sign in diphtheria was first recorded by Kiroff in 1905, and since that time Dr. Rolleston has drawn attention to its frequency in association with precocious paralysis of the palate and with hæmorrhagic diphtheria. He now records his observations on 877 cases of the disease in which he has examined the state of the plantar reflex. An extensor response of the great toe, with varying movements of the other toes, was found in 172 cases—that is, in 19·6 per cent.; in 29 flexion alternated with extension, and in 676 the normal flexor response was obtained. No case investigated had been treated with strychnine, which in large doses may lead to Babinski's sign. None of the cases giving this sign showed any other indication of involvement of the pyramidal system. This response was not seen with special frequency in rickety children or in those who had learnt to walk late. It was not confined to infants, and cannot therefore be explained as due to incomplete pyramidal development. After the eighth year it occurred less frequently and for shorter periods. It occurs in the acute stage and is replaced by flexion during convalescence. It is more frequently observed in the severe forms of diphtheria than in the mild ones, and its occurrence may have a certain prognostic value, although it is not of such grave omen as precocious paralysis of the palate. It is never accompanied by ankle clonus. It has no special diagnostic significance in diphtheria, since it occurs in association with other infections snch as enteric fever, scarlet fever, and lobar pneumonia. It is, however, less common in non-diphtheritic sore-throats than in diphtheria. The explanation offered of its occurrence is that it is due to temporary and slight interference with the pyramidal tract by the toxins of the disease. These observations are of interest as demonstrating the effects of this disease upon central as well as peripheral nerve structures.

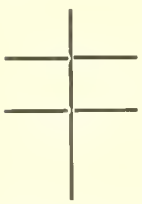
AN APPARATUS FOR SHOWING OPERATIONS TO MANY SPECTATORS.

IN THE LANCET of Oct. 31st, 1908, p. 1316, we published an annotation on an apparatus which Dr. C. H. Duncan of New York City had devised for providing a large number of visitors with a complete view of an operation. One of the main benefits of that apparatus was that the spectators of the operation were not in the operating theatre itself, but in a neighbouring room, and yet they were able to see clearly the operating table and what it had on it. The image could, if wished, be magnified, so that the spectators could have the benefit of an enlarged view of the operation. Dr. Duncan has since published in the *American Journal of Surgery* an account of some improvements which he has made in this apparatus. The success of this modification is great, and an onlooker, Dr. Marshall W. McDuffie, who was present at one of the operations (if we may use the word present when the spectator is not in the same room), has described the excellence of the appearance on the screen. "From the moment the anæsthesia was begun until the patient was ready to be removed to the ward, every movement of the surgeon and his assistant was plainly visible." He goes on to say that the incision was clearly seen, and then he continues: "We saw the smaller vessels as they spouted and were successfully ligated or brought under control, while the slight differences in the colour and texture of the

various tissues exposed were clearly appreciated. None of the phases of the operation, not even the least important, was missed." The advantages of the apparatus are as follows. It affords to a large audience a clear view of all the steps of an operation. The spectators are comfortably seated in an adjoining room where they may enjoy a well-ventilated atmosphere free from steam and the vapours of anæsthetics. They do not crowd upon the surgeons, distracting their attention and perhaps compromising the asepsis. Photographs can be readily taken from the picture on the screen, and Dr. Duncan has illustrated his paper with reproductions of some of these. We think the method is well worthy of a trial, for, in a modern operating theatre, if due precautions are taken to prevent the spectators interfering with the operation, they can see very little of what is going on.

THE LORRAINE CROSS.

A CORRESPONDENT points out that at the Edinburgh Conference on Tuberculosis what purported to be the Lorraine Cross was painted on the little rounds of cardboard worn by the members of the committee in their buttonhole, but the cross was incorrectly drawn, being portrayed thus—



instead of thus—

"In speaking of this to several persons," he writes, "I found that general ignorance prevailed on the subject. It was not understood that the Lorraine cross is the international symbol of the war against tuberculosis. No one committee, even no nation, has any right to alter this symbol any more than they would have the right to alter the shape or colour of the Geneva cross of the International Association for the Succour of the Sick and Wounded in War." The Lorraine cross and its meaning were much discussed at the International Congress on Tuberculosis held at Washington in 1908; and as at that time the rival claims to powers for mischief of the bovine and human bacilli were much discussed, it was facetiously suggested that the upper, shorter, and therefore proportionately thicker horizontal line represented the bacillus of bovine tuberculosis, and the lower, longer line the human bacillus. The fact that this cross, while it is more generally used in the Eastern than the Western Churches, is also associated with the old province of Lorraine, does not explain why it was adopted for the propaganda work in all nations that is directed against the spread of tuberculosis. At Washington the conclusion that found most favour was that this new international movement proposed to do in regard to tuberculosis what had already been done for the sick and wounded in war. Therefore they adopted first of all the Geneva cross, having four arms of equal length; then, to show that it was for tuberculosis and not for war, they put a big ┬ under the Geneva cross, and thus, without any intention of so doing, adopted the Lorraine cross.

Mr. Philip Heywood Hadfield, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has received His Majesty's Royal licence and authority to accept and wear the decoration of the Chevaliers of the Order of the Crown of Italy, which has been conferred upon him by His Majesty the King of Italy, in recognition of valuable services rendered on the occasion of the recent earthquake in Southern Italy.

THE King has been pleased, on the recommendation of the Secretary for Scotland, to approve the appointment of Dr. Hamilton Clelland Marr, as Medical Commissioner in Lunacy for Scotland, in place of Dr. John Fraser, who has retired on attaining the age limit.

BRITISH PHARMACEUTICAL CONFERENCE.

THE forty-seventh annual meeting of the British Pharmaceutical Conference was held at Cambridge this week under the presidency of Mr. Francis Ransom.

On Monday evening a reception was held in the dining hall at St. John's College by Professor J. Reynolds Green, F.R.S., on behalf of the local committee, and on Tuesday morning in the lecture theatre of the Botany School Dr. A. W. WARD (deputy Vice-Chancellor) and Alderman W. P. SPALDING (Mayor) delivered brief addresses of welcome.

Mr. RANSOM then delivered his Presidential address, which dealt mainly with some aspects of pharmaceutical research, and in the course of his speech he drew attention to certain directions in which progress may be anticipated. For instance, he suggested that the cause of the temporary variation in the quality of certain drugs afforded further scope for botanical investigation. For many years the jalap of commerce yielded from 10 to 20 per cent. of resin, but a few years ago there commenced a gradual decline in percentage until it was difficult to obtain tubers which would yield the 10 per cent. required by the British Pharmacopœia; at the present time, however, jalap containing 10 to 15 per cent. of resin is obtainable. A somewhat similar experience has occurred in connexion with belladonna root. Whether the variations are due solely to the seasons, or whether there are other conditions affecting the constituents of the drugs, is a subject inviting investigation. There are, however, other questions to be decided in the valuation of drugs besides the estimation of what are usually considered to be the active constituents. For instance, it is a question for the therapeutist to decide whether the physiological properties of belladonna and jalap are entirely due to the mydriatic alkaloids and resins which they respectively contain. In many kinds of research work more valuable results might be obtained if several classes of investigators were to work together. Thus in order to establish the value or worthlessness of any remedy, organised experimental investigation should be undertaken by the physiologist to determine its action, by the pharmacologist to confirm its remedial value, by the chemist to determine its composition, and by the pharmacist to devise suitable preparations. Among other matters referred to by Mr. Ransom was the question of the standardisation of disinfectants. He said the difficulties met with in the investigation appeared to be as great as, or even greater than, those encountered in the standardisation of drugs. In his view "a true disinfectant must not be simply a germicide, but also have the power of decomposing and rendering innocuous the poisonons substances produced by the micro-organisms of disease. The conditions in which the disinfectants are to be used have also to be considered, such as the temperature during the process of disinfection, the presence of foreign substances, and the variety of micro-organism which is the cause of the trouble. Neither the chemical nor bacteriological processes which have hitherto been devised seem to be applicable in all cases, although for specific purposes comparisons of efficiency may be deduced."

In all 20 scientific papers were communicated, many of which were naturally of pharmaceutical interest only.—A particularly useful paper (which incidentally shows that valuable results are to be obtained when pharmacists and pharmacologists work in collaboration) was that on Liquid Extract of Ergot. Mr. J. H. FRANKLIN shows that in the manufacture of this preparation it is better to use a percentage of alcohol in the menstruum instead of water only, and Dr. G. S. HAYNES demonstrates that the result of preparing an extract with a semi-alcoholic menstruum is to increase the physiological activity, as compared with the watery extract.—In a paper on Asafetida, Mr. J. C. UMNEY and Mr. S. W. BUNKER show that the oil of the tears differs materially from that of the mass. This suggests that systematic therapeutic experiments should be conducted with the oils, or for convenience, with standard tinctures prepared with 90 per cent. alcohol, and that upon the results of such therapeutic experiments should be based a revised monograph for asafetida for

the British Pharmacopœia.—In a paper on Cinnamon Bark Oil, Mr. UMNEY and Mr. C. T. BENNETT urge the importance of insisting that essential oils which are official in the British Pharmacopœia should answer *characters* as well as *tests*. There can be no two opinions about the beautiful aroma and sweet taste of cinnamon bark oil, and the very great advantage it possesses in flavour over cassia oil or artificial cinnamic aldehyde. If cinnamon oil is to be viewed as a flavour, to be judged by its sweetness and delicacy, it should be a light normal distillate, but if it is to be viewed as a remedial agent the authors think it preferable to have pure cinnamic aldehyde or 80 to 85 per cent. cassia oil.

A communication by Mr. A. W. KNAPP on the Effect of Age on Oil of Anise raises the important legal question: At what point in its gradual change from one mixture to another of different physical, chemical, and presumably different therapeutic properties does oil of anise cease to be of the "nature, substance, and quality demanded?" Mr. Knapp shows that with age the specific gravity of oil of anise increases, the optical rotation passes from left to right, and other changes take place.—In a note on the Filling of Hypodermic Ampoules Mr. T. STEPHENSON shows that conditions of sterility and permanence are fulfilled to perfection by the hypodermic ampoule. This is a sealed glass capsule, containing a measured dose of hypodermic solution thoroughly sterile; the capsule is of a suitable shape to allow of its being carried about in the pocket-case and to admit of the contents being abstracted with a minimum of trouble to the medical practitioner and the minimum of risk of contamination to the solution. Mr. Stephenson shows that the preparation of ampoules is a simple matter.—Mr. J. F. TOCHER in his paper describes a modification of Mendeleef's classification of the elements; the result of this is to place elements of like properties in similar positions, while elements with unlike properties are separated by distances proportional to the intensities of their differences.—Mr. P. E. F. PERREDES describes an insect which causes considerable damage to belladonna plants and suggests a method of eradication.—In a paper on the Interpretation of Water Analysis Reports Mr. J. E. PURVIS suggests a number of rules which are necessary before a final judgment can be passed upon any water, and that the final judgment with regard to the quality of a water should rest with the chemist and bacteriologist in collaboration; for a water which, from a chemical point of view, is organically pure, may contain the germs of disease; or, on the other hand, a water bacterially pure may chemically be dangerous or suspicious.

Professor REYNOLDS GREEN contributed an interesting note on the Old English Herbals in the Cambridge Botany Library.—Mr. H. J. HENDERSON, in a paper on the Proposed Essential Oil Monographs, gives the result of some investigations which the compilers of the Pharmacopœia will no doubt find useful.—Mr. T. E. WALLIS suggests an improvement on the official process for the determination of phosphoric acid.—In a paper on a Chemical Examination of the Rhizome of Cimicifuga Racemosa, Mr. H. FINNEMORE states that he found distinct reactions for alkaloids, but the amount present is very small.—Mr. E. QUANT suggests a new method of preparing chloroform of belladonna.—Mr. F. H. ALCOCK contributed a note on Turmeric, and Mr. G. C. DRUCE read two papers, one on a recently discovered MS. concerning John Ray, and another on Nature Reserves. In the latter paper Mr. Druce deals with a portion of fenland near Wood Walton which has been acquired by Mr. Charles Rothschild, and is to be preserved as one of nature's sanctuaries, in which animal, bird, insect, and plant life will remain secure.

Considerable interest was taken in the papers read upon the question of the standardisation of disinfectants. The subject was opened in a paper by Professor SIMS WOODHEAD and Dr. PONDER. Further papers were read by Mr. C. T. KINGZETT, F.I.C., F.C.S., by Mr. R. C. WOODCOCK, F.I.C., F.C.S., and by Dr. A. SOMERVILLE, and lastly, a critical note was given by Professor TANNER HEWLETT which had direct reference to the work of THE LANCET Commission upon this subject. A long discussion followed, in which Mr. PURVIS, Dr. RIDEAL, and others took part. As our columns are under considerable pressure this week with the proceedings of the British Medical Association, we must reserve for a future number both an abstract of the papers and of the discussion that followed their reading.

MEDICINE AND THE LAW.

The Attorney-General v. *Churchill's Veterinary Sanatorium, Limited, and James Churchill.*

THE above action recently tried by Mr. Justice Neville in the Chancery Division had as its result a judgment of considerable importance to veterinary surgeons, which, if the principles of law raised in it receive fuller discussion in the Court of Appeal, may be found to be not without direct interest to the medical profession. It will be observed that the Royal College of Veterinary Surgeons obtained the intervention of the Attorney-General, who appeared not as a prosecutor, but as a plaintiff in an action instituted in the Chancery Division. The statement of claim alleged that the defendant company "was formed for the purpose of wrongfully and fraudulently deceiving and injuring the public and the Members of the Royal College of Veterinary Surgeons and other persons registered under the Acts for the protection of veterinary surgeons, by holding out the said company as being conducted by persons specially qualified to practise veterinary surgery; that by reason of the premises the public were likely to be induced, and were induced, to believe that the said company or the persons who carried on the same were specially qualified to practise the said art, whereas in truth and in fact neither the said company, nor anyone in connexion therewith, was registered under the Acts for the protection of veterinary surgeons or qualified to practise the said art; and that the said company was formed for an unlawful purpose—namely, that of imposing upon the public and depriving persons duly registered under the Acts for the protection of veterinary surgeons of the fees and charges which they were entitled to charge under the Acts." The nature of the case is indicated by the above. It was alleged by the plaintiff that the defendant Churchill, a person without any qualification to practise veterinary surgery, having been stopped by the usual proceedings of prosecution and warning from holding himself out as a "bovine, feline, and canine surgeon and specialist" and as a "canine specialist, expert in all diseases of dogs," converted his business into a joint-stock company, relying upon the immunity from prosecution attributed in the circumstances to such a body. The share capital of this company was £500 in £1 shares, of which the defendant Churchill and other signatories of the articles of association held one each, 394 being allotted to the wife of Churchill. The plaintiff sought an injunction restraining the defendants from using names, titles, or descriptions implying that they were specially qualified to practise veterinary surgery or from holding out the company or those conducting it as being so qualified and from practising veterinary surgery for reward, on the ground that the scope and intention of the Veterinary Surgeons Acts was to distinguish between qualified and unqualified practitioners, and that if a company held itself out as carrying on the business of a veterinary surgeon that must mean it was acting by duly qualified agents. The fraud alleged consisted in representing what was contrary to the truth—namely, that at a given house veterinary attendance was given by duly qualified veterinary surgeons. Against this it was contended that there had been no taking of any title, addition, or description implying qualification to practise veterinary surgery, and no holding out that the company was conducted by persons qualified to practise veterinary surgery, or that fees had been received for such practice. The words "sanatorium" and "specialist" used to describe the company were, it was argued, not evidence of fraud, and cases decided under the Dentists Act were cited in support of the defendants' case. Mr. Justice Neville, in giving judgment, took the view that his decision must depend upon the description of the company given upon the front of the premises occupied by it. This had been proved to be "Churchill's Veterinary Sanatorium, Dogs and Cats boarded, James Churchill, M.D., U.S.A., Specialist," with additions alleged to have been made later to the earlier inscription (but this was denied by the defence) "advice gratis," and after the name Churchill the words "managing director." His lordship was of the opinion that this description constituted a representation that Churchill was a practitioner of a branch of veterinary surgery, and that for it both he and the company must be equally responsible. The learned judge consequently held that the plaintiffs were entitled to an injunction restraining

both the defendants from using any description of Churchill stating him to be a veterinary surgeon or a practitioner of veterinary surgery or of any branch thereof, and in that form he granted the injunction with costs against the defendants, but allowed a stay of execution subject to notice of appeal being given within seven days.

EPIDEMIC OF MEDITERRANEAN FEVER IN A VILLAGE NEAR LUCCA.

THE following is an epitome of a study of an outbreak of Mediterranean fever at Stiava, Lucca, Italy, recorded by F. Neri, V. Antico, and S. Spigai in the *Annali delle Universitá Toscane*.[1] The unusual features of the outbreak are commented upon in an annotation on p. 326 of this issue.

From June to November, 1908, a serious epidemic of Mediterranean fever occurred at Stiava, a large village situated at the foot of a valley, outspread with a western aspect and backed by hills which rise about six kilometres east of Viareggio. The land about Stiava is used for high farming and lower down the slope for the old-type rice fields. There are about 1700 inhabitants; two-thirds are agricultural and one-third are workpeople who go daily to Viareggio, and amongst the latter there is some temporary emigration to Tunis and Algiers during the autumn. In Stiava, well-supplied as it is with running water, laundry work is carried on, nearly the whole of the linen from Viareggio being washed here.

There had been a suspicion that at Stiava, as in every other part of the Mediterranean basin, Malta fever might be present as an endemic, but previous to this outbreak it had not appeared as an epidemic either at Stiava or in any other district in Central or Southern Italy. In 1908 260 people were attacked; a number representing no less than 15 per cent. of the whole population. This epidemic presented a period of growth (June and July with 18·5 per cent. of the cases), a period of maturity (from August to October with 71 per cent. of the cases), and a period of decline (October and November with 10·5 per cent. of the cases). The length of the outbreak, especially in its middle period; the spread of the disease by locality and contact; the grouping of the larger number of the cases in foci corresponding to the more closely packed houses; the growth and decline of the epidemic with the summer and autumn,—all these points lead to an initial exclusion of water-borne infection whilst pointing to direct and indirect contagion. The disease was most frequent among the young folk; in fact, 63·5 per cent. of the cases were under 20 years of age, whilst between 20 and 40 years there were 9·5 per cent. of cases. Of the whole number attacked 55 5 per cent. were females. In 1909 the after-effect of the previous year's outbreak was observable in a total of 66 sporadic cases, for the most part during the summer and the autumn, although there was no real epidemic recurrence. No life was lost as a direct result of Malta fever.

The recognition of the disease was rendered difficult by the variety of the clinical symptoms and by the appearance of a few cases of typhoid fever scattered about the district. The specific malady described by Bruce was at first only suspected, but was definitely diagnosed through the results of a number of agglutination tests carried out with serum from patients who were passing through the disease, or were convalescent. Further confirmation was obtained by the isolation of the specific micrococcus after spleen puncture. 119 cases were submitted to the agglutination test, the greater part of these cases being convalescent or recovered. The results of the serum tests (with a dilution of not less than 1 in 100) were as follows:—

	Number of cases.	Percentage.
Micrococcus melitensis alone	77	64·7
Micrococcus melitensis together with typhoid bacillus	38	32·0
Typhoid bacillus alone	4	3·3

The results of the agglutination tests obtained simultaneously both for the micrococcus melitensis and the typhoid bacillus in so considerable a number of cases led to some research with the object of eliminating any doubt as to the specific nature of the phenomenon. This specific nature was, however, definitely settled both by agglutination tests in combination with tests for specific absorption, and also by the positive agglutination of the high-value serums obtained from rabbits treated with cultures of each organism. Admitting, then, the specific nature of the agglutination for those serums simultaneously active for the two germs, the presence of the two infections together must be admitted for the corresponding patients, and the determination of the later infection must be decided by the clinical symptoms. On this basis 109 cases of Mediterranean fever and 10 cases of typhoid fever were diagnosed by means of the 119 agglutination tests.

Three of the typhoid cases are of peculiar interest, since, bearing in mind the double agglutination of their serums for the organisms of typhoid fever as well as of Malta fever, these three offer themselves with extreme probability as mixed Bruce-Eberth cases, both from the clinical course of the illness and from the history of contact with Malta fever cases during the outbreak in question. In these particular cases two clinical periods were distinguishable: the first period referable to Mediterranean fever and the second to typhoid fever. The fact of having isolated the bacillus of Eberth in a pure culture by spleen puncture from one of these patients during the later stage of the second (or typhoid) period does not seem a sufficient reason for excluding the Brucian nature of the first period. Rather it seems probable that the Bruce microbe, in vital competition with the Eberth microbe, might have been overborne and have disappeared from the spleen, whilst the agglutinins remained to bear witness to the earlier presence of the infection of Malta fever.

The epidemic outbreak presented all the various and never well-defined clinical forms of Brucian infection. In most of the cases there were sudaminal rashes; in others pseudo-papular, and in one a scarlatiniform eruption. There were many painful forms of ischialgia, gastralgia, neuralgia, and myalgia; in several there were well-marked joint affections, in one hæmoptysis and violent metrorrhagia, and in another orchitis and epididymitis; there were also cases of vaginitis. The temperature curve, varying much amongst individuals, travelled an intermittent course in most of the cases; in others it was markedly remittent; whilst in some it was now intermittent, now remittent, or continuous. Eight temperature charts are given as examples.

A division may be made into clinical categories: (1) acute cases with high temperature, running from two to four weeks —about 70 cases; (2) cases of medium severity running for a month and over—about 160 cases; and (3) prolonged cases and those of an ambulatory type—about 40 cases. The more important cases of each class are given, and emphasis is put on the polymorphism and variety presented in the picture, rendering impossible any definite description which might be applicable to the whole.

Regarding the route by which Malta fever reached Stiava much stress must be laid on the intimate connexions between this place and Viareggio, which town has in its turn frequent relations with the ports of the lower Mediterranean basin, all infected with Bruce's fever. As to the way by which the infection spread during the period under discussion, any part played by the goat may be excluded, since goats are few and not used for milk; rather must a preponderating importance be assigned to direct and indirect contagion.

The prophylactic measures suggested are local concentration of the sanitary service, regulation of the laundry business, and extension of the potable water system with a view to checking the use of the readily polluted surface water.

[1] Vol. xxix., 1910, Pisa.

LITERARY INTELLIGENCE. — Messrs. W. B. Saunders Company have in the press "A Handbook of Practical Treatment," in three volumes, by 77 contributors, edited by Professor John H. Musser, of Pennsylvania, and Professor A. O. J. Kelly. The aim of this work is to be practical. Each chapter is a monograph by a special authority.—Messrs. Rebman, Limited, will issue a new book by Dr. D. Berry Hart, entitled "Some Phases of Evolution and Heredity," in which Darwinism, Wiesmannism, and Mendelism are critically considered in modern lights.

METROPOLITAN HOSPITAL SUNDAY FUND.

UP to Thursday morning, July 28th, about £63,000, which includes £24,584 from the executors of the late Mr. George Herring, had been received at the Mansion House. Among the additional church collections are:—

	£	s.	d.
St. Mary Abbot's, Kensington (St. Mary Abbot's, £348; St. Paul's, Vicarage Gate, £89; Christ Church, Victoria-road, £57)	494	0	0
Holy Trinity, Sloane-street	465	0	0
West London Synagogue	324	0	0
St. Paul's, Knightsbridge	272	0	0
Great Synagogue	239	0	0
St. Mary's, Bryanston-square	193	0	0
All Saints, Ennismore-gardens	163	0	0
Hampstead Synagogue	146	0	0
New West End Synagogue	130	0	0
St. Stephen's, Westbourne Park	120	0	0
Central Synagogue	120	0	0
St. Bartholomew's, Sydenham	106	0	0
Bayswater Synagogue	102	0	0
St. John's Wood Synagogue	77	0	0
St. John's Wood Presbyterian Church	69	0	0
Victoria Park Christian Evidence Association	60	0	0
Holy Trinity, Wandsworth	60	0	0
Barking Parish Church and Missions	55	0	0
"F."	50	0	0
Trinity Church, Hampstead	47	0	0
St. Saviour's, Brixton-hill	41	0	0
St. Peter's, Streatham	38	0	0
St. James's, Holloway	36	0	0
Wilmington Parish Church	33	0	0
St. John's, Hillingdon, with Evelyn's School Chapel	32	0	0
St. Saviour's, Paddington	31	0	0
Stoke Newington Synagogue	31	0	0
St. Andrew's by the Wardrobe	29	0	0
South Hackney Synagogue and Religion Classes	28	0	0
Epping Parish Church and All Saints'	28	0	0

AT a meeting of the Council of the Metropolitan Hospital Sunday Fund, held at the Mansion House on July 27th, under the presidency of the Lord Mayor, it was announced that the total sum available for distribution for the present year is £63,000. This sum will be distributed between 166 hospitals and institutions, 59 dispensaries, and 30 nursing associations.

UNIVERSITY OF OXFORD.—*Radcliffe Travelling Fellowship, 1911:* An examination for a Fellowship of the annual value of £200, and tenable for three years, will be held in Hilary term, 1911. Candidates should make application to "The Radcliffe Examiners, Radcliffe Library, University Museum," from whom all particulars can be obtained. —*Radcliffe Prize, 1910–11:* The next award for the Radcliffe prize will be in the year 1911. The prize, which is of the value of £50, is awarded by the Master and Fellows of University College every second year for research in any branch of medical science comprised under the following heads: Human anatomy, physiology, pharmacology, pathology, medicine, surgery, obstetrics, gynæcology, forensic medicine, hygiene. The prize is open to all graduates of the University who shall have proceeded or shall be proceeding to a medical degree in the University. Candidates must not have exceeded 12 years from the date of passing the last examination for the degree of B.A., and must not, at the date of application, be Fellows on the foundation of Dr. John Radcliffe. Candidates must send in their memoirs to the University Registry on or before the first day of December, 1910. The award will be made in March, 1911. No memoir for which any university prize has already been awarded is admitted to competition for the Radcliffe prize; and the prize will not be awarded more than once to the same candidate.—*Rolleston Memorial Prize, 1912:* This prize, which is of the value of about £60, will be awarded in Easter or Trinity term, 1912. The prize is open to such members of the Universities of Oxford and Cambridge as will not have exceeded 10 years from the date of their matriculation on March 31st, 1912, and is to be awarded for original research in any subject comprised under the following heads: Animal and vegetable morphology, physiology and pathology, and anthropology, to be selected by the candidates themselves. Candidates wishing to compete are requested to forward their memoirs to the Registrar of the University of Oxford before March 31st, 1912. The memoirs should be inscribed "Rolleston Memorial Essay" and should each bear the name and address of the author. They may be printed or in manuscript, memoirs already published being admitted to the competition.

Looking Back.

FROM

THE LANCET, *SATURDAY*, July 28th, 1832

THE EXPERIMENTS OF FARADAY, NOBILI, AND ANTINORI, ON A NEW CLASS OF ELECTRO-DYNAMIC PHENOMENA.

THE late discoveries of our distinguished countryman Dr. Faraday in this important branch of physics, has excited the attention of natural philosophers in every part of Europe, and his experiments have been successfully repeated and modified by many of his contemporary savans. Amongst other exotic inquirers, Signori Nobili and Antinori of Florence, who derived their first knowledge of Dr. Faraday's pursuits from a short notice given by M. Hachette to the Academy of Sciences at Paris, and afterwards published in "Le Temps" journal, are the most distinguished. The researches of Nobili and Antinori were published in the Antologia, No. 131, and were translated into the Philosophical Magazine of June last. This paper has been extracted by Dr. Faraday, and printed, with annotations, for private circulation, but as the reputation of this justly eminent chemist is now a sort of national property, we shall make no apology for devoting a portion of our pages in justification of his claims to these important discoveries. It has been said, and the assertion has been industriously spread by certain *liberal* and *candid* persons, that the two Italian physicians were the originators of the inquiry, but we are happy to observe, that those gentlemen do justice to the merit of our countryman, and frankly declare, that their "particular opinions do not in any way diminish the intrinsic merit of Mr. Faraday's discovery. It is one of the most beautiful of our time, whether it be considered in itself for the largeness of the vacancy it serves to fill, or for the light it throws over the various theories, and especially that of the magnetism of rotation." The following is the notice which appeared in "Le Temps," and which being translated into several languages, has served as the text of all subsequent papers on magnetic electricity.

"The memoir of Mr. Faraday is divided into four parts. In the first, entitled Induction of Voltaic Electricity, is found the following important fact, that a voltaic current which traverses a metallic wire, produces another current in a neighbouring wire; that the second current is in a direction contrary to the first, and continues but for a moment; that if the producing current is removed, a second current is manifested in the wire submitted to its action, contrary to that which was first formed in it, i.e. in the same direction as the producing current.

"The second part of the memoir treats of electric currents produced by the magnets. On causing helices to approach to magnets, Mr. Faraday has produced electric currents; on removing the spirals, currents in the contrary direction were formed. These currents act powerfully on the galvanometer; pass, though feebly, through brine and other solutions, and in a particular case, Mr. Faraday *has obtained a spark*. Hence it follows, that this philosopher has, by using a magnet only, produced the electric currents contemplated by M. Ampere.

"The third part of the memoir is relative to a particular electric state, which Mr. Faraday calls *electro*-tonic *state*." (Vide LANCET, Nos. 456, 457, 458.)

"The fourth part speaks of the experiment, not less curious than extraordinary, of M. Arago, which consists, as is known, in making a magnetic needle revolve under the influence of a rotatory metallic disc, and *vice versa*. Mr. Faraday considers this phenomenon as intimately connected with that of the magnetic rotation, which he had the good fortune to discover about ten years ago. He has ascertained, that by the rotation of the metallic disc under the influence of a magnet, there may be formed electric currents in the direction of the rays of the disc, in sufficient number to render the disc a new electrical machine."[1]

[1] Excerpt only. We have not the space to spare to transcribe the remaining eight columns of this interesting chapter in the early history of the dynamo.

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Annual Report on the Health of the City of Edinburgh.

Dr. A. M. Williamson, the medical officer of health of the city of Edinburgh, has issued a satisfactory annual report. The estimated population of the city was 355,621, giving an increase of 4860 from last year. The natural increase—that is, the excess of births over deaths—was 2081. The area of the city is 11,416 acres, and the density of the population is 31·1 persons per acre over the total area. There were 71,340 inhabited and 4879 uninhabited houses. 7187 births were registered, giving a birth-rate of 20·20. There were 2795 marriages and 5106 deaths, giving a death-rate of 13·45 per 1000, as compared with 13·37 in 1908. The infantile mortality was 841 deaths under one year, or 113 per 1000 births. The death-rate for the seven principal zymotic diseases was 0·92 per 1000, while the death-rate from phthisis was 1·2 per 1000. The death-rate in 1861 was 23·15 per 1000; in 1871 it was 27·86; in 1881 it was 18·86; in 1891 it was 20·12; in 1901 it was 17·76. Thus the death-rate in 1909 was less than half what it was in 1871. Of the births there were 104·8 boys to every 100 girls, and the percentage of illegitimate to total births was 7·10. The birth-rate was lower by 1·55 than the average rate for the preceding five years, and lower by 5·53 than the rate for Scotland for last year, which was also the lowest on record. Comparing the birth-rate of Edinburgh with that of other large towns, it would appear that with the exception of Bradford, with a birth-rate of 18·8 per 1000, it stood at the bottom of the list. Liverpool, with a birth-rate of 31·1 per 1000, headed the list. The decline in the birth-rate is gaining prominence in the statistics of the whole country and assuming a national rather than a merely local significance.

Instructions were issued some time ago by the Local Government Board in accordance with which local authorities have transferred the deaths of non-residents to the districts in which their deaths ought to be counted. Of the total deaths occurring and registered in Edinburgh the rate was 15·3 per 1000, deducting the deaths of non-residents it was 13·45 per 1000, while adding the deaths transferred from other districts it was 14·35 per 1000. The Registrar-General used the first-named rate. Thus Edinburgh, instead of standing lowest among the large towns of the kingdom, has Leeds and Aberdeen below it. The highest mortality of the year was in the last week of February, and the next highest in the first week of December. The highest mortality from respiratory diseases was in the first week of December. Diseases of the circulatory system gave the largest number of deaths—viz., 1065—while respiratory diseases stood next with 892 deaths. There were 130 deaths by violence, of which 28 (18 men and 10 women) were suicides. Four of these occurred at the Dean Bridge, which remains a blot on the reputation of Edinburgh. Means ought to have been taken long ago to make these suicides impossible. As things exist at present they rather invite and encourage suicide. Deaths resulting from suffocation (or overlying), which averaged 24 over the five previous years, were reduced to 8 last year, for which, it seems to us, the health visitors deserve to be commended. Lectures for the benefit of mothers have been given during the year, as have been courses of lectures for the health visitors. Systematic visiting of babies, and provision of clothing in necessitous cases, have been carried out. Pasteurised milk, in sealed bottles, each containing a single meal, procured from tuberculin-tested cows, were supplied daily at "The Hospice."

With regard to infectious diseases, the total number of notifications was 2938, of which 774 were phthisis, and 28 cerebro-spinal fever. There was a very considerable decrease in the number of scarlet fever cases, as was forecast in the report for 1908. The zymotic mortality was, as has just been observed, 0·92 per 1000 of the estimated population. Of the 2244 cases, other than phthisis, notified during the year 1994 were removed to the City Hospital for treatment, a percentage of 89, as against 88 in 1908. Hospital treatment was being taken advantage of in an ever-increasing degree. There were notified during 1909, 774 fresh cases of phthisis. All of these were visited, and measures were taken to restrict the zone of infection. Complete disinfection was carried out wherever a patient had died or changed place of residence; 563 houses, involving 859 apartments, were so dealt with last year. 428 deaths from phthisis occurred during the past year, equivalent to a rate of 1·2 per 1000. The Registrar-General gives the following figures, which are interesting as comparing the death-rate from phthisis in Edinburgh with that in other towns:—

Dundee ...	168 per 100,000 living.	Greenock ...	111 per 100,000 living.
Glasgow ...	136 ,, ,,	Leith	107 ,, ,,
Paisley ...	133 ,, ,,	Edinburgh	106* ,, ,,
Perth... ...	133 ,, ,,	Aberdeen ...	99 ,, ,,

* After correcting country deaths the rate becomes 120 per 100,000.

Two cases of small-pox occurred during the year, both imported. 39 cases of enteric fever were notified, 35 were removed to hospital, and 4 were nursed at home. Among the former only 2 deaths occurred, while among the home-treated cases there were 3 deaths. The notifications of diphtheria numbered 423, being in excess of the previous year, when the lowest record—namely, 389—was reached, but still presenting a favourable contrast with the average over the preceding five years of 623. 371 cases were removed to hospital. The death-rate was 8·9 per cent. of the total cases, the proportion of recoveries being markedly in favour of the hospital-treated patients—8·6 for hospital, 12 per cent. for home. About 10 per cent. of the whole were followed by various forms of paralysis. The soft palate was most frequently affected. As regards serum treatment, the figures, as usual, bear out the importance of early injection. Of the cases injected within three days of the onset of the disease, only 6·29 per cent. succumbed. Of those who came under treatment from the fourth to the sixth days inclusive, twice as many, or 12·69 per cent., died; and the death-rate of those admitted on the seventh day or after rose to 13·9 per cent. In 81 cases the injections were the cause of rashes or other sequelæ. 1552 cases of scarlet fever were notified, and 1142 were treated in hospital. The case-mortality was 3·2 per cent. 207 cases of erysipelas were notified, and there were 10 deaths, the lowest since the disease became notifiable. 28 cases of cerebro-spinal fever were notified, and there were 16 deaths. The disease appears to be dying out in Edinburgh. The high death-rate was attributed to the fact that only a proportion of the patients could be treated with Flexner's serum, the supply on more than one occasion running short. Of the cases treated with it only 33 per cent. died, and 2 out of the 15 patients so treated died within 24 hours of admission—that is to say, before the serum could be expected to act. 273 cases of German measles (rubella) were treated in hospital and all recovered. During the year 1013 cases were sent into hospital as measles; of these, 671 suffered from true measles, 273 from rubella (German measles), while the remaining 69 were examples of other conditions. 4·47 per cent. of the true measles patients died. The death-rate from whooping-cough in Edinburgh was 51 per 100,000, while in Scotland as a whole it was 54. Thus the disease maintains its position as the most fatal in the zymotic group. 38 cases of chicken-pox and 114 cases of mumps were sent into hospital. All recovered. The removal of fever patients to hospital and of their clothing and bedding to and from the disinfecting station had hitherto been contracted for, but last year the public health department took over the work, which will now be carried on without outside assistance. This means a considerable saving. For tubercle, enteric fever, and diphtheria 1828 bacteriological examinations were made at the Usher Institute of Public Health.

The medical superintendent of the City Hospital (Dr. Claude B. Ker) supplies a very interesting report of the year's work there. He shows that the total cost of occupied beds per annum was £52 14*s*. 7*d*., of which £18 12*s*. 5*d* was cost of food and £34 2*s*. 2*d*. was cost of maintenance. The total cost of stimulants for the year was £63 10*s*. 6*d*., as against £37 8*s*. 11*d* in 1908. Of this £22 19*s*. 5*d*. was used in the diphtheria wards. The cost of serums during the year amounted to £334 17*s*. 6*d*. No less than 3030 laboratory examinations were made by the medical staff of the hospital during the year. Dr. Ker also contributes a report on cross infection (so-called). No less than 52 cases were admitted to hospital during 1909 with two diseases actually concurrent, and of these 20 were scarlet fever and diphtheria. 11 cases

were admitted incubating a second infection contracted outside the hospital. 36 patients contracted a second infection in hospital. During the year 3796 patients were admitted.

The second part of Dr. Williamson's report relates to the administrative work of the year regarding meat inspection, the inspection of cow byres, dairies, ice-cream shops, workshops, bakehouses, and hair-dressing saloons, as also the administration of the Shop Hours, Seats for Shop Assistants, and Sale of Food and Drugs Acts. The report extends to 123 folio pages, and is full of interesting matter relating to the public health of the city of Edinburgh. It is an able and valuable production on which we warmly congratulate the author.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 77 of the largest English towns 8164 births and 3650 deaths were registered during the week ending July 23rd. The annual rate of mortality in these towns, which had been equal to 11·0 and 11·4 per 1000 in the two preceding weeks, declined again to 11·1 in the week under notice. During the first three weeks of the current quarter the annual death-rate in these towns averaged only 11·2 per 1000, and in London during the same period the death-rate, calculated on the estimated population, did not exceed 10·7 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 2·8 in Burton-on-Trent, 4·8 in Walthamstow, 5·5 in Tottenham, and 5·9 in Leyton and in York; the rates in the rest of the 77 towns ranged upwards to 15·9 in Wigan, 17·7 in Liverpool, 20·5 in Barrow-in-Furness, and 22·3 in Stockton-on-Tees. In London the reported death-rate last week did not exceed 10·3 per 1000. The 3620 deaths registered last week in the 77 towns showed a decline of 72 from the low number in the previous week, but included 360 which were referred to the principal epidemic diseases, against 358 and 324 in the two preceding weeks; of these 360 deaths, 105 resulted from whooping-cough, 104 from diarrhœa, 97 from measles, 24 from diphtheria, 19 from scarlet fever, and 11 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·1 per 1000, against 1·1 and 1·0 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Walthamstow, Brighton, Southampton, Norwich, or in 8 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·3 in Rhondda, 2·5 in Manchester and in Barrow-in-Furness, 2·6 in Salford, and 4·0 in Oldham. The fatal cases of whooping-cough in the 77 towns, which had declined in the four preceding weeks from 134 to 88, rose again last week to 105, and caused the highest annual rates, 1·4 in Halifax, 1·7 in Birkenhead and in Salford, and 1·8 in Oldham and in Tynemouth. The deaths attributed to diarrhœa also rose last week to 104, from 53, 71, and 68 in the three preceding weeks; the deaths from this cause were proportionally most numerous in Rhondda and in Wigan. The 97 fatal cases of measles were fewer than in any of the three previous weeks, but caused rates equal to 1·4 in Oldham and 2·5 in Barrow-in-Furness. The 24 deaths from diphtheria showed a further decline from recent weekly numbers, and included 8 in London, 3 in Liverpool, and 3 in Manchester and Salford. The 19 fatal cases of scarlet fever were fewer than in any previous week of this year; 6 occurred in London and its suburban districts, 2 in Walsall and 2 in Manchester. The 11 deaths referred to enteric fever showed a decline of 3 from the number in the previous week. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had increased in the four preceding weeks from 1353 to 1530, had declined to 1548 on Saturday last; 173 new cases of this disease were admitted to these hospitals during last week, against 188 and 249 in the two preceding weeks. The Metropolitan Asylums still contained 3 small-pox patients on Saturday last. The 962 deaths registered in London during last week included 131 which were referred to pneumonia and other diseases of the respiratory system, corresponding with the number in the previous week, but exceeding by 6 the corrected average number in the corresponding week of the five years 1905–09. The causes of 24, or 0·7 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Leeds, Bristol, Bradford, Hull, Nottingham, Stoke-on-Trent, and in 54 other smaller towns; the 24 uncertified causes of death in the 77 towns last week included 3 in Liverpool and in St. Helens, and 2 each in Bootle, Manchester, and in Barrow-in-Furness.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 884 births and 434 deaths were registered during the week ending July 23rd. The annual rate of mortality in these towns, which had been equal to 12·1 and 12·4 per 1000 in the two preceding weeks, declined to 12·0 in the week under notice. During the first three weeks of the current quarter the death-rate in these towns averaged 12·2 per 1000, and exceeded by 1·0 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 7·8 and 9·6 in Greenock and Leith to 12·8 in Paisley and 19·6 in Perth. The 434 deaths from all causes in the eight towns during last week showed a decline of 15 from the number in the previous week, but included 58 which were referred to the principal epidemic diseases, against 61, 48, 44, and 33 in the four preceding weeks; of these 58 deaths, 21 resulted from diarrhœa, 12 from whooping-cough, 8 from diphtheria, 6 from scarlet fever, 6 from "fever," and 5 from measles, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·6 per 1000, against 1·1 from the same diseases in the 77 English towns; the highest rate from these diseases in the Scotch towns last week were 1·5 in Dundee and 2·1 in Glasgow. The 21 deaths attributed to diarrhœa in the eight towns last week showed an increase of 8 upon the number in the previous week, and included 13 in Glasgow and 2 each in Edinburgh, Dundee, and Aberdeen. The fatal cases of whooping-cough, which had been but 2 and 3 in the two preceding weeks, rose to 12 last week, of which 10 occurred in Glasgow. The deaths referred to diphtheria, which had been 9 and 5 in the two previous weeks, rose again to 8 last week, of which 4 were returned in Glasgow and 2 in Aberdeen. The 6 fatal cases of scarlet fever, of which 3 occurred in Glasgow and 2 in Edinburgh, corresponded with the number in the previous week. Of the 6 deaths referred to "fever," showing a marked increase upon the numbers in recent weeks, 5 were certified as enteric and 1 as cerebro-spinal meningitis; 4 were returned in Glasgow. Of the 5 fatal cases of measles, 2 occurred both in Glasgow and in Dundee. The deaths referred to diseases of the respiratory system in the eight towns, which had been 66 and 49 in the two preceding weeks, were 50 last week, and exceeded by 1 the number in the corresponding week of last year. The causes of 17, or 3·9 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 615 births and 359 deaths were registered during the week ending July 23rd. The mean annual rate of mortality in these towns, which had been equal to 17·0 and 15·7 per 1000 in the two preceding weeks, rose again to 16·3 in the week under notice. During the first three weeks of the current quarter the annual death-rate in these Irish towns averaged 16·3 per 1000, whereas the mean rate during the same period did not exceed 11·2 in the 77 largest English towns and 12·2 in the eight principal Scotch towns. The annual death-rate during last week was equal to 17·2 in Dublin, 15·6 in Belfast, 19·9 in Cork, 8·4 in Londonderry, 13·7 in Limerick, and 19·5 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 16·4 per 1000, against 14·2 in the previous week. The 359 deaths from all causes in the 22 town districts last week showed an increase of 12 upon the

number in the previous week, and included 48 which were referred to the principal epidemic diseases, against 46 and 36 in the two previous weeks; these 48 deaths were equal to an annual rate of 2·2 per 1000; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·1, and in the eight Scotch towns it was equal to 1·6 per 1000. The 48 deaths from these epidemic diseases in the Irish towns last week included 23 from measles, 12 from diarrhœa, 5 from enteric fever, 3 from scarlet fever, 3 from diphtheria, and 2 from whooping-cough, but not one from small-pox. The 23 fatal cases of measles (against 26 and 21 in the two previous weeks) included 21 in Belfast. The 12 deaths attributed to diarrhœa showed an increase of 7 upon the number in the previous week; 5 occurred both in Dublin and in Belfast. The 5 fatal cases of enteric fever also exceeded the numbers in recent weeks; they included 2 in Dublin. The 3 deaths from scarlet fever were returned in Dublin, and 2 of the 3 fatal cases of diphtheria occurred in Cork. The deaths in the 22 towns included 48 which were referred to pneumonia and other diseases of the respiratory system, against 61 and 68 in the two preceding weeks. The causes of 14, or 3·9 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent., while in the eight principal Scotch towns it was also equal to 3·9 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Order in Council of April 1st, 1881, Staff-Surgeon Norman Howard Mummery has been allowed to withdraw from His Majesty's Naval Service with a gratuity (dated July 20th, 1910).

In accordance with the provisions of Order in Council of April 1st, 1881, Fleet-Surgeon Alfred John Pickthorn has been placed on the Retired List at his own request (dated July 25th, 1910).

The following appointments are notified:—Fleet-Surgeons: J. Mowat to the *President*, additional, for temporary service at Royal Victoria Yard, Deptford; R. D. Jameson to the *Cornwallis*, on recommissioning; E. H. Meaden to the *Hecla*; and C. S. Facey to the *Vengeance*, temporary. Staff-Surgeon: J. R. Muir to the *Swiftsure*. Surgeons: J. Hadwen to the *Cornwallis*, on recommissioning; R. Connell to the *President*, additional, for the *Maine*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Benjamin T. McCreery, Half-pay List, retires on retired pay (dated July 23rd, 1910).

Colonel W. G. A. Bedford, C.M.G., Principal Medical Officer of Hong-Kong, has arrived home on leave. Lieutenant-Colonel H. M. Thompson has been appointed to officiate as Principal Medical Officer of the Eighth (Lucknow) Division, pending the arrival of Surgeon-General J. G. MacNeece from England. Lieutenant-Colonel D. M. Saunders has been transferred for duty from Dublin to Cork. Lieutenant-Colonel R. H. Hall, on completion of temporary duty in medical charge at Mill Hill, has returned to Colchester. Lieutenant-Colonel M. O'D. Braddell has been appointed to command the Station Hospital at Rawal Pindi. Major C. R. Elliott, sanitary officer of the Third (Lahore) Division, has been transferred from Lahore to Dalhousie. Major H. B. G. Walton, from Pontefract, has taken up duty at York. Major S. H. Withers, from Ambala, has been appointed to command the Station Hospital at Gharial. Major C. J. O'Gorman, D.S.O., from Nowshera, has joined at Peshawar. Major E. W. P. V. Marriott has arrived home on leave from Gibraltar. Captain F. S. Walker, from Cahir, has been posted to the Military Hospital at Fermoy. Captain E. J. Kavanagh, from Bareilly, has been transferred to Ranikhet. Captain H. C. Winkworth, from Limerick, has taken up duty at Queenstown. Captain E. C. Whitehead, from Cork, has been appointed for duty at Ballincollig. Captain N. E. Dunkerton has been posted to Woolwich. Captain S. G. Butler and Captain V. H. Symons have arrived home on leave from South Africa. The following officers, who have completed their course of instruction for promotion to rank of Major at the Royal Army Medical College, Grosvenor-road, have been ordered to join the Irish Command at the end of this month and on arrival will be posted as follows: Captain A. McMunn, Captain W. D. C. Kelly, Captain A. T. Frost, Captain W. F. Tyndale, C.M.G., and Captain J. M. Conway to the Dublin district; Captain R. J. Franklin, Captain D. Ahern, Captain C. R. Millar, Captain P. Power, Captain J. H. Duguid, and Captain T. S. Coates to the Cork district; Captain D. L. Harding and Captain F. W. W. Dawson to the Belfast district. Lieutenant R. M. Dickson on arrival in India from Glasgow has been posted to Lucknow to undergo a course of Indian sanitation. Lieutenant J. C. L. Hingston, from Cosham, has been appointed to Hilsea. Lieutenant F. Worthington has been transferred from Buttevant to Queenstown. Lieutenant T. W. Stallybrass and Lieutenant V. P. Hutchinson have been stationed at the Royal Victoria Hospital, Netley.

The undermentioned Lieutenants are confirmed in that rank: William H. O'Riordan, Charles T. V. Benson, William P. McArthur, Eustace M. Parsons-Smith, Lionel C. Hayes, John Gilmour, Campbell Robb, and Eric T. Gaunt.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel G. W. P. Dennys, Administrative Medical Officer of the North-West Frontier Province, has, on being appointed Principal Medical Officer at Aden, been reverted from civil to military employment. Lieutenant-Colonel J. G. Jordan, Civil Surgeon at Darbhunga, has been granted furlough from India on relief by Captain Maxwell Mackelvie. Major S. Browning Smith has been appointed to officiate as Sanitary Officer of Eastern Bengal and Assam during the absence on leave of Lieutenant-Colonel E. C. Hare. Major W. H. Kenrick, Civil Surgeon of Nimar, Central Provinces, has been granted three months' privilege leave. Captain H. S. Matson has been transferred from Meiktila and appointed Civil Surgeon of Mogok, Burma, in place of Major A. Fenton, transferred. Captain G. Browse, Captain S. Haughton, and Lieutenant R. N. Chopin have passed the higher standard test in Pashtu. Captain C. H. Brodribb has been appointed a Specialist in Advanced Operative Surgery to the Fifth (Mhow) Division. Captain N. S. Sodhi has been posted temporarily for plague duty in the Punjab. Captain J. Morison has been appointed to officiate as Civil Surgeon of Sibsagar. Captain D. C. V. Fitzgerald, in charge of the Sibsagar jail, has been relieved by Captain J. Morison. Captain S. B. Mehta has been posted to plague duty in the Punjab. Captain H. G. S. Webb has been appointed a Specialist in Bacteriology and placed in charge of the Brigade Laboratory at Jubbulpore. Captain W. Tarr has taken over duty as Superintendent of the Central jail at Jubbulpore. Captain G. F. I. Harkness has been posted as Civil Surgeon of Dera Ismail Khan. Captain W. L. Trafford has joined for duty in the United Provinces of Oudh and Rodhilkhand. Captain G. D. Franklin, Agency Surgeon at Meshed, has been appointed to act as His Britannic Majesty's Consul-General and Agent to the Government of India in Khorasan, in addition to his other duties. Captain W. M. Anderson has been granted privilege leave combined with furlough and study leave out of India for a period of two years. Captain F. C. Rutherfoord, Civil Surgeon of Belaspur, Central Provinces, has been granted three months' privilege leave. Lieutenant A. J. H. Russell has been appointed a Specialist in the Prevention of Disease and placed in charge of the Brigade Laboratory at Secunderabad. Lieutenant J. Davies, Superintendent of the Albert Victor Asylum for Lepers at Goira, has been granted one year's combined leave home from India.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Alexander Cosgrave Court to be Lieutenant (on probation) (dated June 17th, 1910).

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st East Lancashire Field Ambulance: The undermentioned officers are borne as supernumerary whilst serving with No. 1 Field Ambulance, Royal Army Medical Corps, Special Reserve (dated March 7th, 1910): Lieutenant-Colonel John B. Mann, Major William B. Pritchard, Captain Charles Roberts, and Captain Henry G. Smeeth.

2nd East Lancashire Field Ambulance: The undermentioned officers are borne as supernumerary whilst serving with No. 18 Field Ambulance, Royal Army Medical Corps, Special Reserve (dated March 7th, 1910): Major Fred D. Woolley, Captain George Ashton, and Lieutenant Thomas Carnwath. Charles Henry Stennett Redmond to be Lieutenant (dated May 1st, 1910).

3rd East Lancashire Field Ambulance: The undermentioned officer is borne as supernumerary whilst serving with No. 18 Field Ambulance, Royal Army Medical Corps, Special Reserve (dated March 7th, 1910): Lieutenant William H. P. Hey.

Attached to Units other than Medical Units.—Lieutenant Andrew E. Hodder is borne as supernumerary whilst serving with No. 18 Field Ambulance, Royal Army Medical Corps, Special Reserve (dated March 7th, 1910).

DEATHS IN THE SERVICES.

Surgeon Moyle Breton, R.N. (retired), aged 41 years, at Guildford. He entered the Royal Navy in 1897, and in 1904 was appointed to the *Victory* at Portsmouth. He retired in 1906 in consequence of ill-health.

Captain E. D. Simson, I.M.S., at Nowshera, India, from cholera. He entered the Indian Medical Service as Lieutenant in 1907.

THE KING AND QUEEN AT HASLAR.

In connexion with their Majesties' visit to Portsmouth the King and Queen visited Haslar on July 23rd. They were received at the Hospital by Inspector-General T. D. Gimlette, C.B., and subsequently made a tour of the buildings and spoke with several of the patients.

The first general meeting of the medical branch of the Navy League will be held to day (Friday) at the University of London, Imperial Institute, at 12.45 P.M.

Correspondence.

"Audi alteram partem."

THE MEDICAL PROPOSALS OF THE MINORITY REPORT.

To the Editor of THE LANCET.

SIR,—In THE LANCET of July 23rd appears a somewhat lengthy article under the above heading, which is further entitled "An Appeal to the Medical Profession." It is written by two London consultants and a graduate in Arts of the University of Oxford, presumably not a member of our profession. Its object is to warn the general practitioners of the country of the professional revolution about to be in the near future, and it points out with much sympathy that, whatever may be their individual views on this subject, it is useless to contend for what has been condemned "by all political parties" in the State. If this statement is true, none can deny the gravity of the present crisis, but we may be permitted to examine a little critically these conclusions so disastrous for—I will not say the whole—but the great bulk of the profession. In the first place, where matters of so great importance for a large class of the community are put forward authoritatively in a leading medical journal, it is justifiable to consider the authority of those putting them forward, and what credentials they have for thus addressing a class to which they do not directly belong. While none can deny the academic distinction of the writers, it may certainly suggest itself to the minds of some of your readers that beyond the aforesaid distinction there is little else to give weight to the very decided opinions enunciated. Were they confessedly the opinions of those experienced in the wants of the general practitioner, who had witnessed for years past the increasing difficulties and hardships brought upon the profession by the discouragement of parental and individual responsibilities among the poorer classes of the community through the, no doubt well intentioned, efforts of would-be social reformers; then, on that account alone, although surprised, we might feel bound to give them a respectful attention. But considering the source from which they emanate they must stand or fall according to their intrinsic merits only.

Let us look at these opinions "grounded upon the most expert medical and sociological research." The great bulk of the article is a *résumé* of the Minority Report, the views of four Commissioners who, however they may claim to be experts in sociological research, have no right to pose as medical experts. The only real medical expert on the Commission was Sir Arthur Downes, who is quoted with approval where he condemns certain suggestions of the Majority Commissioners. Its authors do not mention that Sir Arthur Downes, however he may dissent from the medical recommendations of the Majority, is altogether opposed to those of the Minority, and would have little sympathy with this appeal to his profession. It is possible that some of us might have more confidence in the views of Sir Arthur Downes than in those of the writers of this appeal. Of our wants and necessities he is presumably a better judge and would as gladly relieve them.

It is to be noted that reference is also made to the *Times*. It is a pity your readers were not a little more fully instructed in what that important organ of public opinion says in this matter. On April 9th last the *Times*, in a leading article, says of the proposals of the Minority:—

> They are framed in a Utopian spirit, which is highly attractive to some temperaments, and goes a very long way to explain the acceptance of them in certain quarters.

Again—

> However good the intentions of their authors may be, we are convinced they would not only fail to remedy the evils at which they are aimed, but would greatly aggravate them.

In an editorial published on June 29th last the same paper says of the Minority Report:—

> It has been represented to the public as a masterly document, and praised by impulsive admirers for its scientific precision and other qualities apart from the merit of the specific proposals. We are apparently expected to accept the latter on the strength of the former.

To the claim that it is a detailed and finished scheme, the *Times* says:—

> Detailed and finished is what it is not. It is broadly sketched, but the details of administration, which are all important in practice, are lacking.

After commenting on the general vagueness of the whole Report, the article concludes with the following commentary on some of the arguments of the Commissioners:—

> It is hardly surprising that our correspondent finds it difficult to believe that such arguments are a serious contribution to the literature of the subject.

This is the report that Mr. H. Beckett Overy and his co-signatories appeals to the profession to support. They confess that at the present time it is lacking in that support, and there I agree with them, but I cannot help thinking there is little in this article likely to alter the present professional views on the subject. In numerous places the suspicions of medical practitioners are more likely to be aroused than allayed. For instance—

> It is the deliberate intention of the Minority to confine the ministrations of the public health authority, so far as they are gratuitous, to those who cannot afford to pay.

Without commenting on the probable selection of the latter under conditions where no test is allowed it is impossible to lose sight of the enormous harm that might be done to the profession by the State provision of medical services at inadequate rates of payment. "They do not desire to withdraw a single patient from the practice of any private practitioner," but they vaguely suggest a machinery, the only intelligible working of which would probably ruin many practices—i.e., among those carried on in poor and working-class districts. Again, in the Minority Report what is meant by the criticism of the Poor-law refusal to grant medical relief "to those who can manage to pay for some cheap substitute," if it does not mean to disparage those practitioners who consent to attend poor persons for small fees? It is true anonymous practitioners from poor districts are quoted who appear to deny that this class of practice is worthy of any consideration, and it is not unlikely that such views seem reasonable to those who naturally regard the small fees that many of us have to accept as below what the dignity of the profession would demand.

"The very poor patients who come to most practitioners are exceedingly few in number, and are not a desirable addition to their *clientèle*." Do the writers of this imagine that such a statement will appeal to the practitioners of any

neighbourhoods except the most thriving and well-to-do? They will appear grotesquely untrue to the great majority in all the poorer districts of the country. I know from my own experience that not a few derive *all* their income from such sources. Again, we are told that at the present time one-third of the profession hold public appointments. As the vast majority of them are only part-time officials, who would probably not desire to give up private practice, the whole of this large body would run the risk of being deprived of their offices. Whether they would be satisfied by the advantage likely to be derived by the clearance of many of their competitors out of the field of private practice is more than doubtful. Many would prefer to compete with their present professional neighbours on equal terms rather than as whole-time State doctors.

It is admitted by the writers there is one thing that can militate against the Minority view of the private practitioner's future, which is the crux of the whole question. "If there is to be a gratuitous State service, or one without any but nominal charges, then the medical profession must have nothing more to say to the Minority proposals." Here we are on common ground. It is on account of this almost certain result of such a scheme that I trust the profession will adhere to its present attitude of leaving the Minority proposals severely alone. The writers of the "appeal" frankly admit this danger, but point out an infallible preventive. Until they can show us something better than "the Consistent Code" to recover all charges from those proved able to pay for gratuitous medical services, in my opinion they will have little chance of converting the medical profession to their views. I would specially quote the following: "The point to be enforced is that there is *no inherent difficulty* in recovering the cost of treatment from patients. *It has been done already* to a large extent. Given a *properly* framed code and the *adequate* machinery, it will be as *easy* as the collection of *rates and taxes* to restrict our medical service to the *destitute* by this process of charge and recovery."

The italics are my own and will possibly suggest a good deal to thoughtful readers. For myself I would like to say I have found considerable inherent difficulties in recovering medical charges from patients admittedly not destitute. What might be done by "properly" framed codes and "adequate" machinery I cannot tell, but our present legal system is in my opinion hopelessly inadequate. That its recovery might be as easy as the recovery of rates and taxes from the destitute I am willing to admit, but I did not know that such recovery was easy. I am quite at one with the writers as to the restriction of gratuitous medical relief to the destitute, but I have gravely misread the Minority Report if it was the intention of the Minority Commissioners to restrict such relief to the destitute.

I am, Sir, yours faithfully,

July 23rd, 1910. MAJOR GREENWOOD.

THE SUPPRESSION OF QUACKERY.

To the Editor of THE LANCET.

SIR,—The letter of Mr. Macleod Yearsley in THE LANCET of July 23rd is to the point, and one may hope that his proposal to found a society for the suppression of quackery may meet with an enthusiastic reception amongst our profession. For some time past I have had the intention of forming an organisation of the kind and should be glad to join forces in so excellent an object. As regards the petition to the General Medical Council, I may say that a petition addressed by myself to that body met with no better fate than Mr. Yearsley's. After a prolonged study of various Acts of Parliament and other documents I formed an opinion that there is ample legislation in existence for the suppression of quacks and quackery—at any rate, so far as London and ten miles around is concerned. Absolute summary powers were conferred on the Royal College of Physicians of London for that purpose, and were exercised by that body intermittently for some hundreds of years. The rights of the College were reiterated in every subsequent Medical Act up to the short amending Act of 1860, wherein the College re-affirmed its charter rights but abolished the "elects" whose duty it was to administer the penal clauses. Only a year or so ago the College asserted those rights once again in protesting against the proposed charter of the British Medical Association. It has been held in some quarters that the powers of the College were merged in those of the General Medical Council by the Act of 1858.

Now all this is absolutely pertinent to the constitution of the General Medical Council. Stringent statutory powers against quackery exist, and if they are not in the hands of the Council they are in the hands of the College and *vice versâ*. My petition, however, was thrown out by the Executive Committee of the Council, and the discussion of an all-important matter was thus indefinitely shelved. If the penal powers of the College were absorbed by the Council, then the contention that the Act of 1858 conferred only limited powers upon that body falls to the ground. If not, the duty rests with the Royal College of Physicians, despite the fact that the small amending Act of 1860 abolished their machinery—their fundamental duty remains unrepealed. If the Council refuses to discuss so vital a matter, should not the British Medical Association approach the Privy Council directly on the point?

It is clearly better to act on existing laws than to attempt to get new ones. Lastly, I may say that as a layman I secured legal advice and opinion as to the scope and meaning of many of the Medical Acts and other documents concerned. What I asked the Council specifically to do was to obtain an authoritative legal opinion as to the existence of special legislation adequate for the suppression of quackery, and as to its present whereabouts as regards administration.

Surely the public and the medical profession are entitled to ask from the General Medical Council for more light upon matters so closely connected with their constitution.

I am, Sir, yours faithfully,

Welbeck-street, W., July 25th, 1910. DAVID WALSH.

To the Editor of THE LANCET.

SIR,—It is to be hoped that Mr. Macleod Yearsley will not limit the aims of the society he proposes to the suppression of quack advertisements, but that it will endeavour to extend the powers of the General Medical Council, which have long required reformation. It is surely not impossible to obtain for it powers similar to that possessed by the Incorporated Law Society. Then the views of the profession might be more firmly enforced when legislation affecting its interests was under consideration. The remuneration of all county medical officers of health might then more nearly approximate that of county court judges and the district medical officer's salary equal that of a revising barrister: the work, responsibility, and the issues at stake would surely commend it. Misleading quack advertisements would then, perhaps, cease to offend, and the "Drs." (with the qualifying inverted commas) would

> "Fold their tents like the Arabs,
> And as silently steal away."

I am, Sir, yours faithfully,

W. J. ERNELY SUMPTER, M.D.

Sheringham, July 26th, 1910.

METALS AND MICRO-ORGANISMS.

To the Editor of THE LANCET.

SIR,—Upon pp. 1014 and 1015 of your issue of April 9th, 1910, appears an abstract of a communication to the Royal Society by Dr. A. C. Rankin, demonstrator in bacteriology at McGill University. This abstract, entitled "Metals and Micro-organisms," seems to me somewhat contradictory in its statements, and also describes as a "suspicion" what has long been recognised as a fact. The points to which I wish to draw attention are as follows:—

The statement is made that water containing the typhoid bacillus and kept in a clean copper bowl becomes sterile. Almost immediately below occurs the statement that relatively large areas of pure zinc exposed in water contaminated with colon bacilli bring about recognisable but not extreme destruction of bacteria; and that aluminium and copper under similar circumstances have no perceptible effect. I think it is clearly evident that these two statements are diametrically opposed; and later in this abstract these two conditions regarding toxicity again seem to be in opposition.

Rather extensive work along these lines has been carried on in this department by Dr. Geo. T. Moore and myself and reported in Bureau of Plant Industry Bulletins Nos. 64

and 76, entitled "A Method of Destroying or Preventing the Growth of Algæ and Certain Pathogenic Bacteria in Water Supplies" (issued May 7th, 1904), and "Copper as an Algicide and Disinfectant in Water Supplies" (issued April 5th, 1905). We have very clearly shown the sterilising power of copper upon the colon bacillus and typhoid bacillus and the cholera spirillum. In the case of copper at least there can be no doubt that the toxicity of the metal or the salt is due to the ion, and in my experiments I have found carbon dioxide rather than oxygen to be an important factor limiting the destruction of bacteria. Under separate cover I am sending to you a publication entitled, "The Effect of Copper upon Water Bacteria," by Mr. T. D. Beckwith and myself, that deals with some experimental work upon this subject.

I am, Sir, yours faithfully,

KARL F. KELLERMAN,
Physiologist in Charge, United States Department of Agriculture, Bureau of Plant Industry (Soil Bacteriology and Water Purification Investigations).

Washington, D.C., July 12th, 1910.

OPHTHALMIA NEONATORUM.

To the Editor of THE LANCET.

SIR,—May I point out that you have omitted to include this town as one of the districts in which ophthalmia neonatorum is compulsorily notifiable? The Order of the Local Government Board came into force on May 18th last. We are, therefore, entitled to rank ourselves with Chester, Stoke-on-Trent, and the 15 States of the United States of America! Credit to whom credit is due, Mr. Editor.

I am, Sir, yours faithfully,

J. HEDLEY MARSH,
Medical Officer of Health.

Macclesfield, July 23rd, 1910.

GRAIN ITCH.

To the Editor of THE LANCET.

SIR,—In an annotation in THE LANCET of July 9th an account was published of "Grain Itch," with a request to know whether the disease occurred in this country. Whilst acting as locum tenens in Somersetshire a patient of mine was employed during harvest to carry bundles of straw into a loft. This was followed the next day by a pustular eruption on the arms, which eventually subsided into congested-looking bluish spots which irritated. I did not examine the straw, so cannot furnish any further details of the case.

I am, Sir, yours faithfully,

County Hospital, Guildford, July 23rd, 1910. H. J. FARDON.

THE PETROL REBATE.

To the Editor of THE LANCET.

SIR,—My experience exactly tallies with that of your correspondent "8 H.P.," and it seems evident that the conditions attaching to the claim for rebate are intentionally so framed as to render its recovery impossible. The Excise officer to whom I applied pointed out, in the most courteous terms, that the form of claim supplied by his department (which I had duly filled up) contains the words "on which the full duty has been paid *to the Crown*" (my italics); and that there is more in this wording than meets the non-legal eye of the average medical motorist. It seems that proof is necessary (in the case of every tin of petrol used during the specified period of about eight months) of payment of full duty (1) by the consumer to the retailer; (2) by the retailer to the manufacturer; and (3) by the latter to the Crown; and it must be shown that this last payment by the manufacturer actually reached the national coffers!

I am, Sir, yours faithfully,

July 23rd, 1910. TWO CYLINDER.

Mr. Vaughan Grey's matinée in aid of Prince Francis of Teck's appeal on behalf of the Middlesex Hospital, which was to be given at the Boudoir Theatre, Pembroke-gardens, to-day, Friday, July 29th, was unavoidably postponed until Thursday, Nov. 10th. We are asked to state that all tickets issued for July 29th will be available on the latter date.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Ashby Memorial Scholarship.

THE Ashby Memorial Scholarship of the Manchester University was founded as a memorial of the late Dr. Henry Ashby for the promotion of the study of the diseases of children, to which he had devoted his life's work. This year two of the aspirants have been adjudged equal, one being Hugh T. Ashby, M.B., B.C. Cantab., M.R.C.P. Lond., the son of the late Dr. Ashby, and the other C. P. Lapage, M.D. Vict., M.R.C.P. Lond., Dr. Ashby graduated at Cambridge in 1904 with honours in the Natural Sciences Tripos, and in 1908 became M.B. Dr. Lapage gained the John Henry Agnew scholarship in diseases of children in 1901, graduated in medicine in the Victoria University in 1902, and obtained the M.D. in 1905. He is now lecturer in school hygiene in the University. The Dauntesey Medical Scholarship has been awarded to Lily Allan, the Platt Biological Exhibition to R. G. Livens, and the University Prize in Medicine to A. G. Bryce.

Hope Hospital.

The Salford guardians appear to have a good deal of trouble with the hospital at Hope. At their recent meeting the report of the infirmary committee mentioned that there was a request from the medical superintendent for the addition of two more nurses and one house sister to the staff. One can understand the startling effect that this request would have on the guardians, who think of the rates as well as of the poor, and it is not perhaps surprising that a resolution was moved not to accede to the request. Happily, however, an amendment was carried adjourning the consideration of the question until the next meeting. This will give time to consider the grounds for the request. It is scarcely to be imagined that the experienced medical superintendent would ask for such a reinforcement of the nursing staff without sufficient reason, and the adjournment will give time for an appeal from guardians startled to guardians calm and properly informed. Another matter adjourned was the question of a new dietary for the inmates.

Health of Lancashire Scholars.

The recent statements made at the meeting of the Lancashire education committee at Preston on July 18th are sufficiently alarming as regards the health of the children. It is a serious matter that of the 60,000 examined 12,000 should be suffering from skin disease, while 11,000 had defective vision, many of whom were without spectacles. Whether any of the defective vision is due to small type or bad print in the school-books is not stated, but it is, of course, eminently desirable that this source of mischief should be avoided.

Hospital Sunday Fund.

It was decided at a meeting of the supporters of this Fund, the Lord Mayor, Mr. Charles Behrens, in the chair, that £4100—i.e., £700 more than last year—should be distributed among the medical charities of Manchester and Salford. The following statement shows the apportionment, and cheques for the several amounts have been issued to the respective institutions by the treasurer (Mr. John F. Haworth, J.P.): Royal Infirmary, £1264 16*s.* 1*d.*; Children's Hospital, £500 0*s.* 7*d.*; Ancoats Hospital, £331 1*s.* 6*d.*; Sick Poor and Private Nursing Institution, £328; St. Mary's Hospitals, £277 18*s.* 11*d.*; Hospital for Consumption, £258 18*s.* 10*d.*; Salford Royal Hospital, £233 2*s.* 11*d.*; Royal Eye Hospital, £210 19*s.* 7*d.*; Hospital for Incurables, £199 7*s.* 3*d.*; Northern Hospital, £134 16*s.* 7*d.*; Hospital for Skin Diseases, £104 17*s.* 10*d.*; Victoria Memorial Jewish Hospital, £104 11*s.*; Ear Hospital, £40 19*s.* 2*d.*; Dental Hospital of Manchester, £36 4*s.* 4*d.*; Hulme Dispensary, £21 17*s.* 4*d.*; Greengate Dispensary, £16 16*s.* 6*d.*; Chorlton-on-Medlock Dispensary, £13 9*s.* 1*d.*; Christie Hospital, £11 2*s.* 1*d.*; Lock Hospital, £9 13*s.* 11*d.*; Homœopathic Institution, £1 6*s.* 6*d.*; total £4100.

July 26th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The New St. Paul's Eye Hospital: Laying the Foundation-stone: The Treatment of Ophthalmia Neonatorum.

THE Earl of Derby on July 20th laid the foundation-stone of the new St. Paul's Eye Hospital and George Edward Walker Memorial at the junction of Oldhall-street and King Edward-street, close by the David Lewis Northern Hospital. A special feature of the new hospital will be a ward containing 10 beds and 10 cots for the treatment of ophthalmia neonatorum (the 10 beds being set apart for the mothers of the infants treated) and 2 wards, including isolation rooms, of 10 beds each for boys and girls respectively. When this department is built Liverpool will have the distinction of being the first city in Great Britain to make a special provision for the treatment of ophthalmia neonatorum. Amongst the speakers were Dr. E. W. Hope, the medical officer of health, who, in seconding the vote of thanks to Lord Derby for his part in the ceremony, remarked that the work of the hospital in the future would be still more of a preventive character. The health committee of Liverpool realised the great importance of the preventive measures which could be adopted to save the eyesight of young infants. That institution, he said, had been in the forefront of this good work, which commended itself not only to every subscriber, but to the city authorities and others interested in the young. In Dr. Hope's recently issued annual report for 1909 on the health of Liverpool, he enlarges on the prevalence of ophthalmia neonatorum in this country, and alludes to the statements of well-known authorities that over one-third of the inmates of schools for the blind lost their sight as a result of this disease. On the other hand, he states it is no less certain that if the disease be brought under efficient treatment when the symptoms first make their appearance, the eyes can be saved from serious injury and the sight preserved. Under the Midwives Act midwives are compelled to inform the local supervising authority of such cases and to call in medical assistance. The gratifying result is that in 1909 only one case of blindness was due to the neglect of a Liverpool "midwife," and she was an unregistered woman who was carrying on an illegal practice. A large amount of this good result, the report states, has been due "to the provision of a small ward of four beds at St. Paul's Hospital and the interest taken in the cases by Dr. Arthur N. Walker." In this ward the infants of but a few days old can be received with their mothers in order that the necessary treatment may be carried out, and also that they may not be deprived of their natural nourishment. "This last point is most important, as Dr. Walker reports that he is more and more impressed with the difficulty of saving severely-infected eyes in bottle-fed infants." The number of cases of ophthalmia neonatorum reported to the medical officer of health was 60 during the year 1908 and 59 during 1909. Amongst those present at the ceremony of laying the foundation-stone were the Lord Mayor and Lady Mayoress, the Lord Bishop of Liverpool, Sir Thomas Royden, Sir James Barr, Colonel Kiffin-Taylor, M.P., Dr. Hope, Dr. A. A. Mussen (assistant medical officer of health), and several members of the late Mr. George Edward Walker's family.

Liverpool's Garden Suburb: Foundation-stone of the First House.

The Marquis and Marchioness of Salisbury on July 20th took a leading part in the inauguration of Liverpool's first garden suburb at Wavertree. Her ladyship laid the foundation-stone of the first house. The suburb will cover 180 acres between Wavertree Nook and Broadgreen, and it is intended to build not more than 10 or 12 houses on each acre. Lord Salisbury has leased the land for 999 years to the Liverpool Garden Suburb Tenants' Society, of which Mr. Henry Vivian, M.P., is the chairman. His lordship said that a close study of the scheme had made him a decided supporter of the co-partnership system. He also confessed to feelings of mortification and indignation at finding in Liverpool land belonging to his family on which were streets of poor and unworthy houses. This was not the fault of himself or his immediate predecessors, but he hoped such things would not be possible in the future. The society has been founded to lay out and develop garden suburbs in the neighbourhood of Liverpool. It will afford the people of Liverpool an opportunity of living in a house with a garden at a moderate rent and within easy reach of work. The methods to be employed are the erection of substantially built houses, provided with good sanitary and other arrangements; to let the houses at ordinary rents to investors desiring to become tenants; to pay out of the rents interest on shares, the surplus profit being set apart as dividend for the tenant investors. Mr. Henry Vivian, in explaining the purposes of the scheme, said that he did not stand there advocating a theory that had not been tried. He was able to point to substantial facts in the direction of the development of garden suburbs at Ealing, Hampstead, Harborne, Port Sunlight, &c., all of which would ultimately promote the health and happiness of the people.

July 26th.

NEWCASTLE-ON-TYNE.

(FROM OUR OWN CORRESPONDENT.)

Prevention of Consumption.

DURING the fortnight commencing to-day, July 25th, there will be held in Newcastle an exhibition under the auspices of the National Association for the Prevention of Consumption. This has been arranged by the health committee of the Newcastle corporation, who have invited this itinerant exhibition to make a short visit to the city. In addition to the exhibition of object-lessons showing the cause and results of tuberculosis and methods of treating the disease, there will be given short popular addresses by various medical men of the town. It is to be hoped that the exhibition will be as successful in this town as in others recently.

Large Bequests to Local Charities.

Mr. A. E. Ward, of Cheapside, London, the trustee of the Robert Scott Charity, has recently made apportionments to various charities in the neighbourhood, which have benefited as follows: the Newcastle and Northumberland Consumption Sanatorium at Barrasford, £7500; the Poor Children's Holiday Association (for the purposes of the Children's Sanatorium at Stannington), £8500; the Northern Counties Orphan Institution, Newcastle, £2000; and the Hospital for Sick Children, Newcastle, £2000. The trustee observes that he has made the larger apportionments in favour of the sanatoriums in view of the interest taken by the testator in the subject of tuberculosis and the treatment thereof. With regard to the Children's Sanatorium of the Poor Children's Holiday Association, the trustee remarks that he has noticed the recent gift of £4000 by Sir William Stephenson[1] and considers it evidence of local appreciation of the work carried on there, and hence he has made the largest grant in favour of that institution.

Post-Graduate Courses at the Royal Victoria Infirmary, Newcastle-on-Tyne.

A pamphlet containing scheme and time-table has been issued from the Royal Victoria Infirmary indicating that the staff have arranged to give some post-graduate tuition in the latter weeks of August and the first week of September this year. The classes arranged include a general course which will be entirely clinical and special courses for those interested in special subjects. It is some years since any attempt was made in Newcastle to run definite post-graduate courses, and it is to be hoped that the present scheme may be a success, for it ought to fill a well-marked gap in medical study in the north-east of England.

Convocation at Durham.

On July 23rd a Convocation was held at Durham in Bishop Cosin's library, Sir George Hare Philipson, the senior pro-Vice-Chancellor presiding. There was one honorary degree, Mr. Justice Grantham being the recipient of the degree of D.C.L. Dr. Gee, in presenting Sir William Grantham for the degree, made many appropriate remarks. Afterwards ordinary degrees were conferred, mostly medical, the following being the recipients:—M.D.: N. A. Eddlestone, H. M. Levinson, R. O. Mather, H. R. McAleenan, R. R. Pirrie, S. Robson, A. Smith, and J. W. Smith (all of

[1] THE LANCET, June 18th, p. 1728.

the College of Medicine, Newcastle). M.D. (practitioners): W. W. Bell, H. Collier, H. H. P. Cotton, W. B. Darroll, and W. H. Hargreaves (all of the College of Medicine). M.S.: H. M. Levinson and S. Robson (College of Medicine). M.B., B.S.: I. Bainbridge, Helen Clarke, R. V. Clayton, S. F. Green, J. Hare, S. Littlewood, G. C. M. McGonigle, R. E. Reindorf, E. H. Shaw, S. Worthington, and J. C. Young (all of the College of Medicine). M.B.: J. A. Caulcrick (College of Medicine). B.Hy.: W. G. T. Hepplewhite and F. Rahtkens (College of Medicine). D.P.H.: W. G. T. Hepplewhite, Sophia Jackson, K. Jamset, J. A. Neilan, F. Rahtkens, and H. M. Stumbles (all of the College of Medicine).

July 25th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Graduation Ceremonial at the University of Edinburgh.

ON July 22nd the medical graduation ceremonial at the University of Edinburgh was held in the McEwan Hall, Sir William Turner, K.C.B., the Vice-Chancellor, presiding. The degree of M.D. was conferred upon 74 Bachelors of Medicine, five of whom received gold medals for theses — namely, George Carmichael Low, William Kelman Macdonald, William McDonald Scott, William Halliday Welsh, and James Young. The degrees of M.B., Ch.B., were conferred on 115, including 10 women, 3 of whom graduated with first-class honours and 8 with second-class honours. The Ettles scholarship, which goes to the best graduate of his year, was awarded to Francis Gordon Bell. The degree of B.Sc. was conferred on two gentlemen in the Department of Public Health and the Diploma in Tropical Medicine and Hygiene on two. The Cameron prize was awarded to Professor August Bier of Berlin for his important additions to practical therapeutics embodied in his work on spinal anæsthesia and on hyperæmia as a therapeutic agent. The work of Professor Bier was suitably set forth by Sir Thomas R. Fraser, and when the prize was presented Professor Bier got a very enthusiastic reception from the whole audience. The promotor for the occasion was Professor F. M. Caird, who then addressed the graduates, congratulating them on their success, and impressed upon them that the master key for all the difficulties in the future, as in the past, was to be found in unremitting industry.

Medico-Psychological Association.

The annual meeting of the Medico-Psychological Association of Great Britain and Ireland met during last week in Edinburgh. The association met on July 21st in the Royal College of Physicians, Queen-street, Professor W. Bevan-Lewis, M.Sc., Wakefield Asylum, the retiring President, being in the chair. The principal business at this sederunt was the election of the council and officers. Dr. John Macpherson (Edinburgh) was elected President; Dr. Thomas Drapes (Ireland), Vice-President; and Dr. H. Hayes Newington, treasurer. In the afternoon Professor Bevan-Lewis again presided, and after Dr. T. S. Clouston had proposed a vote of thanks to the retiring president and officers Professor Bevan-Lewis introduced his successor, Dr. Macpherson, whom he introduced into the presidential chair of office. Dr. Macpherson delivered an address on the Conceptions of Insanity and their Practical Result. He showed that the conceptions which had influenced the study and progress of psychiatry were all theories of causation and were (1) the volitional concept, (2) the empirical concept, and (3) the scientific or ideal concept. Mr. J. Carswell (Glasgow) read a paper on the Treatment of Incipient Insanity in Observation Wards. Other papers were by Dr W. Ford Robertson on Infective Foci in General Paralysis and Tabes Dorsalis; by Dr. J. P. Sturrock on Certain Forms of Insanity in the Criminal Classes; and by Dr. R. M. Marshall on Periodic Attacks of Mental Excitement and Depression in the Chronic Insane. In the evening of July 21st the annual dinner of the association took place in the Caledonian Station Hotel. On July 22nd proceedings were again resumed in the Royal College of Physicians, Dr. Macpherson presiding. Papers were read by Dr. A. R. Urquhart (Perth) on Lunacy Administration in Scotland, with Special Reference to Royal Asylums; by Dr. Lewis C. Bruce (Murthly) on the Deviation of Complement in Connexion with the Diseases known as Mania; by Dr. Hamilton C. Marr, Dr. Ivy McKenzie and Dr. C. H. Browning, read by Dr. McKenzie, on the Treatment of Protozoal Diseases; and by Dr. C. T. Ewart (Claybury) on Eugenics and Degeneracy. Dr. Macpherson intimated that Dr. Morton, Scottish Western Asylum Research Institute, had obtained the bronze medal of the association for his paper on the Chemistry of the Cerebro-spinal Fluid in Cases of Insanity, which Dr. Morton then read before the association. Dr. Winifred Muirhead (Edinburgh) read a paper on the Wassermann Reaction in the Blood and Cerebro-spinal Fluid, and the Examination of the Cerebro-spinal Fluid in Cases of Insanity; and Dr. Gilmour, of the Scottish Western Asylums Research Institute, followed with a paper on the Wassermann Reactions, a more Reliable Technique. The members of the association were then entertained to lunch at Craig House, Morningside, by the managers of the Royal Edinburgh Asylum. After luncheon a discussion took place in the Tudor Hall on Mental Excitement. The discussion was opened by Dr. G. M. Robertson, physician-superintendent of the Royal Asylum, and various members took part. Dr. Leonard D. H. Baugh, Gartloch Asylum, then read a paper on a Clinical Study of Anæsthesia, Mental Confusion, and Moods in Epilepsy, Confusional Insanity, and Hysteria. Later in the afternoon a garden party was held at Craig House, but as unfortunately the weather was wet the grounds could not be seen to advantage. On Saturday, July 23rd, the closing day of the annual meeting, the members of the association paid a visit to Bangour Asylum on the invitation of Dr. Keay and the Edinburgh Board of Lunacy. Dr. Keay read a paper on the segregation system as exemplified by Bangour village. The cost of maintenance per annum for patients from the Edinburgh district was £27—but would be lower were all the beds occupied. There were 745 patients in residence and 128 unoccupied beds. After the nurses' home had been inspected luncheon was served to the guests and thereafter the rest of the asylum was visited.

New Medical Commissioner in Lunacy for Scotland.

Dr. Hamilton Clelland Marr has been appointed Medical Commissioner in Lunacy for Scotland in place of Dr. John Fraser, who has retired on attaining the age limit. Dr. Marr is a native of Govan, and was educated in Glasgow University. He took his degree of M.B., C.M. in 1892 and his M.D. three years later, in both cases graduating with commendation. He then became an assistant at Woodilee Asylum, and later was appointed an assistant in the Crichton Institution, Dumfries. Later he returned to Woodilee as senior assistant, and subsequently was appointed assistant medical superintendent. In 1901, on the retirement of Dr. Robert Blair, he was promoted to the position of medical superintendent of Woodilee Asylum. Dr. Marr is M'Intosh lecturer in psychological medicine in St. Mungo's College, Glasgow, and for some years has acted as secretary to the Scottish Division of the Medico-Psychological Society of Great Britain.

Resignation of Dr. T. S. Clouston of the Lectureship in Mental Diseases.

On the occasion of the resignation of Dr. Clouston of the post of lecturer in mental diseases to the University of Edinburgh the Court of the University at a meeting on June 13th minuted a resolution in appreciation of Dr. Clouston's services as University lecturer. The minute ran as follows:—

The University Court has received with much regret the intimation of Dr. Clouston's resignation of the lectureship in mental diseases. The Court record with gratitude their appreciation of the valuable services that have been rendered by Dr. Clouston during the 37 years in which he has been a teacher of the subject in the University, first in connexion with the classes of practice of physic of Professors Laycock and Sir Thomas Grainger Stewart, and since 1879 as the holder of the University lectureship in mental diseases, which was instituted in that year. During this long period Dr. Clouston has proved himself a singularly successful and able teacher. His great reputation as a specialist in mental diseases and his eminence as a worker and writer on the subject have exerted an inspiring influence upon the large number of students who have attended his classes. They, as well as the University Court, have fully realised the great advantages of having as the lecturer on this subject a distinguished pioneer in the scientific study of disorders of the mind, and one of the first and most active of the promoters of the benevolent reforms in the care and treatment of the mentally afflicted which have signified the latter half of the previous century.

Protection of Early Child-life in Edinburgh.

On July 18th a meeting was held in the Hall of the Royal College of Physicians, at the invitation of the medical staff of the Royal Hospital for Sick Children, with the object of

promoting the coöperation of the various agencies dealing with the amelioration of the conditions of child-life in Edinburgh. Dr. G. H. Melville Dunlop presided, and Dr. A. Dingwall Fordyce made a preliminary statement, reviewing the measures which had been taken in different parts of the world with a view to the prevention of infantile mortality. Mr. H. J. Stiles, surgeon to the Royal Hospital for Sick Children, spoke strongly on the question of the prevention of tuberculosis among children. He referred especially to bone and joint tuberculosis, of which a great deal is seen in Edinburgh, and which he considered was due to infection partly from infected dwellings and partly from milk. Dr. W. Robertson, medical officer of health of Leith, spoke on his experience of a milk depôt. Professor Lodge, Dr. J. Stewart Fowler, Mrs. Russell, and Mrs. Somerville also addressed the meeting. A committee was appointed representing different agencies at work in Edinburgh in connexion with the protection of early child-life with a view to promoting coöperation and developing the possibilities of the work.

University of St. Andrews: Meeting of the Court.

At the last meeting of the University Court a communication was made intimating that the Treasury would sanction additional grants amounting in the aggregate to £40,000 per annum to the Scottish Universities, the portion allocated to St. Andrews being £6,000, provided that suitable schemes are submitted by the several University authorities. A supplementary estimate has been presented to Parliament which will admit of an additional grant of £4000 to St. Andrews for the current financial year. It was agreed to communicate with other Scottish Universities so that a conference might be arranged at which the amounts of the composition fees could be fixed. Under the scheme before the Court of the University of St. Andrews it is proposed that for one fixed fee per session each student in a particular faculty shall have the opportunity of attending such classes in that faculty as he may choose, with the approval of the Adviser of Studies.

Medical Research Award.

The medal and prize of the Medico-Psychological Association of Great Britain and Ireland has been awarded to Dr. Hugh Morton for the best dissertation on the "Biochemistry of the Cerebro-spinal Fluid in the Insane." Dr. Morton is attached to Gartnavel Asylum, Glasgow, and to the Scottish Western Asylums' Research Institute. The competition was open to all assistant medical officers of asylums in Great Britain and Ireland.

Vaccination in Glasgow.

During the past year the medical officer of health of Glasgow states that declarations of conscientious objection to vaccination were made in respect of 2653 children. This is 470 in excess of the number made during 1908, and brings up the total declarations made since the Act came into operation to 5310. It is frequently asserted that the result of withdrawing the compulsory provisions of the Vaccination Act in England has been to extend the practice of vaccination among infants. The results of the further amendment of the Act in England in 1907 are not yet available, but it may meanwhile be observed that the experience in Scotland is wholly opposed to the view. The last year of the old Act was 1905, and comparing its results with those which are now available for 1908 a pretty fair estimate may be formed of the rate at which a population is being prepared amongst which small-pox will spread in a manner of which this present generation has had no experience. The proportion of births regarding which declaration of conscientious objection was made in Glasgow was 9·2 per cent., but in the rest of Scotland it was 12·7.

Tubercle in the Milk-supply of Glasgow.

During the year 1909 the veterinary surgeon for the corporation of Glasgow caused 423 samples of milk obtained in country byres to be examined for tubercle. Among these 24 were found to contain tubercle bacilli. This is equal to a rate of 5 7 per cent., compared with 4·3 per cent. in the years 1908 and 1907. Similarly, of 122 samples obtained from town byres the number found tuberculous was 4 and the percentage 3·3, as compared with 4·6 in 1908. Contrasted with both is the result obtained in 47 samples from byres supplying milk to the city hospitals, none of which were found to contain tubercle bacilli. It is worthy of note that these herds are subjected to the tuberculin test, and the result now obtained is highly satisfactory.

Medical Appointment at Blairgowrie.

Dr. Dugald Revie, Blairgowrie, has been appointed medical officer of Strathmore Infectious Diseases Hospital, jointly owned by the burghs of Blairgowrie, Rattray, Alyth, and Coupar-Angus, in room of Dr. R. C. Macdiarmid, who has received a public appointment in New Zealand.

July 24th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Mr. Birrell and Midwives Legislation.

IN view of the recent conference of professional bodies which decided to press for midwives legislation for Ireland, the remark of Mr. Birrell in the House a few weeks ago that the matter is not as urgent in Ireland as in England has roused some surprise. In a letter to the daily papers the Master of the Rotunda Hospital, Dr. Hastings Tweedy, points out that the rate of mortality connected with pregnancy and child-bearing is in Ireland 6·3 per 1000 births, whereas in England it is 4·81. Moreover, "under the English Act untrained women are not permitted to practise as midwives, and the trained ones work under strict supervision. In Ireland there is no such control, and once a midwife has obtained her hospital certificate, the institution which qualifies her ceases to have power to influence her future conduct. She may be profligate, dirty, dishonest, or drunken; sepsis may follow her in epidemics, and yet there is no power available in Ireland to prevent her practising."

The Belfast Measles Epidemic.

During the week ending Saturday, July 16th, in the 22 town districts of Ireland there were 21 deaths from measles, and of these 20 occurred in Belfast and 1 in Londonderry; and during the three weeks ending Saturday, July 16th, there were in the 22 town districts of Ireland 73 deaths from measles, and of these 5 occurred as follows: 2 in Londonderry, 1 in the Dublin registration area, 1 in the city of Dublin, and 1 in Queenstown, while the remaining 68 all occurred in the city of Belfast. It will be interesting but may reveal a deplorable state of affairs when we get the total number of deaths in this terrible epidemic of measles which has visited Belfast.

July 26th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A New Medical Temperance Association.

AT the International Temperance Congress held in London last year the medical abstainers of the German-speaking countries, of Scandinavia, of England, of the United States of America, and even of Russia, formed themselves into associations, but their French colleagues took no immediate action, and it is only quite recently that a similar combination of medical abstainers in the Latin countries has been organised. The new association is appealing to all medical practitioners who take a serious view of professional duty and find it helpful to set an example of total abstinence from alcoholic beverages.

Pain in Surgery.

At a meeting of the Academy of Medicine held on July 12th M. D. Picqué read a paper in which he showed that a surgeon might produce pain in two different ways—namely, either (1) from setting up local complications by rough and prolonged exploration of an injured or infected part, or (2) from inducing special mental states in predisposed individuals by inopportune examinations and useless questioning. He said that a knowledge of those special conditions of pain led to a rational method of preventing its occurrence. In hysteria it was particularly important to avoid doing anything that might be suggestive; the examination should be rapid and the diagnosis prompt. In hypochondriasis the rules to be followed were the same as in hysteria, but even greater care was necessary in applying them. In hysteria there was an immediate cerebral impression which soon disappeared,

whilst in hypochondriasis the patient's meditative propensity rendered the impressions durable. In making the examination necessary for arriving at a diagnosis, it was therefore important to avoid anything which might encourage the patient's morbid views or give support to his anxieties.

Effects of the Thermo-electric Bath.

At a meeting of the Academy of Sciences held on July 11th M. d'Arsonval made some remarks on a communication received from Dr. Doyen, entitled "Transmission of Heat without Injury to the Normal Tissues accomplished by Means of the Thermo-electric Bath." M. d'Arsonval said that the virulence of cancer cells was destroyed by the penetrating heat obtained by means of electric currents of high frequency and low tension in an apparatus which he had devised. In its original form the treatment was attended by the inconvenience that electro-coagulation took place and that the thickness of the tissues was reduced, bnt Dr. Doyen had succeeded in overcoming these defects by the interposition of isotonic saline solution between the electrode and the tissues. The effects of this thermo-electric bath were very interesting. The heating of the tissues might be observed with an alcohol thermometer so that the useful effect might be obtained—namely, a temperature from 55° to 58° C., at which the normal tissues were not injured. The temperature of the water might be lowered by a current of cold saline solution without interruption of the heating of the tissues. M. d'Arsonval said that the thermo-electric bath would be of great use in both medicine and surgery, for it destroyed the majority of pathological cells without harming the normal tissues, which were more resistant to heat. In surgery it prevented the re-inoculation of a wound with cancer cells.

July 26th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Resignation of Professor von Strümpell.

AN unusual occurrence amongst the teaching staff of our University supplies an unfortunate illustration of the unsatisfactory conditions prevailing in our higher bureaucracy. Professor von Strümpell, the famous physician and specialist for neurology, suddenly notified to the Senate and the Ministry that he had resolved to give up his position in this city. In explanation of this it must be remembered that after Professor von Schrötter's sudden death during the International Congress on Rhino-Laryngology in Vienna great difficulties had to be overcome before Professor von Strümpell could be prevailed on to accept the appointment as his successor. The new professor, who held an influential position in Germany, was not only offered very favourable conditions to induce him to come to Vienna, but he was promised also to have a completely free hand as regards the outfit of the old clinic to make it as modern and up to date as possible. His transference to Vienna was not viewed with unanimous approval. There were many who thought that we have already enough professors imported from Germany, and could very well supply ourselves the men necessary for such a position. On the other hand, the scientific thoroughness of the new professor was not congenial everywhere. Professor von Strümpell did not care to ingratiate himself, and there were difficulties, but the fault was not necessarily with the professor. The students and patients quickly perceived the advantage they derived from the presence of so eminent a man in Vienna. His idea was to make his clinic a centre of clinical teaching. This involved much time spent in the wards and class-rooms, and much expenditure of money in the purchase of apparatus and otherwise. He ordered what he thought necessary, but when the bills came in the officials of the Ministry of Education raised difficulties about payment, and when there was a debt of a few hundred pounds, which it seemed that he would have to pay himself, he lost patience and resigned his post. The news was received by the public with astonishment, and in medical circles as well as among other sections of the population the narrow-mindedness of the officials was severely criticised. It has been pointed out that the treatment to which the professor has been subjected is hardly creditable to the department concerned; it may be that in future a call to Vienna will be well considered before a man of recognised position accepts it.

Appendicitis in Elderly Patients.

At a recent meeting of the Medical Society Dr. H. Loebl discussed the subject of inflammation of the appendix in persons over 50 years of age, whom he classified as elderly patients. The condition must be termed a rare one, as only 3·66 per cent. of all cases of appendicitis were encountered after 50 years of age. He said that the appendix was well known to become smaller or even to be totally obliterated with advancing years, but opinions differed as to whether this was a phenomenon of senile atrophy or the result of inflammation. Appendicitis simplex was exceptional in old age, partial necrosis being the most usual lesion. The most important form of senile appendicitis was that which had been called by French authors *à forme néoplasique*, and was characterised by the formation of hard inflammatory tumours, which might be mistaken for malignant growths. A very frequent form of the disease was chronic adhesive appendicitis which gave rise to vague symptoms. All authors agreed that acute pain, local symptoms, and high fever were absent. The only symptoms were those of gastro-intestinal disturbance with others suggesting stenosis in the ileum or cæcum. Another form of senile appendicitis he called "hernial appendicitis" because of its increasing frequency as age advanced; it was perhaps due to the liability of elderly persons to all sorts of hernia. As the local symptoms in these various conditions were very often insignificant a correct diagnosis might be very difficult. The results of surgical treatment were less favourable than in younger patients, for complications were much more frequent.

The Tuberculin Treatment of Out-patients.

In a report by Dr. A. Müller on the tuberculin treatment of patients seen at the Moravian Tuberculosis Institute the results obtained in 600 cases were discussed, and the following details were given by him at a meeting of the local medical society. As no beds are available the institute has undertaken to instruct its patients in the personal care of their health and to keep strict observation by repeated surprise visits over all those found affected. For the latter purpose several medical practitioners consented to give their aid. No charge was made for treatment and the following method was adopted. Only cases considered to be of a mild description with subfebrile or slight feverish temperatures were selected, all other patients being sent to hospitals. The ambulatory patients were first tested by the von Pirquet method (cutaneous reaction), and the size of the resulting papule was considered as an indication of the patient's sensibility to the tuberculin. Accordingly an injection varying from 1-10000th up to 1-100th of a milligramme was made, and repeated after 48 hours with a tenfold dose until a definite infiltration and inflammatory reaction marked the site of injection. This was considered to be a proof of the injection of a therapeutically active quantity. The injection was repeated with the active quantity as soon as the local reaction had vanished. General or local reaction of a serious nature required a diminished dose. By this method Dr. Müller hardly ever reached doses of more than a milligramme, even after a treatment of several months. The results obtained were very satisfactory, including improvement of the general health and increase of weight, together with disappearance of night sweats, rheumatoid muscular pain, fever, and mental depression. The quantity of the sputum often increased at first, but soon diminished. The tuberculin employed was Koch's "old tuberculin," which was therefore found capable of doing much good, even in the case of patients following their employment under proper conditions. No harmful effect was noted during five years of continued use in the institute.

July 25th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Malaria in Bombay City.

Dr. Charles A. Bentley, malaria investigation expert especially appointed by the Government to consider the problem in Bombay, has issued an interim report. He points out that no part of the city is free from malaria. He finds the only mosquito which spreads infection in Bombay is Nyssorhynchus stephensi, for which the multitude of wells in all parts of the city form ideal breeding-places. On the other hand, the

common mosquitoes in Bombay belong to species which have nothing to do with the transmission of malaria. Therefore, prevention of the dangerous anopheles rather than destruction of all mosquitoes must form the keynote of antimalaria sanitation in Bombay, and for this the natural circumstances of the island city form conditions favourable to the success of the campaign not to be found in any other part of India. Dr. Bentley details a large programme for controlling dangerous breeding-places, which he remarks can be carried out on an almost self supporting basis.

Report of the Chemical Examiner of the Punjab.

In the last report of the chemical examiner for the Punjab it is remarked as a matter for congratulation that the use of arsenic in human poisoning cases has decreased, and this is believed to be due to the working of the rules under the Poisons Act, which came into force in 1907. During the year the Government had under consideration the advisability of taking action under the Poisons Act with reference to the juice of the *Ak*. But as *madar* (*Ak*) grows wild in some profusion it was decided that rules regulating the possession of *madar* would probably fail of their intended effect, and the matter was therefore dropped. A feature of the year was the decrease in the number of cattle-poisoning cases, which fell from 170 to 120. This is considered to be due to prompter action on the part of investigating officers, making the risk of detection greater. A curious case of death after inoculation from plague is recorded. A person in the Gujrat district died on the third day after inoculation, and doubtless popular opinion attributed the death to the "poison" which he was supposed to have absorbed. But a post-mortem examination showed that arsenic was present in the body, and presumably death was due to this cause, though the report does not explicitly say so. It would have been more interesting if some further details had been given, but the chemical examiner has no concern with the police action which may follow upon his scientific investigations. Possibly in some obscure report in the Gujrat district the story may have been told in full, and this poisoning case may have been cited in connexion with the prevention of plague in the rural parts of the Punjab. It should at least be noted by medical officers who are engaged in inoculation work.

Lahore Lunatic Asylum.

The lot of the native lunatics who find themselves in the Lahore Asylum is certainly one that speaks highly for the humanitarian policy of Government. In the trieunial report on the working of the institution it is shown that friends and relatives of insane males now willingly bring these unfortunates for treatment, and lunatics who have been discharged have been known to return voluntarily. Hence the number of inmates has steadily increased and the asylum has had to be enlarged. The worst cases of mania come under treatment; the Indian people see no necessity for placing the harmless lunatic in confinement. Unfortunately the common use in the Punjab of hemp drugs causes a long list of dangerous and troublesome cases, but toxic mania of this kind is curable. The men are encouraged to work in the asylum gardens, where "shady, green, and even pleasant areas" have been made; all great festivals are observed, and forms of amusement, including the magic lantern and the gramophone, are provided; tobacco is allowed in reason; rewards are divided among steady workers; and even a vernacular paper is taken in. The inmates are, in fact, made more comfortable than in their own homes, where their condition is generally that of great misery and constant mechanical restraint. These remarks refer, of course, to the violent maniacs, the victims mostly of *charas* or *bhang*. The criminal lunatics are found useful as attendants, cooks, &c., and they are also employed on machines for making clothing, bedding, and matting. No distinction is drawn between them and the ordinary inmates, and many cures are effected. The female lunatics are more difficult to deal with, and, as in Western countries, they give far more anxiety than the males. They cannot be induced to work, and "the time of the majority is devoted largely to quarrelling with one another, and to an amount of vociferation, abuse, and energy of destruction that far surpasses anything ever seen among the men." The experiment has been tried of placing four Franciscan sisters in charge of the female asylum, and the greatest success has been gained. They have laboured from the first with devotion, kindness, and self-effacement, and their presence has utterly changed the conditions under which the lunatics live. We are glad to notice that the noble work which these sisters are doing is warmly acknowledged by the authorities. Generally it may be said that the insane in the Punjab are most carefully looked after once they have entered the Lahore Asylum, and popular opinion recognises the good which it is doing.

Retirement of Lieutenant-Colonel E. P. Frenchman, I.M.S.

In the course of a resolution of the Government on the prison administration of Burma for the year the following occurs:—

By the retirement of Lieutenant-Colonel Frenchman the Government of Burma has lost the services of a most valuable officer. As Inspector-General of Prisons, his administration of the Jail Department was marked no less by economy than by efficiency, and he achieved notable results, especially as regards the health of the prison population. The department has suffered a further loss through the appointment of Major B. G. Singh as Inspector-General of Prisons in Eastern Bengal and Assam. Major Singh had administered Insien Jail with conspicuous success for nearly nine years.

The Prevention of Cholera in Bombay City.

In a memorandum recently circulated at the instance of the Bombay Chamber of Commerce attention has been drawn to the place which cholera occupies in the health returns of the city of Bombay, and the existence of the disease in Bombay is attributed very largely to the importation of cases from Nassik. Several recommendations have been made by the chamber to prevent the risk of the spread of the disease, the more important being the establishment of quarantine camps at Nassik for the accommodation of the pilgrims and the running of special trains for festivals whereby a closer examination of the passengers can be carried out. In its reply to this memorandum the Government of Bombay states that it considers that the establishment of quarantine camps would be impracticable, but it agrees that special trains should be run for the pilgrim traffic, and points out that the new water-supply should do much to eliminate cholera from Nassik.

The Treatment of Snake-bite by Permanganate of Potash.

In the course of certain experiments carried out recently at the Government bacteriological laboratory in Bombay to test the value of potassium permanganate as an antidote for snake poison, attempts were made to ascertain by experiments on animals whether potassium permanganate was harmless or otherwise when injected into the blood stream. The results of these experiments have, however, conclusively shown that intravenous administration of the drug is attended with grave danger, and that this method of treatment should on no account be employed. Both Sir Lauder Brunton and Major Leonard Rogers, I.M.S., had already condemned this method of treatment as useless and dangerous. Major Leonard Rogers, as a matter of fact, carried out experiments on animals some years ago as well as recently to test the value of intravenous injections of permanganate of potash and other oxidising agents, but did not think it worth while to publish his results owing to their negative value. Sir Lauder Brunton's method of local application of permanganate of potash to destroy the action of snake venom at the site of injection before it has had time to enter the general circulation is well known, and still remains the one method of treatment generally applicable which has in its favour both a scientific experimental basis and a record of remarkable success in practice.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Hostile Criticisms on a Recent Appointment of a Professor in the University of Budapest.

OWING to the manner in which professors are appointed in Hungarian universities it often happens that the successful candidate is not the best qualified of the applicants for the vacancy. When a medical chair becomes vacant the medical faculty of the university in question submits the name of one of the candidates to the general board of the university for approval, but this board (which consists of mixed faculties) has the right to reject the candidate proposed by the faculty and to appoint another of its own choosing. Finally, the appointment has to be confirmed by the king through the Minister of Public Instruction. In the recent selection of a

professor to fill the vacant chair of dermatology in the University of Budapest the general board disregarded the recommendations of the medical faculty and succeeded in bringing about the appointment of another candidate under circumstances which have evoked an unusual amount of hostile criticism. Since the death of Professor Schwimmer in 1896 there has been no formally appointed professor of dermatology, but the work of the chair has been carried on by Dr. Lajos Nekam, who had for many years the position of a locum-tenent and eventually became a candidate for the professorship. Of the other candidates Dr. Török and Dr. Thomas Marschalkó, the latter of whom is professor of dermatology in the University of Kolozsvár, are by many considered to be of higher professional standing than Dr. Nekam. In the controversies arising out of this election it has been freely asserted that sectarian influences had no small share in determining the result, and for this reason it may be mentioned that Dr. Nekam and Professor Marschalkó are Roman Catholics, whereas Dr. Török does not profess that faith. The medical faculty, though recognising the scientific prominence of Dr. Török, who is by far the most famous dermatologist in Hungary, said that it regarded teaching ability as of more consequence than scientific attainment, and therefore recommended the appointment of Professor Marschalkó. There was, however, a small minority in favour of Dr. Nekam, and Count Zichy, Minister of Public Instruction, sent Dr. Nekam's name to the king for confirmation. This confirmation was realised on May 24th, and after an uncommonly long delay—namely, on June 22nd—his appointment was published in the official papers. A respresentative of the *Pesti Naplo* has interviewed Professor Marschalkó, who made the following statement: "Now that the appointment has received royal sanction there is nothing further to be done, but I may say that the proposals of a faculty have never been treated in a like manner before. It is not a personal affair, but one which strikes at the freedom of science." The same journalist interviewed Dr. Török, who maintained perfect silence as regards this matter, only remarking, with a smile, that from henceforth he would give up his energy to the culture of music. A similar visit was then made to Dr. Nekam, who, however, refused all oral explanation, but sent the interviewer a typewritten statement as follows: "Dr. Lajos Nekam graduated 21 years ago. He spent two years as demonstrator at the chemico-pathological laboratory, and two years as clerk at the hygienic laboratory; for three and a half years he was connected with a pathologico-anatomical laboratory, and for one year he held the second position in the bacteriological laboratory of Budapest. For three years he visited the best dermatological institutes of London, Paris, and Vienna, and since 1896 he has been acting as locum-tenent of the vacant dermatological chair in Budapest. He has written 73 lengthy and 64 shorter papers. He is corresponding member of the dermatological societies of Paris, Vienna, Amsterdam, and Montevideo. In arriving at its decision the University Board was influenced by 12 foreign dermatologists, whose opinion had been asked and who all supported Dr. Nekam." The *Pesti Naplo* remarks that this does not disarm criticism. Every well-educated man has travelled for the purpose of studying in foreign countries, and nobody denies that Dr. Nekam is a well-educated man. As for the 12 foreign dermatologists, the *Orvosok Lapja* (Medical Weekly) says that they gave favourable opinions regarding Dr. Nekam because the question was not put to them as a matter of a choice between him and others, but purely as a question of his general eligibility. It will be seen therefore that feeling has run very high, and may take time to subside.

July 20th.

NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

Two Pathogenic Plants.

PRIVET asthma and varnish eczema are two ailments not infrequently met with in China which are directly traceable to pathogenic properties in plants. I have recently met with cases of both complaints; they are acute enough to cause serious inconvenience and are worthy of note, as in the latter complaint especially medico-legal issues may be involved. Privet asthma is a form of summer catarrh, or hay asthma, due to the pollen dust of the privet plant, Ligustrum vulgare. In susceptible persons it produces an acute coryza, with frontal sinus pains and intermittent spasm of the glottis. The plant grows all over China. Cases of this ailment occur in Shanghai frequently enough to warrant a municipal health notice being annually published requesting people who possess privet plants to prune off the flower buds before they open out into full blossom. The local newspapers often record complaints about the privet pest. I may mention that in the treatment of asthma the Chinese have long known the efficacy of stramonium. A favourite prescription handed down for generations is made up by mixing together one drachm each of dried tubers of Arum pentaphyllum, realgar (As_2S_2), and stramonium, and adding a slice of ginger. These are ground together and smoked with inhalation. Instead of stramonium the dried leaves of artemisia are used with equal favour. In lacquer or varnish eczema the hands and the face are usually attacked. The skin becomes eczematous with serous vesicles here and there which develop into purulent bullæ. The inflammation may become so intense as to be erysipelatous. The best treatment is lot. plumbi c. opio. The cause is Ningpo varnish, the irritant effects being due to the presence of a volatile toxicodendric acid, hence the occasional occurrence of the poisoning without actual contact taking place. The varnish becomes innocuous when thoroughly dry and hard. In the last case of varnish eczema I saw, the patient, an engraver, had incurred the disease when travelling on a newly-built China coast steamer. He maintained that the acute eczematous condition of both his hands debarred him from taking up his work for several weeks and claimed damages from the steamship company, who admitted his claim and gave him adequate compensation. The poisonous plants involved in the causation of privet asthma and varnish eczema both belong to the Ligustrum family. In the former case it is Ligustrum vulgare, while in the latter it is Ligustrum glabrum or Rhus succedanea, the poison oak. The galls of this oak are employed in the Chinese pharmacopœia as being expectorant, astringent, and corrective.

The English Language in Chinese Colleges.

Foreign education is the foremost "craze" in China at present. Enlightenment is the cry of the day. In the opinion of many of China's foremost scholars the Chinese language, for etymological and structural reasons, has been found to be inadequate for the purpose of conveying modern scientific ideas, and until the arrival of the day when China can boast of a fairly complete system of scientific terminology it is, to quote a Chinese paper, "almost an impossible task for our students to pursue, without the means of some foreign language, the higher and more profound branches of Western learning." In the *Peking Official Gazette* there has appeared a memorial presented by the Ministry of Education which has received the Imperial approval. It is headed: "A Memorial presented by the Education Board on the question of accepting definitely the use of some foreign language for imparting instruction in technical and scientific subjects." After referring to the failure of the present system to give students in the higher branches instruction of any other than a superficial character, and to the way in which translations of foreign text-books lose much of the meaning and spirit of the originals, and to the lack of uniformity in the foreign language employed (different schools using French, German, English, or Japanese), the memorial, which assumes the form of Imperial Regulations, concludes thus: "In all provincial high schools (scientific and technical) already existing or established in the future the studies (with the exception of ethics, Chinese literature, and history) pertaining to science shall be taught in English. When the students are sent to Peking for their final examination, when they graduate, they shall be examined through the medium of the English language." Some missionary medical colleges have been endeavouring by means of the Medical Lexicon to which I have referred in previous notes to carry through a five years' course in the Chinese language. This has necessitated the invention of hundreds of new terms and characters, which the Chinese say has eventuated in it becoming an equally foreign language. There are two points, however, about it—viz., that it is, after all, a form of Chinese, and, secondly, that it can be made an efficient medium, as has been amply proved by the satisfactory way in which students of the Union Medical College, Peking, have taken up their education. But with regard to the official adoption of English, a most important step has been taken by the Board's memorial. It

will mean a largely increased demand for English medical and other scientific text-books, and in the future will call for more English lecturers for Chinese colleges.

Miscellaneous.

The ports of Amoy and Swatow have been declared as plague-infected by the Superintendent of Customs, Shanghai, and all vessels arriving therefrom are to be governed by the sanitary regulations of Shanghai and Woosung. Small-pox, which is always more or less in evidence in Peking, has lately broken out with more virulence than usual, and the Imperial University has had to be closed because of the number of students infected. Although vaccination is extensively practised it is non-compulsory and the lymph is of very varying mediocre quality. Despatches from Japan indicate that at this time of the year the country is by no means healthy. There has been an outbreak of typhoid fever at Tokyo, and plague, scarlet fever, and other infective diseases (unnamed) prevail in various places. In Mamgame a virulent form of scarlet fever is raging in the western part of Sanuki province, and over a hundred people have fallen victims to this disease. The death-rate is high, about 80 per cent. succumb.

June 20th.

Obituary.

GEORGE HERBERT ROWE, M.R.C.S. ENG., V.D.

BY the premature death, at the age of 53 years, of George Herbert Rowe Leeds has lost a citizen whose place it will be very difficult to fill.

The son of the late Rev. George Rowe, principal of the Diocesan Training College at York, he became a student at the Leeds School of Medicine in 1874, and in due course, after holding resident hospital posts at Wolverhampton, Leeds, Scarborough, and Worcester, he commenced practice in Leeds is association with his father-in-law, Mr. C. G. Wheelhouse. He was soon appointed a demonstrator of anatomy in the School of Medicine and held the post for seven years. In 1884 he was elected an honorary surgeon to the Leeds Public Dispensary, and at the time of his death he was the senior surgeon to that institution and one of the trustees of the freehold. He was also the visiting officer to the Cookridge Convalescent Home and held various other honorary appointments to smaller charities.

The service that he gave for the sake of the less fortunate amongst his professional brethren entitles him to particular gratitude. Associated for several years with Mr. Wheelhouse as joint secretary of the West Riding Medical Charitable Society, he eventually carried out all the secretarial duties, and on the death of Mr. Wheelhouse was elected treasurer. The work that devolved upon Rowe in connexion with this society was very great, and the debt which the medical profession of the county owe to the self-sacrificing labours of Mr. Wheelhouse and his son-in-law was often acknowledged, and is not in danger of being forgotten. Nor was his usefulness restricted to professional matters. He possessed certain gifts of character which were well known and led to him being asked to undertake the duties of warden of Lyddon Hall—the hall of residence for the University students. To those who knew Rowe it was easy to understand why the students under his charge respected and liked him, and why it was that under his administration the hostel flourished. His talent for organisation was further utilised by the University when he was appointed its honorary marshal.

Outside his profession Rowe had an interest which was very much more than a hobby. He was a Volunteer and a Territorial of the keenest type. He entered the York Rifles in 1872 and got his commission four years later. In 1883 he joined the Leeds Rifles as a captain and in due time rose to second in command. When the Territorial Force came into existence it was decided that a new battalion to the Rifles should be raised on the south side of the river Aire. This duty was entrusted to Colonel Rowe, to give him the title by which he was familiar to the general body of Leeds citizens. Many doubted the possibility of getting together sufficient men in that part of the city to constitute a separate battalion. But Rowe's enthusiasm proved equal to the occasion. Calling together meetings of the artisans employed in the engineering sheds and factories of South Leeds he spoke to them with an earnestness that kindled their zeal, and soon the 8th Battalion became an accomplished fact with Colonel Rowe in command. How successful the undertaking has proved may be gathered from the fact that the battalion has now attained its full strength of 1005. Rowe was also an active member of the Yorkshire Territorial Association and vice-chairman of the Finance Committee. Yet with all these duties and the claims of a good family practice he managed to find time to act as the honorary secretary of the Leeds Club.

In reviewing the work which Rowe accomplished in the 28½ years during which he was a citizen of Leeds it is impossible not to be struck by the variety and useful character of his interests. His life was one of hard work, and the hardness of it was perhaps not appreciated by those who only saw one of its several sides. He was never idle, and he was never known to take a holiday—an absence from home meaning with him simply a change from one set of duties to another. Duty and discipline were the keynotes of his character, and it would be difficult to over-estimate the value of his example upon the young men with whom he was associated at Lyddon Hall and in the officers' mess of his battalion. Such a strenuous life, combined as it was with high personal character and the outward characteristics of a thoroughly good fellow, is not one that could come to an end without leaving a big gap. Leeds is the poorer indeed for his death. Amongst his personal friends—and they were many, both in his own profession and outside it—his loss will be very keenly felt, whilst by his patients not only the doctor but the man will be mourned. He was buried on July 20th, by the desire of his fellow officers, with full military honours and in the presence of a large gathering of personal friends.

He leaves a widow and two sons—one a lieutenant in the Royal Garrison Artillery, fortunately at home on leave from Nigeria at the time of his father's illness, and the other a captain in the 3rd York and Lancaster Regiment.

MOYLE BRETON, M.R.C.S. ENG., L.R.C.P. LOND.,

SURGEON, R.N. (RETIRED).

ST. GEORGE'S men of the early "nineties" will hear with regret of the death of Moyle Breton in his forty-first year on July 16th, after a chronic illness which had necessitated his being invalided from the medical service of the navy some years ago. When at the hospital he was a distinguished athlete and excelled at putting the weight; he was also a champion pistol shot at Bisley. His long illness was most bravely and uncomplainingly borne by him.

BRUSSELS MEDICAL GRADUATES' ASSOCIATION.—The annual meeting and banquet will be held at the Brussels Exhibition on Saturday, August 6th, at 7.30. Tickets 10 francs (not including wine). A seventeen-day excursion return ticket viâ Dover and Ostend to Brussels by any train, including saloon on steamer, costs £2 8*s.* 4*d.* The agents are Messrs. Dean and Dawson, 84B, Piccadilly, W. The headquarters in Brussels during the meeting will be Wiltshire's Hotel, Boulevarde de Waterloo, where a book will be kept for the registration of members on their arrival. All foreign graduates are welcome. A party will leave London on Friday, August 5th, for Brussels, as has been announced, and many may like to take advantage of the fact that the International Congress of Legal Medicine will be going on in Brussels. For further information application may be made to Dr. Arthur Haydon, honorary secretary of the Brussels Medical Graduates' Association, 23, Henrietta-street, Cavendish-square, W.

INTERNATIONAL CONGRESS ON THE CARE OF THE INSANE.—This congress takes place at Berlin from Oct. 3rd to 7th next. The following have been nominated to serve as a committee for the United Kingdom to assist in arrangements for the Congress: Sir George O'Farrell, Dublin, and Dr. John Macpherson, Edinburgh (*ex-officio* as members of the Permanent Committee for International Congresses); Dr. W. Bevan-Lewis, Wakefield; Mr. M. J. Nolan, Downpatrick; Dr. R. Percy Smith, London; Dr. C. H. Bond, Epsom; Dr. W. R Dawson, Finglas, Dublin; and Dr. J. H. Macdonald, Govan Asylum, Hawkhead, Paisley. Applications for membership of the Congress are to be addressed as early as possible to Herr Kalkulator Mietzner, 5, Prinz Albrechtstrasse, Berlin S W. The fee for membership is £1 (20 marks), and for a lady's ticket 10*s.* (10 marks).

THE BRITISH MEDICAL ASSOCIATION.

SEVENTY-EIGHTH ANNUAL MEETING IN LONDON.

THE meeting of the British Medical Association, which has taken place during this week in the metropolis, and the business of which is, of course, not concluded as we write these paragraphs, has been in every way a complete success. An enormous number of members have attended the meeting, and the scientific work in the sections, which have been well attended, has been of a high order. Really important matters, dealing with the internal and the external policy of the Association, have been closely debated at the representative meetings, and the organising talents of the officials, coupled with the splendid hospitality of the President, have combined to make the occasion a memorable one in the medical world.

The representative meetings were held in the chamber of the Court of Common Council in the Guildhall. The work of the sections and the official business was conducted in the buildings of the University of London at the Imperial Institute, the Imperial College of Science, and the old College of Science, South Kensington. The Imperial Institute, it will be remembered, was the headquarters of the meeting on the last occasion when it was held in the metropolis, under the presidency of the late Sir John Russell Reynolds.

In 1895, when the Association previously held its meetings in the Imperial Institute, that building, founded in 1887 as a memorial to Queen Victoria, was not connected with the University of London; indeed, it was not until 1906 that the Government took possession of the Institute and handed a large part of the buildings to the recently reconstituted University of London. In 1903 the Institute was transferred to the Board of Trade, and its first Bulletin, although, of course, dealing with commercial matters, contained much that was of medical interest, inasmuch as it included research work on the composition and therapeutical properties of certain plants. This work was in continuity with the original scheme of the Institute, which was designed to be a material exhibition of the progress and products of our empire. The Colonial Nursing Association made its home here, and in many other directions the spirit of the foundation has been maintained, so that, apart from its connexion with the University of London, the Imperial Institute has associations which entitle it to entertain a medical congress.

The number of sections this year is 21, that being the largest number of divisions of the scientific work which has as yet been attempted. All of them were accommodated in one of the four buildings which we have mentioned, and were in easy communication with each other—a matter of no small importance, as those who have attended congresses know. Although, for purposes of convenience, specialism, indicated by a partition of the work into 21 sub-heads, has now become necessary, a really progressive physician and surgeon knows that his interests do not necessarily lie in one, two, or three sections, but may well be spread over a much larger field. Where defects of accommodation have led to inconvenient separation of the work of the section debates have always lost in interest, a certain hurry and muddle being introduced into them by the local conditions. We report two or three sections at some length, but can only deal with the proceedings in the others very briefly in this issue.

The Annual Exhibition of drugs, surgical appliances, electrical apparatus, and special foods was held in the Imperial Institute Buildings (University of London). Situated just above the reception room and registration hall the space afforded to the exhibitors this year was in a prominent position and within easy reach of the visitors. The rooms were tastefully decorated and the stalls skilfully arranged, although in places the space above them was somewhat shallow. The variety of exhibits was great and visitors found it well worth their while to spend some of their time amongst the novelties shown by chemists, surgical instrument makers, food specialists, hospital appliances makers, and so forth. An interesting feature of the exhibition this year was a demonstration of electrical apparatus in a separate room—the Jehanghier Hall. In accordance with our practice on previous occasions, we commence in another column a notice of the more important exhibits.

A new plan in regard to pathological and other specimens has been organised this year. A Medical Museum has been formed, divided up into a number of sections, each under the care of an expert honorary curator, who has selected subjects to illustrate and has collected from all available sources specimens illustrating the interesting points capable of demonstration by means of exhibits. The result has been that the Medical Museum contains a large number of series of exhibits, and does not consist merely of a collection of miscellaneous items. By changing the name of the museum from pathological to medical, opportunity has been given and taken of including anæsthetic apparatus, engravings, prints, and other objects of medical interest. The honorary secretary of the Medical Museum, Mr. W. H. Armit, has received many congratulations on the successful results of his hard work.

The work of the Representative Meetings commenced as far back as Friday last, July 22nd, when delegates from many of the local divisions, as well as certain colonial members, met in the Council Chamber of the Guildhall, where they were welcomed on behalf of the Lord Mayor by Sir Horatio Davies. At the opening general meeting, which took place first, an announcement was read by Mr. Edmund Owen, chairman of the council, that His Majesty the King had telegraphed his gracious consent to the request that he should become patron of the Association. At the meeting of Representatives which followed, matters affecting the internal organisation of the Association were discussed. At the second representative meeting on Saturday an important pronouncement was made on the subject of athleticism in schools. This pronouncement, while laying stress on the value of regular bodily exercise for the schoolboy, emphasised the importance of all the pupils of any school being under the personal supervision of a medical authority; of every boy being examined medically upon entry; and further, of his being carefully observed during his school career, inasmuch as fitness for physical exertion did not necessarily depend upon his age or appearance. Medical examination was mentioned as being of particular value in regard to swimming, boxing, and rowing. On Monday the representative meeting discussed mainly the organisation which is suggested by the British Medical Association for a national public medical service in anticipation of the imminent introduction of a Government measure on these lines. The final session of the Representative Meetings took place on Tuesday, when the question of Poor-law reform was further debated, as well as a report dealing with the evidence given on behalf of the Association before the Departmental Committee on Coroners' Law. A special report on chloroform administration was also adopted.

On the evening of Monday Mr. Butlin, the President-elect, entertained at dinner at the Hotel Cecil some 400 medical men from all parts of the world, representing the profession in the United Kingdom, in the Colonies, and in many European countries and in America. The only speeches, save the loyal toasts, were a few words from Lord Ilkeston (Sir Walter Foster), inviting the company to drink the health of the President-elect, and a few words in reply from the host, in which he laid stress on the work done by Lord Ilkeston for the British Medical Association, and expressed his pleasure in knowing that the medical profession was now represented by him in the House of Lords.

At the commencement of the adjourned first general meeting at the Guildhall on Tuesday morning it was agreed that the next meeting of the Association should be held in Birmingham, and Dr. Robert Saundby, the professor of medicine in the University, was appointed President-elect. In the evening, at St. James's Hall, Great Portland-street, Mr. Butlin delivered the Presidential Address, which we publish elsewhere.

On Tuesday evening an "At Home" at 18, Cavendish-square, given by the President of the Section of Laryngology of the Royal Society of Medicine and Mrs. Dundas Grant was largely attended. The guests were entertained with vocal and instrumental music.

On Wednesday morning Dr. Mitchell Bruce delivered the Presidential Address in Medicine (see p. 284) at a general meeting. Later the staff of St. Bartholomew's Hospital gave a luncheon in the Great Hall of the hospital in honour of Mr. Butlin, their consulting surgeon, and President of the Association, extending invitations to many prominent members of the Association and distinguished foreigners now in London. Dr. Norman Moore, senior physician to the hospital, who presided, proposed Mr. Butlin's health in felicitous terms, pointing out his merits as a surgeon, and saying that, while he had made particular fields of surgery especially his own, he had always maintained a position as an authority on general surgery and pathology. Dr. Norman Moore added a tribute to Mr. Butlin's powers of work and concentrated industry, to which we have alluded elsewhere. Mr. Butlin, in a brief reply, discarded all reference to the personal compliments, and stated succinctly the power for good that the British Medical Association, when it had fully developed, would necessarily be for the protection of weaker members of the profession. To the toast of his health as chairman, Dr. Norman Moore pleaded that there was no time to say anything, because Mr. Butlin had to go immediately to the place where he (Dr. Norman Moore) had hoped he would not be wanted for some time yet—Westminster Abbey. Consequently, the luncheon broke up in laughter—a very suitable termination of a very pleasant function.

On the same afternoon the usual service was held at Westminster Abbey, at which the Dean of Salisbury preached before a large number of members. The collection was divided between the British Medical Benevolent Fund and Epsom College. At Westminster Cathedral seats were reserved at Solemn High Mass and at Vespers for Roman Catholic members.

On Thursday the Presidential Address in Surgery, which will be found in full on p. 289, was delivered by Mr. H. Gilbert Barling, Professor of Surgery in the University of Birmingham.

THE SECTIONS.

MEDICINE.

WEDNESDAY, JULY 27TH.

President, Dr. R. W. PHILIP (Edinburgh).

The PRESIDENT, in his introductory remarks, pointed out that the Section of Medicine occupied a more preponderating position in former times than it did at present. The growth of specialism and the advance of surgery have invaded the department of internal medicine, but so far from limiting its work these conditions had widened its horizon, and the outlook would in the future be improved. The general tendency would be to make medicine more scientific. It was significant that the discussions proposed before the section on this occasion concerned the meaning of groups of symptoms. The physician was not now content to wait for the completed processes, but concerned himself with the latent period of disease. His *metiër* was to detect and interpret the abnormal, and his attitude was daily becoming more one of prevention in regard to disease. He concluded by offering a hearty welcome to the distinguished guests present at the section.

Professor D. L. EDSALL (Philadelphia) opened the discussion on

The Pathogenesis, Prophylaxis, and Treatment of Acidosis.

He began by pointing out the new difficulties which had arisen in regard to this question, which seemed a few years ago to be easy to understand. This was due to the fact that recent research had tended to render even the fundamental questions matters of dispute. It was, however, definitely established that an acid intoxication can occur and produce definite symptoms, and, further, that the organism fights this by means of alkalics, especially by ammonia. It was established that in man an acid intoxication occurs in diabetes, and that this was dealt with by ammonia and other fixed alkalies. In the production of this intoxication it was the β-oxybutyric acid which played the predominant part, since diacetic acid was not present in sufficient quantity, and acetone was not powerful enough to be effective except in damaging the kidneys. The question was whether this acid intoxication was the whole cause of the symptoms. In many cases it might be, but it was probable that in some other factors were concerned. In regard to acidosis in other conditions, such as starvation, cyclical vomiting, and that occurring in association with certain diseases of the liver, different explanations were required, except in the case of starvation, which was essentially similar in nature to that in diabetes. This form was due to difficulty in utilising carbohydrates or to lack of them, and to disturbed fat metabolism. In acidosis due to other conditions the factor of diet may be concerned, but it plays a secondary rôle and at times has no influence. In these cases there was often quantitatively not enough acid to produce the symptoms, and he thought that the marked organic changes produced in the liver were the result of an autolysis of that organ increased by the acidosis, but produced or aggravated by other substances possibly formed in the intestinal tract. The result of the autolysis was to interfere with the metabolism of fats in such a way that oxidation was incomplete and acids were formed. He agreed with Bainbridge that there was no evidence in regard to any acid other than β-oxybutyric, which remained the only instance of a well-established auto-intoxication. In regard to the coma of diabetes, he did not think that carbonic acid was the cause, and in view of recent work regarding the importance of the fixed alkalies, especially calcium salts, for nerve tissues, further work was desirable in regard to the nervous symptoms. He pointed out certain analogies with the action of narcotics, which are said to flood the organism with fats. He then discussed the manner in which the large accumulation of acids occurred. The sequence was that owing to the lack of, or failure to utilise, carbohydrates there was a necessity for increased fat metabolism which became disordered, yielding fatty acids. It had been much discussed as to why oxybutyric acid accumulated in such large quantities, but some experiments by Neubauer had shown that diacetic acid given to animals may be transformed back to β-oxybutyric acid, and that the quantities of β oxybutyric acid, diacetic acid, and acetone stand in a definite relation to one another. Some attempts made to control the acid production were then reviewed. These had been made in connexion with

fats, proteins, and certain derivatives from the carbohydrates. It had been shown that the lower fatty acids were more poisonous than the higher ones and that some proteins increased acidosis, whereas other lessened it. Alcohol had been shown to lessen acidosis, but if given in sufficient quantity to diabetics it was liable to act injuriously in other ways. Some recent observations had been made with glycerin-aldehyde and were encouraging, but were not yet conclusive.

Dr. E. I. SPRIGGS (London) maintained that the distinction proposed between the acidosis of diabetes and starvation and those forms of acidosis in disorders of the liver is an artificial one, and that there was no real difference between them. It was now established that the liver was of great importance in the metabolism of fat. In starvation and in diabetes a great strain was thrown upon fat metabolism, which entailed great strain upon the liver. Dr. Edsall had said that acidosis leads to autolysis, but he would point out that in diabetes, where β-oxybutyric acid was often present for months, autolysis did not occur. He suggested the action of some unknown toxin in this connexion. He pointed out that none of the other conditions had been investigated so exhaustively as diabetes and he reviewed the evidence that diabetic coma was due to acid intoxication, and indicated the cogent nature of this evidence. In the other conditions, where delirium and vomiting occurred instead of coma, the poisoning was acute instead of chronic, and this fact might account for the difference in its manifestations. He gave an account of some observations upon 25 cases of diabetes made in collaboration with Dr. A. P. Beddard and Dr. M. S. Pembrey. Acidosis in diabetes occurred in two ways: first, by the patient eating so much carbohydrate that he destroyed his limited power of dealing with it, with the result that strain was thrown upon fat metabolism; the second manner was by too rapid cutting off carbohydrate food in treatment. Some observations were recorded demonstrating the effect of too rapid change in diet in inducing acidosis. He urged that diabetics should not be kept in bed, and that no sudden interference with their habits should be made. He further insisted upon the importance of allowing the patient as much carbohydrate as he could assimilate.

Dr. LANGDON BROWN (London) maintained that starvation was the cause of the particular form of acidosis associated with β-oxybutyric acid. A patient given nothing but salines by the rectum rapidly developed β-oxybutyric acid, diacetic acid, and acetone. He pointed out that acidosis might occur in oxygen starvation, as in mountain sickness or dyspnœa or in broncho-pneumonia. He suggested that as sugars were either aldehydes or ketones they could combine with oxygen, and that in the absence of either factor acids were formed. Normally fats should be completely oxidised, but now and then metabolism stopped short at the fatty acid stage, and these for their excretion required ammonia or alkalies, and thus led to a drain of the proteins and salts. He thought that a vicious circle was established, the autolysis leading to acid production, and this to further autolysis. He agreed with Dr. Spriggs in opposition to Dr. Edsall that there was no difference between the two groups of acidosis. Some authorities had taken the high ammonia coefficient as an indication that the cases associated with disease of the liver formed a separate group, but Dr. Langdon Brown said this was due to a diminution of the amount of nitrogen, the ammonia remaining nearly the same. Acid intoxication occurred when the organism could not deal with the acids by means of ammonia or the alkalies. In regard to prophylaxis, the incapacity of diabetics to use carbohydrates was not equally marked, for some could utilise lævulose better than dextrose. In conditions other than diabetes dextrose should be given by the rectum. In the treatment of coma citrate of potassium was valuable as an adjunct to the alkalies. By comparison with the normal bases of urine, he suggested the use of the following proportions of salts for the alkaline treatment of coma: one drachm of bicarbonate of soda, half a drachm of citrate of potassium, and three grains each of calcium and magnesium carbonates.

Dr. A. P. BEDDARD (London) agreed that acidosis in general was always due to carbohydrate starvation of the tissues, and that diabetes was the only condition in which acidosis was shown to be dangerous to life. He referred to the effect of exercise upon diabetics, and confirmed the observations of Coats that in mild cases exercise increased the capacity of using carbohydrates, but in severe cases there was no increased utilisation, and even deterioration if the exercise were severe enough. On the other hand, too little exercise might be the cause of starting coma by diminishing the power of utilising carbohydrate to a minimum. He also discussed the use of alkalies in diagnosis and treatment. Normally 2 drachms of sodium bicarbonate were sufficient to render the urine alkaline for 24 hours, but in diabetics it might be necessary to give 3 ounces or more. This was not due, as had been suggested, to increased manufacture of acid induced by the alkali given, but to the neutralisation of the alkali by the abnormal amount of acid produced in the organism. He maintained that diabetic coma was the result of prolonged and increasing acidosis. He gave evidence to disprove the view formerly put forward that it was due to a carbonic acid narcosis, and demonstrated that there was actually less carbonic acid in the organism, owing to the increased ventilation of the lungs produced by acidosis, and that this reduction was a serious matter for the organism.

Dr. LEONARD G. GUTHRIE (London) agreed with Dr. Edsall that the question of acidosis had passed out of the hands of the clinician into those of the physiologist. He referred to some of the features of post-anæsthetic intoxication or delayed choloroform poisoning. He discussed the part played by the anæsthetic in its production, and did not believe it was due to too much chloroform having been given or to too great concentration. He also thought too much had been made of starvation as a factor in producing these effects. He inquired into their relation to cases of cyclical or periodic vomiting, and he believed that these cases were potential victims of delayed chloroform poisoning.

Dr. M. S. PEMBREY (London) maintained that practitioners were very liable to forget the general law of excitation, which afforded a ready explanation of the effects of sudden change of diet or exercise. This law taught us that a sudden stimulation produced more effect than a larger one extended over a longer time. He pointed out that exercise produced a physiological acidosis in the formation of lactic acid, and further that carbonic acid was not a useless waste substance but an important stimulant to the respiratory centre. In regard to anæsthetics, the effect was suddenly to reduce metabolism to a more profound degree than in sleep, and consequently if the liver were already overworked there might be an acidosis as a result.

Mr. J. H. RYFFEL (London) described the effects of violent exercise in producing all the symptoms of marked acidosis, and this was due to lactic acid, which could be shown to increase in the blood and urine. Violent exercise increased the acids of urine, the relative quantity of ammonia, the acids of the blood, and also increased respiration. In violent exercise an acidosis very similar to that of diabetic coma occurred, but it was only short in duration. His results confirmed those of Dr. Beddard, Dr. Spriggs, and Dr. Pembrey that coma was not a narcosis by carbon dioxide but was a direct result of the acids in the blood.

Dr. EDSALL, in reply, pointed out, in justification of his division of the cases into two groups, that acidosis might occur in cases in association with absolutely normal dietetic conditions. He believed that something excited a pathological degree of autolysis, and that acids increased it. He agreed that acidosis was the chief factor in diabetic coma, but not that it was the only factor.

Dr. LEONARD E. HILL (Loughton) gave a demonstration on

Improved Methods of Giving Oxygen.

He first showed that an increase in the percentage of carbon dioxide breathed led to deeper respirations, and since an amount of carbon dioxide up to 2 or 3 per cent. had been shown to be quite harmless he suggested that breathing air containing excess of this substance might be used practically to expand the lungs in disease. He had demonstrated that it was not the percentage of carbon dioxide which caused symptoms of distress in stuffy rooms, but the heat and moisture. He believed that keeping the air in movement by means of a fan or punkah was useful. He then showed a simple and ingenious apparatus for the generation of oxygen from sodium peroxide to be used in the treatment of mountain sickness or for the rapid preparation of oxygen when required during anæsthesia. He also maintained that the ordinary method of giving oxygen was of very little value and showed a simple and effective mask, by means of which

the percentage of oxygen in the alveolar air can be raised to 70 per cent. instead of the ordinary 14 or 15 per cent. Another apparatus was designed to avoid the wasteful method at present used, and he also described a method of giving oxygen continuously by means of a special chamber in which the patient's bed could be placed. Lastly, he showed an improved apparatus for rescue work in mines, by which a supply of oxygen sufficient to last for four hours could be carried, and yet allow the wearer to work hard with his arms.

SURGERY.

WEDNESDAY, JULY 27TH.

President, Sir VICTOR HORSLEY (London).

The PRESIDENT spoke a few words of welcome, and then called upon

Mr. ARBUTHNOT LANE (London) to open a discussion on

The Operative Treatment of Simple Fractures.

He said: "The subject is a very simple one. We have to determine whether the treatment of simple fractures by manipulation, splints, massage, and active and passive movements is satisfactory in securing a useful limb, or whether it is advisable to obtain accurate apposition of fragments and a restoration of the skeleton to its normal form and functions by operative measures. Personally, I am convinced that in the very large majority of cases of simple fracture of the long bones a perfect result can be obtained by operative treatment alone. However much the bulk of the profession may oppose the operative treatment of simple fractures, the growing demand for a more efficient treatment than the present one will oblige surgeons to improve their technique in this branch of surgery. That the operative treatment of simple fractures has been opposed so virulently and for so long is merely an evidence of the intense conservatism of onr profession, and of the great difficulty it experiences in discarding its creeds in the face of proved facts. However, the facts supported by the growing intelligence and experience of the general public, assisted by radiography and the action of the courts of law, have driven the profession to reconsider their position and to wonder whether, after all, the beliefs on which they have based their practice up to the present, to the detriment of their patients, are any longer deserving of credence. I will first call your attention to the supposed possibility of effecting accurate apposition of fragments and the restoration of a broken bone to its original form by means other than operative. That this should be done has been accepted as a portion of the surgical creed up till quite recently. For instance, the late Mr. Christopher Heath wrote in THE LANCET of Jan. 4th, 1896, the following: 'I would remind you how important it is, in fracture of the leg particularly, that the fracture should be set thoroughly and accurately. ..... Unless that is done, and done accnrately, the surgeon has not treated the case properly.' I cannot urge the truth of this teaching too strongly upon you. Bnt as to the possibility of effecting such accurate apposition by the methods usually employed, there is now no doubt whatever that the principle was not, and never has been, carried out in practice. In fractures of the shafts of the long bones where there exists any considerable displacement of the fragments it is almost always impossible to restore the broken bone or bones to their original form by manipulation. If anyone wonld still wish us to believe that he is able to obtain accurate apposition by such means let him prodnce X ray photographs of his cases. That the inability to obtain accurate apposition of fragments is now fairly generally recognised is shown by the faot that the opponents of the operative treatment of fractures have changed their ground. They now assert that the functional result does not depend on the perfection of the restoration of the form of the skeleton but upon causes which they do not clearly define. These surgeons seem to have a very vague idea of the mechanics of the skeleton. They experience a great difficulty in arriving at a correct conclusion as to the amount of benefit their own cases derive from the treatment they themselves have employed. The same difficulty does not always exist when they are considering the results of the treatment of others." Mr. Lane here commented upon what he considered to be the opposing conclusions arrived at by two distinguished surgeons of the same school as to the amount of disability produced by fractures, and continued: "I have no hesitation in repeating a statement contained in a paper I read before the Clinical Society in 1894 in which I urged on the profession the folly of continuing the old methods of treatment and the necessity of having recourse to operative interference—namely, 'That the treatment of fractures, as it exists, is a disgrace to surgical practice, because those who have snstained fractures, especially of the leg, only too often experience enormous physical disability. When dependent on labour for their income, they frequently suffer great financial depreciation in their wage-earning capacity. In not a small proportion the depreciation in certain occupations amounts to 100 per cent.' All my snbsequent experience of fractures, treated by means other than operative, has fully borne out the accuracy of the conclusions I arrived at many years ago. The advent of X rays has compelled surgeons to be more careful of their statements as to the necessity of effecting accurate apposition of fragments, and the temptation to cast discredit on the interpretation of X rays became too great to be resisted by the surgeon. If these surgeons could have shown that the nature and amount of displacement of fragments were exaggerated by X rays, then they would have believed that they had succeeded in propping up a creed which was rapidly slipping away. Now, as far as X rays are concerned, when taken by competent operators on up-to-date apparatus the results are, in my experience, perfectly intelligible and give a thoroughly reliable indication of the displacement of the fragments. Far from exaggerating the difficulties of replacement, they often under-estimate them very greatly, since they do not afford any evidence of the soft parts which intervene between fragments and oppose their replacement. I would therefore assume that the X ray photographs, taken in planes crossing each other at right angles by an efficient X ray expert with an up-to-date apparatus, afford sufficiently accurate evidence of the displacement for the purposes of the surgeon, and also that the same amount of information cannot be obtained by any manipulation of the surgeon, however experienced and skilful. The advantages gained by operative interference are that the broken bone is restored to its original form and is capable of performing its normal functions. However opponents of the method may argue and attempt to obscure the clear issue before us, there is no doubt whatever that if the operation conld be performed easily and safely by an average surgeon the operative treatment of fractures would have become popular long ago. The difficulties that beset the operative treatment of fractures are that to ensnre success an asepsis which is mnch more perfect than suffices for other operations is requisite. If infection of the wound takes place the result may be disastrous to the patient. Many of the operations are difficult to perform, especially when there is much comminution of bone and swelling of the snrrounding soft parts, and nnless very great care is taken a failure to secure perfect asepsis may arise during the course of a prolonged and complicated procedure. Till this is generally recognised by surgeons much harm will result from the general use of the operative treatment of fractures, bnt with an improved technique and an increasing familiarity with the operative procednre the danger of sepsis will cease to exist. As to the best method of retaining the fragments of broken bones immoveably in position, the buried steel plate is, in my opinion, the most effective and simple of application. A plate is readily secnred to the fragments by screws, which in the adult engage the proximal compact tissue alone. These are threaded along their entire length. If properly introduced they produce no irritation in an aseptic wonnd. The skin of the patient shonld be carefully exclnded from the wound area by means of sterile cloths fixed to the margins of the incision. The incision shonld be of ample length so as to avoid damage to important structures and to minimise any risk of infection. The instruments used for bringing the fragments into position for the introduction of the plates and screws, for controlling hæmorrhage, &c., should be very long and powerful. No ligatures are required and no portion of the instrument, sponges, &c., which have touched even the gloved hand shall come into contact with the wound. By these means these operations can be performed without any risk of infection or of danger to the life of the individual as far as the operation is concerned. An epiphysis if separated rarely requires to be retained in

position by a plate and screws, but should it be necessary to employ such means the plate should be removed as soon as union has taken place to avoid any interference with the growth of bone at the epiphyseal line. In fractures of the ends of long bones it is also rarely requisite to retain the fragments by means of a plate once accurate apposition has been effected, providing the joint be fixed in a suitable position. What are the limits of the operation? It is obviously no use to attempt to retain fragments of broken bones in apposition by any such mechanism as a wire or screw if the texture of the fragment is such that it would not hold. Therefore in the scrunch fractures of the lower end of the tibia and fibnla in feeble old people and in alcoholics, or of the intracapsular fractures of the neck of the femur where no hold can be obtained, any attempt to use these means may be useless or worse than useless. The same applies to the rachitic child in whom the bones are still soft, and in whose bones the screws can obtain no efficient hold. One must always remember that whatever means are used it is absolutely requisite to immobilise the fragments. Otherwise, as a matter of course, the condition called rarefying osteitis will take place about the screw or wire perforating the bone. Also it is necessary to so bend the steel plate that it will lie accurately on the bone and will not be separated by an interval. The inaccurate adaptation of the plate to the surface of the bone must necessitate a constant strain on the screws which bend it and force it to assume the outline of the bone to which it is attached."

Dr. LUCAS-CHAMPIONNIÈRE (Paris) commenced by praising Mr. Lane's paper. He said that all that could be advanced in favour of the operative treatment of simple fractures had been brought forward by Mr. Lane, but he was unable to agree with the utility or necessity of employing the method in all cases. He allowed that it might be an excellent method when practised by such a surgeon as Mr. Lane, but he did not consider it suitable for general use. On the whole, he was satisfied with other methods of treatment for nearly all fractures, though he acknowledged that in some cases operation might be advisable. It was not sufficiently recognised that function does not always depend on anatomical regularity of the bone. Perfect function may exist, though the skiagram may show that perfect apposition has not been obtained. Operation was suitable for cases with much displacement, when manipnlation could not place the fragments in a good position, as in some fractures in the lower part of the leg. When attention was paid to other points such as position, a very small amount of apparatus was needed for the maintenance of the fragments in the position they shonld be. He found it difficult to understand that it was ever necessary to operate on a fractured clavicle. The risk to life also mnst not be forgotten, for a simple fractnre could not justify an operation which might prove fatal.

Mr. GILBERT BARLING (Birmingham) found it difficult to reconcile the two widely divergent views which were held at the present time as to the best treatment of fractures. Some claimed that by non-operative methods it was possible to obtain a very high percentage of perfect results, while others maintained that, after an ordinary fracture treated by splints, there was a depreciation of the utility of the limb ranging from 30 per cent. to 100 per cent. He suggested that a committee should be formed to investigate the matter. If a simple fractnre were treated by conscrvative methods there was a risk that the function and utility of the limb might not be perfect; but, on the other hand, the risk of the operation must be taken into consideration. He by no means condemned operation entirely, but he thought that operation shonld only be employed in carefully selected cases, and he would venture to say that the careful selection of the surgeon was also necessary. The introduction of radiography had cansed surgeons to reconsider many of their diagnoscs, and the text-book statements of the signs and symptoms associated with certain fractures were often found to be incorrect when tested by skiagrams. And this was especially true in fractures in the neighbourhood of joints. On the other hand, the X rays were not infallible, and he described a case in which the skiagram showed no trace of a fracture, though the subsequent shortening of an inch and a half proved conclusively that the neck of the femur had been broken. The only true test of the satisfactory rcsults of the treatment of the fracture was the utility of the limb. The fractures that he considered to be most suitable for operation were those of the olecranon, patella, the upper part of the femur, and oblique fractures of the leg. He thought it essential that those who had to operate for fractures of bone should employ Mr. Lane's apparatus. If a fracture required operation six or eight weeks after the injury, that in itself would be a proof that an error of judgment had been committed. The fracture should havc been operated upon soon after the injury.

Mr. E. DEANESLY (Wolverhampton) agreed that the question whether the normal position could be restored after a fracture, without any operation, had been settled. Radiograms showed that in every case there was some deformity. It was a question whether it was necessary to have perfect apposition of the fragments, and it could not be denied that in some cases perfect function followed, even though perfect apposition was not attained. In the middle of the femur a fracture could be treated without operation with perfect functional results. He confessed that many of the results from non-operative treatment were not worthy of modern surgery, and he agreed that operation should be employed much more freely than was the rule at present. Fractures about the elbow and the upper end of the humerus, and also of the lower part of thc leg, would give much better results if treated by operation. The risk in operation was not nowadays a risk of death, but the risk of a long lasting sepsis.

Professor CHARLES WILLEMS (Ghent) expressed himself as a warm advocate of the bloodless method of treatment of simple fractures in the majority of cases, but the best results could only be obtained if the surgeon took the trouble to make himself acqnainted with the mode of application of splints and bandages. There were, he believed, three classes of cases in which it was desirable to resort to operative measures for the treatment of simple fractures: (1) cases where it was impossible to reduce the fracture; (2) cases in which vicious union had occurred; and (3) cases in which a joint was involved, or in which the fracture was just outside a joint. He was in favour in these cases of employing the open method, but after he had replaced the fragments in their normal position he did not employ any plate or wire. As soon as reduction was obtained he closed the wound, except for a small part in the middle, and then he applied a plaster-of-Paris roller bandage, and when the joints were fully fixed he closed the wound and completed the bandage. The correct application of the bloodless method required that the splints should be moulded to the limb, and no cotton wool should be placed beneath the splint, as this by shrinking made the splint too loose.

Mr. W. G. SPENCER (London) claimed that some of the cases of which skiagrams had been shown by Mr. Lane could have been certainly and efficiently treated without any operation. Fractures of the shaft of the femur could always be brought into good position if extension were rightly employed, and to obtain this it was sometimes necessary to increase the weight of the extension up to 30 ponnds. Position also was of importance; in some cases of fracture of the leg division of the tendo Achillis was necessary to obtain the best results.

Mr. R. H. A. WHITELOCKE (Oxford) was in favour of operation for simple fracture in certain cases, as when the patella and the olecranon were involved. He held that rarefying osteitis might occur when wiring or plates had been used two or three years after operation, and he did not doubt that plates near the ends of the long bones in children might need removal as they interfered with the growth of the epiphyses. Catgut was, in his opinion, very useful for fastening fragments of bone together, especially where there was no tension, and it had never given him any trouble. It seemed to him that it was wiser to use a material which, being absorbable, would be much less likely to do harm than plates or wires.

Mr. H. J PATERSON (London) maintained that the decision of the question depended on two points. First, what were the results of the treatment of fractures without operation; and, secondly, what is the risk to the patient in the operative treatment of fractures. He held that in the past too little attention had been paid to the distant results, and surgeons were often satisfied if a patient had only a small amount of shortening and not very great limitation of movement. The only satisfactory test of the success of the treatment of a fracture was the restoration to thc patient of his full

working capacity. The use of the skiagram in legal cases made it emphatically imperative that a restoration to anatomical perfection was nowadays necessary. The treatment of fractures of both bones of the forearm without operation was very unsatisfactory. He had collected a series of cases, and in not one of them had there been complete pronation and supination. In one point the X rays failed to give information; they did not indicate when a portion of muscle lay between the ends of broken bone. As to the risk of operation, there was none if the operation were performed as it should be. It must be remembered that it was not an emergency operation, and therefore the fullest precautions could be taken to ensure asepsis.

Dr. C. J MORTON (London) acknowledged that skiagrams if improperly taken might give a wrong impression, but if care were taken the skiagram would be absolutely trustworthy. He exhibited a number of lantern slides showing conditions which had resulted from the non-operative treatment of fractures; some of these showed wide separation of the fragments; in others, rotation and angular displacement had occurred, so that great functional impairment must certainly have taken place. He maintained that he was able to determine from an examination of the skiagram the degree of functional utility which was present in a case.

Mr. E. W. H. SHENTON (London) said that too little attention was paid to the ultimate results of the treatment, and he considered that absolute replacement of the fragments of the broken bone was the first essential for functional integrity. By external manipulation it was hardly ever possible to replace the fragments in their former positions. So far as his experience went, rarefying osteitis did not follow the use of plates, and there was no way more effective of recognising rarefaction of a bone than the use of X rays.

Dr. E. W. H. GROVES (Bristol) expressed his surprise that the lower jaw had not been mentioned as one of those likely to require the use of plates or wiring in simple fractures, and he had found that plates were of great value and more useful than wire for fractures of the lower jaw. For fractures of the long bones he had employed bone pegs. These varied in size; one was taken suitable for the medullary cavity of the broken bone, and half of it was placed in the medullary cavity of one fragment and half in the medullary cavity of the other, so that all angular displacement was prevented. The method was very easy. He also wished to draw attention to the value for the application of extension afforded by the transfixion of the bone with a steel pin, for direct traction could be made on the bone itself.

Mr. A. FULLERTON (Belfast) considered that some of the lack of success obtained in the non-operative treatment of fractures was due to the fact that most hospital surgeons took very little interest in fractures. He was not satisfied with the results of the ordinary methods, but he did not consider that they should be condemned wholesale. In certain fractures operation was required, as in transverse fracture of the upper part of the humerus, for by no method of splinting was it possible to obtain satisfactory results. The results after operation were good. The ordinary treatment of fractured clavicle was unsatisfactory, but he had not yet operated on any case. Fractures of one or both bones of the forearm were very unsatisfactory unless an operation were performed and screws and plates were employed. In fractures of the metacarpal bones also he thought operative measures were desirable. As to the risks of operation for simple fracture, he did not think they were quite so small as some of the speakers had seemed to imply.

Mr. C. H. FAGGE (London) held that the main indication for operation in simple fracture was inability to restore and maintain the fragments in apposition. The surgeon should aim at perfect functional results, and it was all-important that it should be recognised that the best results can be obtained by operation. Further, letting out the blood clot from beneath the periosteum avoids the formation of external callus. The technique of the operation was important, and the most complete asepsis must be maintained. In certain cases after the surgeon had been able, through the incision, to replace the fragments in their proper positions it was enough merely to maintain the bone in the right position without employing any foreign body to keep the fragments together. He had never seen rarefying osteitis follow the use of plates, and he had never had to remove plates or screws in any case of simple fracture. He also said that he had never seen either in Mr. Lane's practice or in his ow any death after operation for simple fracture.

Mr. A. S. BARLING (Lancaster) pointed out that if w assume that the patient is in good health and able to star the operation, and if it is impossible without operation con pletely to replace the broken bone, and if, further, th patient has to earn his own living, the surgeon would b justified in advising a county court judge that the pay of workman who would not submit himself to operation shoul be stopped. He put the case as a question.

Mr. A. HEYGATE VERNON (Bournemouth) held that opera tion should certainly be employed when it was impossibl without it to get the fragments into perfect apposition. Th essential point to obtain good results in these operations wa the most perfect asepsis.

Mr. J. CRAWFORD RENTON (Glasgow) spoke strongly i favour of operation for simple fracture, and he praised th instruments which Mr. Lane had invented. He, however pointed out that it was not every simple fracture whic required operation.

Mr. G. M. HUGGINS (Berkhamsted) claimed that plate never come away if they have been placed in position b competent surgeons. He laid stress on the importance o not employing chemical antiseptics in the wound, and h pointed out that if plating be employed external callus doe not follow.

Sir VICTOR HORSLEY, before calling upon Mr. Lane to reply, declared himself to be a humble follower of Mr. Lane In the setting of the fracture he considered the surgeo should not be satisfied until he had obtained perfect align ment. He approved of the suggestion made by Mr. Gilber Barling that a resolution should be brought before th Section of Surgery affirming the desirability of appointing commission for the investigation of the best method of treat ing simple fractures, and he promised to arrange that th resolution should come before the section on Friday.

Mr. LANE, in reply, said that this was the first meeting a which he had spoken on the operative treatment of fracture when he had found anyone willing to support his views Some of those who opposed him had declared that thoug they objected to the use of plates and screws in simpl fractures they approved of them being used in compoun fractures, but he was totally opposed to the use of plate and screws in a wound that was probably septic, for it woul almost certainly lead to the ultimate extrusion of the screw.

MEDICAL SOCIOLOGY.

WEDNESDAY, JULY 27TH.

President, Dr. JAMES ALEXANDER MACDONALD (Taunton).

The PRESIDENT, in opening the proceedings, referred t the fact that this was the first year in which a specia section was allotted to medical sociology. A few years ag such a subject would not have been thought of in connexion with an association devoted to the consideration of medicine and its allied sciences. Of late, however, the State had come to take so much interest in medicine, and the connexion of the profession with various forms of work carried out by the State had become so intimate that it was felt that there was need for securing an open discussion between the medical profession and those members of the public who were interested in such questions, and the speaker hoped that this new section would furnish a common platform for this purpose. It was not very easy to define what was meant by medical sociology, and he was informed that the Sociological Society, which had existed now for several years in London, had not yet arrived at a definition of the term sociology. However, his informant, Dr. Lauriston Shaw, had subsequently suggested to him what he (the speaker) regarded as a very good substitute for a definition by saying that medical sociology means the subjects which you will discuss in the section.

Professor BENJAMIN MOORE (Liverpool) then opened a discussion on

The Economic Basis of Hospital Management.

He began by pointing out that hospitals were originally institutions for the relief of the indigent sick, and indicated that traces of their monastic origin still existed to-day as they did in the case of schools and universities. Modern conditions, however, had made such a conception of the

unctions of a hospital quite out of date. A hospital ought now to be regarded from the point of view of economics as an institution for the study of disease and for the advance of its treatment, and hence as existing for the benefit of the community or the State rather than primarily for the good of the individual. The conception of a hospital as a voluntary charity produced the evil of two distinct types of institution—namely, the Poor-law and the voluntary hospital—existing for two kinds of necessitous people, whereas there should be but one type of hospital. As a result of the operation of this state of things there has arisen the view in the lay mind that while it was a disgrace to be treated in a Poor-law infirmary, attendance at a voluntary hospital was no evidence of poverty, and was even permissible as a right which could be claimed by anyone. This placing of the hospitals on the charitable basis was now seen to be impossible, owing to the insufficiency of the available funds, and owing also to a sense of the unfair distribution of the burden of expense. An attempt should be made to place all hospitals on a common basis and to insist that admission, except to accidents, should only be allowed upon a doctor's certificate that the case could be best treated in a hospital. People possessing means, who had been admitted to a hospital on the grounds indicated, should be compelled to pay, and the fees should be made over to those giving them attention or to those who had sent them in. The view which regarded the doctor in the hospital as a philanthropist should be discouraged, the present system of paying back consultants in *kudos* or by introductions to practitioners should be abandoned, and hospital physicians and surgeons should be properly paid for their work like any other body of public servants. The method of appointment to such hospitals was also radically vicious, not only by reason of the importance given to canvassing and to interest, but also because, owing to the absence of any coördinated system, there was no means of securing promotion and transfer from one hospital to another and from one city to another. Moreover, the system of voluntary hospitals was a failure, because these institutions undertook a great deal of work which should not be done in hospital at all, and left undone a great deal of work that ought to be done, and they also wasted an inordinate amount of the time of workers attending the out-patients' departments. The system of Poor-law hospitals was also a failure: first, because of the taint of the Poor-law; secondly, because the attention to patients was inadequate, and must be so long as the resident officers were sweated at their work and compelled to undertake the charge of a number of beds that no single individual could properly attend to, so that a great deal of truly medical work was performed by nurses instead of by medical men who were alone competent to do it; and thirdly, because many of these hospitals were antiquated, insanitary, and overcrowded. What was needed was a properly organised, adequate modern service of State hospitals in which all cases should be properly attended to by properly qualified and adequately paid medical officers. The reason for such a system was not charity or philanthropy but purely and simply the economic demand for a healthy people. Since all medical service would be paid for under such a system, either by the State or by the individual, the doctor did not suffer, he was able to carry out his work under better economic and social conditions, and the public had an infinitely better service. It was further obvious that hospital abuse was impossible, for the profession itself would work the system, and lay committees and charitable donors, with their well-meant but unscientific interference, would cease to exist. The present chaotic condition could not last, and it would be found that the only system to replace it would be a unified system with proper payment for services rendered.

Sir HENRY BURDETT, K.C.B. (London) expressed his general agreement with the criticisms of the existing system as set out in the synopsis of Professor Moore's address. He was old enough to remember the time when the chief anxiety of the patient was to keep out of hospital, whereas now everyone wanted to be operated on, and it was the natural wish of the fond mother that her boy should have his appendix removed in infancy lest its presence should inconvenience him later. This readiness to have recourse to hospitals was leading to much serious abuse by persons well able to pay for medical treatment. Everyone knew that such abuse existed, and he had been assured by hospital physicians that under present conditions it was inevitable that cases of clinical interest would be admitted to gratuitous treatment irrespective of their social position. Moreover, ticket cases had precedence over other cases which from a medical point of view might have more pressing claims for admission. An extension of the present system would make the existence of the private practitioner impossible. While the speaker would be disposed to criticise some of the details of Professor Moore's paper, he believed that a coördinated hospital system was needed, that the need was urgent, and that the conditions for securing such a reform were very favourable in view of the reports of the Poor-law Commission and the avowed intention of the Government to establish a system of sick insurance. It would be necessary to utilise all the existing Poor-law and voluntary hospitals and nursing homes, and to organise them into one system whereby institutions would provide separate accommodation in a series of pavilions adapted for the several classes of patients, the categories being defined by the proportion of the cost of their medical treatment that they could contribute. By bringing together into one governing body all those responsible for applying medical relief we should secure the minimum of expense and the maximum of efficiency. He believed that the solution of this question in the spirit of wise compromise was very much nearer than was generally supposed.

Dr. G. A. HERON (London) described a hospital nowadays as an institution into which anyone might go and get treatment free of cost, provided that he was not detected while in the hospital as a person of means; it was so, at all events, in the large cities. He suggested that some hospital which was really in earnest in desiring to prevent abuse should proceed against a patient getting treatment in this fashion under false pretences.

Dr. L. S. LUCKHAM (Salisbury) remarked that the Royal Free Hospital had tried this recently, and that the case was dismissed by the magistrate.

Dr. HERON, continuing, pointed out that the idea of preventing abuse by the inquiries of almoners was illusory. The task assigned to the almoner could only be carried out by officials giving their whole time to the work and quite independent, and these conditions were obviously unattainable. What was needed was to get all the best brains with knowledge of this matter together and to devise a coördinated system.

Dr. D. J. MACINTOSH (Glasgow) referred to the need of considering the differences in local conditions. The tendency to municipalise medical treatment threatened the interest of the general practitioner, and it was desirable not to rush too quickly into schemes of the kind suggested. Hospital abuse was not in his experience very serious in Scotland. It would be entirely prevented by making hospital treatment conditional on the recommendation of the regular medical attendant.

Mr. KERSHAW (London), speaking as a hospital secretary, remarked that his efforts to enlist the medical practitioners in the prevention of abuse by writing to them when their patients came to hospital for treatment had met with very little response. He thought that a distinction should be made between the general and the special hospitals, the latter being those which could most usefully supplement the work of the general practitioner. We are near the time, he thought, when the Government will take over the hospitals of this country, and will recognise that the health of the individual ought to be the concern of the State.

Professor ROBERT SAUNDBY (Birmingham) dealt specially with the question of the mode of admission to hospitals. A modification of the ticket system worked well in the hospital with which he was connected, while in another institution the adoption of the registration fee had proved very injurious. The latter system was used, he considered, in some small special hospitals in a manner that allowed practical advertisement for patients. In his experience doctors very often recommended patients for hospital treatment who from the social point of view were quite unfit objects for care in a charitable institution. He deprecated the suggestion that hospitals should be free to everyone, and he was doubtful of the feasibility of some of the far-reaching proposals brought forward at the meeting.

Dr. H. R. KER (London) desired to put the matter from

the point of view of the general practitioner. He advocated the system of making hospital practice purely consultative, patients being seen only when provided with a certificate from their regular attendant, except, of course, in the case of accidents.

Dr. R. C. BUIST (Dundee) thought the whole question should be viewed from the national standpoint. Hospitals were educational, and the burden of educating the medical profession should rest on the State.

Dr. MAJOR GREENWOOD (London) was opposed to the municipalisation of hospitals, which would place on the ratepayers burdens which charitable people were ready to bear. While heartily agreeing as to the need of a co-ordinated system, he deprecated the abolition of voluntary hospitals. The cessation of all eleemosynary work by the profession would lower it in the eyes of the public. The suggested extension of hospital treatment to all classes would be destructive to the general practitioner.

Dr. LUCKHAM advocated a system of subscribers' letters endorsed by the medical attendant and further scrutinised by an almoner.

Professor J. T. J. MORRISON (Birmingham) was strongly in favour of the large reforms outlined by Professor Moore and Sir Henry Burdett, but did not altogether share their optimistic views as to the early advent of the new era.

Dr. LAURISTON SHAW (London) pointed out that the hospital system did not presuppose a charitable basis. Hospitals existed to promote efficiency and economy. The direction of reform should be to leave the ordinary care of the sick to the general practitioner, and to allow charitable institutions to provide only the more advanced and more special treatment. For this purpose hospital treatment should be organised on consultative lines.

STATE MEDICINE.

WEDNESDAY, JULY 27TH.

President, the Right Honourable Lord ILKESTON (London).

The PRESIDENT in opening the proceedings, referred to the extreme gravity of the subjects which the section had to discuss. For years past prominent and influential members of the British Medical Association had been sowing the seeds of social reform, and no body of men were more capable of giving advice to Parliament on questions of such reform, for they spent their lives amongst those for whom reform was most urgently needed, and must thus learn more of the social needs of these people than any other class of persons. They had been crying out for many years for social reform, and had in this way been educating public opinion. Their work was now bearing fruit, and with such discussions as those they were about to enter upon there came the chance of advancing the public interests as well as the interests of the medical profession. The country was on the eve of great social reforms, which must of necessity follow the granting of old-age pensions and the feeding and medical inspection of school children. Measures had indeed been promised which must materially alter the existing Poor-law system. In these, as well as in the promised legislation dealing with insurance against sickness, inability, and unemployment, the medical profession must be prepared to take its share of the task of formulating, and, later, administering any schemes decided upon. For upon them as a body must necessarily devolve the labours which would make for efficiency of service and advantage to the public. In a crisis like this the profession must stand shoulder to shoulder, so that there might be maintained public respect, independence, and efficiency. If, on the other hand, they pursued an individual petty policy and allowed ordinary considerations unconnected with the profession to manifest themselves, then disaster would certainly follow.

Mrs SIDNEY WEBB then opened a discussion on the Relation of Poor-law Reform to Public Health and the Medical Profession, in which Dr. FORD ANDERSON (London), Dr. COOPER PATTIN (Norwich), Dr. J. F. SYKES (St. Pancras), Dr. R. A. LYSTER (Hampshire), Dr. J. H. KEAY (Greenwich), Mr. W. M. HOLDER (Hull), Mr. F. E. FREMANTLE (Herts), Dr. J. H. H. MANLEY (West Bromwich), Dr. E. ROWLAND FOTHERGILL (London), and Dr. A. H. BYGOTT (Barking) took part, and Mrs. WEBB replied.

ANÆSTHETICS.

WEDNESDAY, JULY 27TH.

President, Dr. F. W. HEWITT, M.V.O. (London).

The PRESIDENT, in his introductory remarks, expressed the belief that in the near future not only would a noticeable decrease in anæsthetic fatalities follow the greater importance now attached to the matter than in former years, but also with more reliable statistics we should get clear evidence of this decrease. He congratulated the Association upon the presentation of the report of its Special Chloroform Committee, and after describing the programme before the section, alluded to the fact that quite recently the Home Secretary had promised that next autumn he would consider steps for legislation regarding the administration of anæsthetics upon the lines of reports of the General Medical Council and the Departmental Committee of the Home Office.

Dr. DUDLEY W. BUXTON (London) and Professor A. D. WALLER (London) opened a discussion upon the Percentage System of Chloroform Administration; and were followed by Dr. H. SCHARLIEB (London), Dr. P. M. CHAPMAN (Hereford), Dr. A. G. LEVY (London), Professor FAUST (Würzburg), Professor VERNON HARCOURT, Dr. W. MCGREGOR YOUNG (Leeds), and others.

ANATOMY.

WEDNESDAY, JULY 27TH.

President, Professor ARTHUR KEITH (London).

The proceedings were opened with a long and interesting preliminary discussion on the question of

Anatomical Supply,

in which a large number of the members took part. A resolution was passed remitting the consideration of the matter to a committee of the licensed teachers present, to meet at a later date under the chairmanship of the President.

Papers were read on the Pharyngeal Tonsil, by Professor SYMINGTON (Belfast); on the Development of the Naso-Pharynx and Eustachian Tube, by Mr. I. STUART FRASER (King's College); on the Antrum of Highmore and demonstration of several abnormalities from the dissecting room, by Professor A. C. GEDDES (Dublin); and on the Trigonum Vesicæ, by Dr. WILLIAM WRIGHT and Mr. J. C. BENIANS (London Hospital).

BACTERIOLOGY.

WEDNESDAY, JULY 27TH.

President, Dr. CHARLES J. MARTIN (London).

A discussion on Recently Acquired Knowledge concerning the Bionomics of Pathogenic Organisms and its Bearing on the Spread of Disease was opened by Dr. A. C. HOUSTON (London), and papers were read on the Results of the Typhoid Campaign in South-West Germany, with Particular Reference to Carriers, by Professor LENTZ (Berlin); on Bovine Streptococcus Carriers, by Dr. W. G. SAVAGE (London); on Dysentery Carriers, by Dr. MACALISTER and Dr. MENZIES (London); on the Natural History of Certain Bacilli belonging to the Food Poisoning Group, by Dr. F. A. BAINBRIDGE and Dr. O'BRIEN (London); on the Natural History of the Bacillus Pestis, by Dr. G. F. PETRIE (London); and on Diphtheria Carriers, by Dr. J. A. ARKWRIGHT (London). Professor E. J. MCWEENEY (Dublin) and Dr. R. M. BUCHANAN (Glasgow) took part in the discussion. The proceedings were terminated by Professor LENTZ replying to some questions raised by Professor McWeeney and Dr. Buchanan, and by a few words from Dr. HOUSTON in connexion with the various papers read, in which he emphasised the fact that the general trend of the discussion was in favour of the great importance of the living bacillus carrier in the spread of disease rather than of infected inanimate objects.

DERMATOLOGY.

WEDNESDAY, JULY 27TH.

President, Dr. PHINEAS S. ABRAHAM (London).

Before the section began the members spent some time in examining and discussing the 22 rare and interesting cases of skin diseases which were exhibited in the adjoining rooms.

The PRESIDENT having welcomed the distinguished visitors present.

Dr. FEIBES (Aix-la-Chapelle) read a paper on Recent Methods in the Diagnosis and Treatment of Syphilis, and the following took part in the discussion which ensued: Mr. ERNEST LANE (London), Dr. R. B. WILD (Manchester), Mr. GEORGE PERNET (London), Mr. J. E. MCDONAGH (London), Dr. STOPFORD TAYLOR (Liverpool), Dr. GOODWIN TOMPKINSON (Glasgow), Dr. W. GRIFFITHS (London), Dr. A. EDDOWES (London), and Mr. DOUGLAS HEATH (Birmingham), and Dr. FEIBES replied.

DISEASES OF CHILDREN.

WEDNESDAY, JULY 27TH.

President, Dr. ARCHIBALD E. GARROD (London).

After a few words of greeting by the PRESIDENT a discussion was opened by Dr. J. A. COUTTS (London) and Mr. E. M. CORNER (London) on

The Diagnosis and Treatment of Non-tuberculous Joint Diseases in Children,

which was carried on by Mr. KEOGH MURPHY (London), Mr. TYRRELL GRAY (London), Mr. R. C. ELMSLEY (London), Dr. ESSEX WYNTER (London), and Dr. M. PARRY-JONES (Derby).

Mr. H. J. GAUVAIN (Alton) read a paper on the Conservative Treatment of Consumptive Cripples, and Mr. W. B. PARSONS (London) read a paper on the Diagnosis of Affections about the Hip-joint in Children.

GYNÆCOLOGY AND OBSTETRICS.

WEDNESDAY, JULY 27TH.

President, Dr. MARY A. SCHARLIEB (London).

The PRESIDENT welcomed the delegates, who included Professor Döderlein, Professor Gottschalk, and Professor Nagel. Professor von Herff was prevented from attending by the illness of his son.

Dr. G. E. HERMAN (London) opened a discussion on

Dysmenorrhœa, its Causes and Treatment,

laying special stress on the fact that there was only one variety of dysmenorrhœa which was spasmodic. Professor S. GOTTSCHALK (Berlin), Professor W. NAGEL (Berlin), Dr. CURTIS WEBB (London), Dr. R. J. JOHNSTONE (Belfast), Dr. INGLIS PARSONS (London), Dr. F. EDGE (Birmingham), Dr. W. BLAIR BELL (Liverpool), Dr. MURDOCH CAMERON (Glasgow), Dr. FRANCES IVENS (Liverpool), and the PRESIDENT took part in the discussion.

Professor D. DÖDERLEIN (Munich) read a paper on Die Entstehung und Verhütung des Puerperalfiebers, and the following took part in the discussion: Dr. HERMAN, Dr. C. E. PURSLOW (Birmingham), Dr. W. BLAIR BELL (Liverpool), Dr. HASTINGS TWEEDY (Dublin), Dr. F. EDGE (Birmingham), Dr. T. WILSON (Birmingham), and the PRESIDENT.

Papers were also read by Dr. J. MUNRO KERR (Glasgow) on Additional Cases of Rupture of the Uterus; by Dr. J. CAMPBELL (Belfast) on Air Embolism during Labour; and by Dr. J. YOUNG (Edinburgh) on the Structure of the Stroma of the Uterine Mucous Membrane and its Bearing on the Menstrual Changes. There were no discussions on the last three papers.

The meeting was very well attended, over 200 members being present.

LARYNGOLOGY.

WEDNESDAY, JULY 27TH.

President, Mr. HERBERT TILLEY (London).

Professor Dr. VON EICKEN (Freiburg), followed by Dr. D. R. PATERSON (Cardiff), introduced a discussion on the Technique of the Direct Examination of the Lower Air-passages.

Dr. WILLIAM HILL (London) read a paper in which he advocated the use of funnel-shaped endoscopy tubes.

In the discussion which followed the following took part: The PRESIDENT, Dr. STCLAIR THOMSON (London), Mr. ERNEST WAGGETT (London), Mr. STUART-LOW (London), Dr. SCANES SPICER (London), Dr. W. PERMEWAN (Liverpool), Dr. N. C. HARING (Manchester), Dr. IRWIN MOORE (London), Dr. BROWN KELLY (Glasgow), Dr. ANDREW WYLLIE (London), Dr. J. H. BRYAN (Washington), Dr. J. KIRKLAND (Edinburgh), Dr. WALKER DOWNIE (Glasgow), Dr. T. GUTHRIE (Liverpool), Dr. J. DONELAN (London), and Dr. HEMINGTON PEGLER (London).

Dr. J. FRASER (Edinburgh) read an account of a case of Atresia of the Choanæ of Congenital Origin, and the PRESIDENT, Dr. DAN MCKENZIE (London), Dr. BROWN KELLY (Glasgow), and Mr. STUART-LOW (London) took part in the discussion which followed.

NAVY, ARMY, AND AMBULANCE.

WEDNESDAY, JULY 27TH.

President, Colonel ANDREW CLARK, A.M.S. (T.F.), (London).

The PRESIDENT, in his introductory address, said that the papers put down for reading before the section were such as were likely to be of interest in the Naval and Military Services.

Major C. G. SPENCER, R.A.M.C., then read a paper on

Local and Spinal Analgesia in Relation to Active Service,

and in the discussion that ensued the following gentlemen took part: Mr. A. E. BARKER (London), Fleet-Surgeon A. G. WILDEY, Captain J. W. H. HOUGHTON, and Fleet-Surgeon P. W. BASSETT-SMITH.

Fleet-Surgeon WILDEY read a paper on Hypodermic Injection in Action, with Suggestions for Simplifying its Administration.—Fleet-Surgeon BASSETT-SMITH and Surgeon-General G. J. H. EVATT took part in the discussion.

Major ARTHUR M. CONNELL, R.A.M.C., read a paper on the Training of the Territorial R.A.M.C., communicated by Colonel T. BROOME GILES; and Lieutenant-Colonel E. M. WILSON read a paper on Medical Requirements in War for Assisting the Royal Army Medical Corps on Mobilisation, which was discussed by the PRESIDENT, Lieutenant-Colonel G. E. TWISS, Colonel C. H. MILBURN, Surgeon-General EVATT, Dr. S. FARMER (Durham) and Major CONNELL, and Lieutenant-Colonel WILSON replied.

ODONTOLOGY.

WEDNESDAY, JULY 27TH.

President, Mr. J. HOWARD MUMMERY (London).

The PRESIDENT, after a few well-chosen words, called upon Dr. SIM WALLACE (London) to open a discussion on the Prevention of Dental Caries. At the conclusion of the paper the discussion was continued by Dr. HARRY CAMPBELL (London), Mr. F. J. BENNETT (London), Dr. WHITLEY (Shropshire), and Mr. KENNETH GOADBY (London).

Dr. HECTOR MACKENZIE contributed a paper dealing with the question of Dental Caries in Acute and Chronic Diseases. Dr. WALLACE, Mr. ARTHUR UNDERWOOD (London), Dr. WHITLEY, and Mr. W. A. MAGGS (London) also contributed to the discussion.

Mr. UNDERWOOD read a short *résumé* of the examination of a number of ancient skulls in which no carious teeth were present, and contributed a number of important facts to the discussion, which was continued by Mr. DOLAMORE (London), Mr. MAGGS, Dr. CHOURY MÜTHÙ (Bombay), Mr. C. H. HOWKINGS (Birmingham), and Professor ELLIOTT SMITH (Manchester).

OPHTHALMOLOGY.

WEDNESDAY, JULY 27TH.

President, Mr. CHARLES HIGGENS (London).

The PRESIDENT said that retrospection was always interesting, and he purposed, by way of an opening address, to sketch the progress of ophthalmology during the past 40 years. They had learned much of the pathology of trachoma and of glaucoma, but they had advanced not at all in the treatment of these grave diseases. In optical methods the advance had been immense. Means of diagnosis had been discovered that were certain and facile, and the manufacture of lenses had been revolutionised in many ways and to the greatest advantage. One striking difference in 40 years ago and now was the increase in the number of ophthalmic surgeons. Then there were a handful; now there were hundreds. He hoped that the British Medical Association would have more power to deal with abuses of practice both within and without the profession.

Dr. G. A. BERRY (Edinburgh) opened a discussion on the Future of Ocular Therapeutics as regards Local and General Treatment; Dr. J. W. H. EYRE (London) continued on the Aspect of Bacterial Products; Mr. ARNOLD LAWSON (London) and Dr. MACKENZIE DAVIDSON (London) read a

communication on Radium-therapy in Ophthalmology; Dr. H. M. TRAQUAIR (Edinburgh) read a paper on the Treatment of Purulent Keratitis by Ionotophoresis; and Mr. N. BISHOP HARMAN (London) and Dr. R. MORTON (London) read a paper on the Use of Carbon Dioxide Snow in Eye-work.

The papers were discussed by Dr. A. MACGILLIVRAY (Dundee), Dr. R. A. REEVE (Toronto), Dr. G. S. RYERSON (Toronto), Mr. HILL GRIFFITH (Manchester), Mr. A. W. ORMOND (London), Mr. LESLIE PATON (London), Dr. MONTAGUE HARSTON (Hong-Kong), Major H. A. J. GIDNEY, I.M.S., and Major FINK, I.M.S., and Dr. BERRY and Dr. MORTON replied.

OTOLOGY.

WEDNESDAY, JULY 27TH.

President, Dr. EDWARD LAW (London).

The PRESIDENT having given a brief address,

A discussion on Aural Tuberculosis in Children, limited to diagnosis, prognosis, and treatment, without details of operative procedure, was opened by Dr. W. MILLIGAN (Manchester). The following gentlemen took part in the discussion: The PRESIDENT, Mr. R. LAKE (London), Mr. F. H. WESTMACOTT (Manchester), Mr. S. SCOTT (London), Dr. R. BÁRÁNY (Vienna), Dr. DUNDAS GRANT (London), Dr. JOBSON HORNE (London), Mr. T. MARK HOVELL (London), Mr. HUNTER TOD (London), and Mr. C. E. WEST (London), and Dr. MILLIGAN replied.

Dr. H. S. BIRKETT (Montreal) gave a Demonstration illustrated by Radiograms of the Mastoid Process.

PATHOLOGY.

WEDNESDAY, JULY 27TH.

President, Mr. S. G. SHATTOCK (London).

After a short address by the PRESIDENT, Dr. F. W. MOTT (London) read a paper on

The Effects of Alcohol on the Nervous System,

which was followed by a paper on

The Therapeutic Uses of Alcohol Vapour Mixed with Oxygen,

by Dr. W. H. WILLCOX (London). The PRESIDENT then opened a discussion on Dr. Willcox's paper, in which Dr. A. E. BOYCOTT (London), Dr. MOTT, Sir CLIFFORD ALLBUTT (Cambridge), and Dr. MACKIE WHYTE (Dundee) took part. Sir CLIFFORD ALLBUTT spoke in connexion with Dr. Mott's paper, and Dr. E. S. PASMORE (Croydon), Dr. C. MCVICAR (Dundee), and others joined in the discussion. After Dr. MOTT had briefly replied to the points raised in the discussion, the PRESIDENT called on Dr. ACHARD (Paris) to read a communication on a Method for Differentiating Living from Dead Leucocytes by staining with Neutral Red. The PRESIDENT then announced that the Pathological Section would combine with the Bacteriological Section for the discussion upon Wassermann's Reaction on Thursday morning.

PHARMACOLOGY AND THERAPEUTICS.

WEDNESDAY, JULY 27TH.

President, Professor A. R. CUSHNY (London).

Dr. O. F. F. GRÜNBAUM (London) opened a discussion upon

Treatment with Lactic Acid Organisms,

and after some preliminary remarks he indicated the cases in which the treatment was suitable. Professor HEWLETT (London) dealt with the bacteriology of lactic acid production. Professor VAUGHAN HARLEY (London) described the evidence from chemical investigation that the organism is active in allaying intestinal fermentation, while Dr. A. BRYCE (Birmingham) laid emphasis upon the dangers and disadvantages of the treatment. Dr. R. HUTCHISON (London), Dr. F. BOND (Gloucester), Professor BRADBURY (Cambridge), Mr. C. REVIS (London), Dr. A. F. HERTZ (London), and Professor SAHLI (Berne) also spoke.

PHYSIOLOGY.

WEDNESDAY, JULY 27TH.

President, Professor WILLIAM H. THOMPSON, (Dublin).

The PRESIDENT delivered a short address on the Value of the Laws of Biology in their application to the Well-being of Man and the Growing Need for a more Widespread Teaching of Physiology in Schools.

A discussion was then opened by Lieutenant-Colonel MELVILLE, R.A.M.C., who read a paper on the

Food Requirements of Man for Sustenance and Work,

taking as an example his experiments made on 20 men during a march of 12 days. The following gentlemen took part in the discussion: Dr. ROBERT HUTCHISON (London), Lieutenant-Colonel A. M. DAVIES (late R.A.M.C.), Dr. E. P. CATHCART (Glasgow), Professor J. S. HALDANE (Oxford), Dr. ALEXANDER HAIG (London), Professor G. A. BUCKMASTER (London), Dr. JOSEPH SMYTH (Naas), Dr. M. S. PEMBREY (London), Professor A. B. MACALLUM (Toronto), and Sir JAMES GRANT (Canada).

PSYCHOLOGICAL MEDICINE AND NEUROLOGY.

WEDNESDAY, JULY 27TH.

President, Dr. THEOPHILUS B. HYSLOP (London).

After the PRESIDENT had given an opening address on the Philosophy of Psychology in Relationship to Neurology,

Dr. GEORGE H. SAVAGE (London) read a paper introducing a discussion on

Marriage and Insanity,

in which the following took part: Dr. G. E. SHUTTLEWORTH (East Sheen), Dr. R. JONES (Woodford), Dr. RISIEN RUSSELL (London), Mr. J. BARKER SMITH (London), Mr. H. G. SHORE (London), Dr. FLETCHER BEACH (Alton), Dr. T. D. GREENLEES (London), Mr. R. H. SANKEY (Oxford), Dr. T. DRAPES (Enniscorthy), Dr. J. MILLS (Ballinasloe), Dr. A. S. BARNES (Birmingham), Mr. A. R. DOUGLAS (Lancaster), and the PRESIDENT.

Dr. L. D. H. BAUGH (Gartloch) read a paper on Paranoidal Symptoms at the Female Climacteric, which was discussed by Dr. R. H. STEEN (Dartford) and the PRESIDENT.

RADIOLOGY AND MEDICAL ELECTRICITY.

WEDNESDAY, JULY 27TH.

President, Dr. J. MACKENZIE DAVIDSON (London).

The PRESIDENT, in his opening address, referred to the desirability of all X ray work being done by properly trained medical men, suitably equipped for the work. He also referred to the deplorable results of the idea having become circulated that radium was a cure for malignant disease. Its use was limited, but where useful its action was definite and decisive.

Professor Sir J. J. THOMSON (Cambridge) followed with an address on the subject of the physical properties of Roentgen rays, especially the medium and soft rays, and their physiological action upon living tissues. He also described a new method of producing X rays of different degrees by allowing the rays from an X ray tube to fall upon a metal surface, the type of ray varying with the kind of metal forming the bombarded surface.

Dr. H. LEWIS JONES (London) read a paper on the

Treatment of Some Forms of Corneal Ulcer by Zinc Ionisation.

He instanced four cases of Mooren's ulcer which had been successfully treated by this method, and showed how it is necessary to get actual penetration of the ions into the substance of the cornea if the result is to be satisfactory.

Professor LEDUC (Nantes) described how the pain of the application could be avoided by increasing the current very slowly.

Mr. C. THURSTAN HOLLAND (Liverpool) showed a Model of a Screen for Conducting X Ray Examinations with the patient in the upright position, and at the same time giving proper protection to the operator.

Dr. REGINALD MORTON (London) described and illustrated the changes observed in a case of chronic X ray dermatitis. Destruction and repair took place alternately and sometimes side by side. Destruction finally predominated, necessitating the removal of the diseased phalanx.

Dr. W. F. SOMERVILLE (Glasgow) read a paper on the

Relief of Pain and Discomfort by means of High-frequency Currents,

and made a plea for the more common use of this method in the various forms of neuralgia, the pain following fracture, muscular rheumatism, and the pain of arthritic joints. He was emphatic on the point that high-frequency

treatment was by no means a thing of the past, and when applied by medical men who knew the proper methods to pursue the results were eminently satisfactory.

Dr. DOMINICI (Paris) and Dr. A. A. WARDEN (Paris) contributed a paper on

Radium Treatment of Malignant Disease,

which was illustrated by some excellent diagrams, and they also brought with them four patients from Paris to show the meeting. The results were very satisfactory, so far as it was possible to estimate.

TROPICAL MEDICINE.

WEDNESDAY, JULY 27TH.

President, Dr. F. M. SANDWITH (London).

The PRESIDENT, in his opening address, genially welcomed the visitors and members. Regret was expressed at the absence of Sir Patrick Manson from the meeting owing to illness. A short retrospect was then given of the progress of tropical medicine during the 15 years which have elapsed since the Association last met in London. At that time little attention was paid to the subject by the Association, but now by the formation of a Tropical Medicine Section the members could meet and hear the results of the work which had been done by those who were engaged in unravelling the intricate problems respecting exotic disease. In addition, two schools had been established for the teaching of tropical medicine and hygiene in England, and some of our universities held examinations for those who had been studying the subject. Foreign nations had copied our example, one of the best of such Continental schools being that established at Hamburg. The President regretted the absence of some of the distinguished workers who had done such successful work in the Panama Canal Zone, specially naming, along with others, Colonel W. C. Gorgas and Dr. Juan Guiteras, who had been expected to attend the meeting of the section. He added that we were still in ignorance of many points of detail connected with exotic disease. On the whole, our knowledge of treatment had in most instances outstripped our acquaintance with the etiology and pathology of many maladies. The post-mortem room still held secrets for those who searched in the interests of tropical medicine. Unfortunately, many investigators had to work far away from laboratories or pathological museums. The enthusiasm of some of our inquirers needed to be tempered in estimating the results, for there was a danger of approaching researches with fixed ideas which led only to the finding of proofs that were wished for, other evidence being neglected.

A discussion on Human Trypanosomiasis was introduced by Colonel Sir DAVID BRUCE. Those joining in the debate included the PRESIDENT, Dr. ANDREW BALFOUR (Khartoum), Dr. A. R. COOK (Uganda), Dr. S. C. LOW (London), Dr. W. T. PROUT (Liverpool), Dr. L. SAMBON (London), and Dr. L. D. PARSONS (Gibraltar).

A paper by Lieutenant-Colonel J. R. ROBERTS, I.M.S. (Indore), on Some Features of Tuberculosis in India, was read by one of the secretaries in the absence of the author.

Mr. JAMES CANTLIE (London) then gave a demonstration on the Operative Treatment of Abscess, and also made some observations on the use of Lacto-bacilli in the Treatment of Sprue, Post-dysenteric Diarrhœa, and Colitis, which was discussed by the PRESIDENT, Dr. RAGHAVENDRA ROW (Bombay), and Dr. A. DUNCAN (London).

The next paper was by Dr. R. ROW, entitled "Further Observations on *Leishmania Tropica* of Oriental Sore of Bombay," the discussion of which was carried on by the PRESIDENT and Professor FÜLLEBORN (Hamburg).

THE ANNUAL EXHIBITION.

As might have been anticipated, this interesting department of the annual meeting was represented on a rather larger scale than usual owing to the centralisation naturally offered by the metropolis. According to an official statement, the exhibition is the largest collection ever brought together under the auspices of the British Medical Association. The exhibits were accommodated in the Great Hall and West Gallery of the University of London, in the buildings of the Imperial Institute. Owing to the proximity of these spaces to the registration and reception bureaux a good attendance was secured, since only a staircase divided the former from the latter, and, in fact, a glimpse of the bright array of skilfully arranged stalls, crowded with the accessories inseparable from the successful working of every branch of medical science, could be obtained even by the visitor as he came only to obtain tickets for the various meetings connected with the occasion. There was thus a cursory visual introduction given of something that was being shown, and the result was a very good attendance of visitors through the avenues of new surgical appliances, drugs, special foods, and so forth, the merits of which were carefully entered into by the exhibitors. The demonstration of X ray and high-frequency apparatus was relegated to a separate place, the Jehanghier Hall at the end of the East Corridor. On the whole, no particular section seemed to preponderate in regard to representation. The honours were divided, there being just as much that was interesting to see amongst the surgical apparatus exhibited as amongst drugs, sanitary appliances, special foods, and so on. Electrical apparatus, however, seemed to rivet more attention than did any other department.

We propose to give a passing reference to the more important exhibits, and for this purpose we will deal with them according to the following classification: (1) Surgical Instruments and Appliances (including Electrical Apparatus); (2) Drugs; (3) Foods and Food Products; (4) Sanitary Appliances; (5) Mineral Waters, Beverages, &c.; (6) Publications; and (7) Exhibits of a Miscellaneous Character.

I.—SURGICAL INSTRUMENTS AND APPLIANCES (INCLUDING ELECTRICAL APPARATUS).

A novel feature of the exhibition this year was the separation of the electrical appliances from the rest of the exhibits, a special room being found for the exhibition of electrical apparatus. Having regard to the increasing importance of applied electricity in medical treatment, the plan of a separate demonstration was a good and justifiable one. Jehanghier Hall presented the appearance of an exhibition of electrical apparatus at the Royal Society Rooms, and the snap of a good many electric sparks was worrying, although it may have served to attract the attention of the visitors. In this section there were some 15 stalls. For the most part these were employed for exhibiting apparatus for X ray work, and apparatus for producing currents for sinusoidal, faradic, and galvanic treatment, cauteries, electrolysis, and so forth.

Messrs. Siemens Brothers and Co., Limited, of Caxton House, Westminster, S.W., exhibited an X ray outfit designed especially for the use of the general practitioner, and an X ray outfit also with rotating high-tension rectifier, dispensing with induction coils and interrupters altogether. The exhibit included a diathermy apparatus which attracted considerable interest. It is designed for the application of heat at any desired depth in the body. In another section of the exhibition the same firm exhibited specimens of radium salts and apparatus by means of which the action of these salts may be applied. There were also shown specimens of radio-active material and earths for rheumatism and similar complaints. The exhibit further included a clinical temperature recorder which records continuously the temperature of patients. The latest in electrical apparatus was shown by Messrs. K. Schall and Sons, of 75, New Cavendish-street, London, W. Not the least interesting of these exhibits was what are called pantostats, that is to say, a universal apparatus for adapting the current from the main for all purposes. In addition there were mercury vapour lamps and a very ingenious instrument for sterilising wounds with vapours of iodine. For this purpose the iodine is placed in a glass vessel which can be attached to a handle provided with the platinum spiral. The latter can be made incandescent by means of the electric current. A small bellows attached forces a current of air over this incandescent spiral, and the air so heated passes forward and volatilises some iodine. The iodine travels forward much in the same condition as ammonium chloride fume, free from large particles of iodine and containing only iodine vapour. The apparatus suggests many useful applications, as, for example, the sterilisation of wounds and the treatment of mucous membranes.

There was much that was interesting at the stall of the Sanitas Electrical Co., Limited, of 61, New Cavendish-street, London, W. There were some very effective X ray outfits for instantaneous radiography, their success being

based largely on the efficiency of the "Sanax" motor mercury interrupter. The exhibit included the Schnée four-cell bath for administering electric currents to the body, and there were also sundry X ray apparatus, as, for example, an X ray protecting-box, a switchboard, a new intensifying screen, and specially designed X ray conches. Messrs. F. Davidson and Co., of 29, Great Portland-street, London, W., showed, amongst other things, their thermo-generator, which, as we have already described in our columns, is a practical application of the thermopile. By means of a gas or spirit flame the current can be obtained at once and continuously for cauterising or for the illumination of surgical lamps, dispensing with dry batteries. It may be used also for charging the accumulator. At the same stall a new high-frequency apparatus was exhibited, as well as a cystoscope, a urethroscope of special design, and pharyngoscope. A very comprehensive exhibit of equipments for X ray diagnosis was shown by Mr. Alfred E. Dean, of 82, Hatton-garden, London, E.C. This firm has given considerable attention to the protection of the operator which the construction of an X ray apparatus should afford. Amongst other admirably designed apparatus shown by this firm was the Dean diascope, designed for use in radioscopic examinations of a bismuth meal. The exhibit included a steel couch for exploration, compression, and stereoscopy. On the stall of Messrs. Newton and Co., of 3, Fleet-street, London, E.C., the simplicity and efficiency of the Snook Roentgen apparatus for instantaneous radiography was made clear. Other apparatus included a switch table, tube stands, and universal apparatus for working from the supply mains, producing at will currents for any purpose.

Amongst the interesting exhibits on the stall of Messrs. H. W. Cox and Co., Limited of 47, Gray's Inn-road, London, W.C., were an ultra-violet lamp for lupus treatment, various coils and high-frequency apparatus, shields for treatment, and samples of excellent glass-blowing work. X ray equipments and electrical appliances representing the latest that skill has brought to the application of electricity in diagnosis and in medicine were illustrated in the the exhibits of Messrs. W. Watson and Sons, Limited, of 313, High Holborn, London, W.C. Here were shown the Sunic intensifier screens for X ray work reducing the exposnres required under ordinary circumstances by about 1-20th. There was also Dr. Howard Pirie's stereoscope, which reveals a most intelligible effect used with X ray negatives. Lastly, there were shown the simple apparatus designed by Mr. C. R. C. Lyster for orthodiagraphic work, including exploration with tube below couch, radiography above and below couch, and stereoscopic work. The Medical Supply Association of 228–230, Gray's Inn-road, London, W.C., showed also an interesting series of apparatus of value in radiography, radioscopy, and radiotherapy. The feature of the exhibit was the Gaiffe Rochefort coil, which is said to stand the severest electrical strain, and there was also an admirable apparatus for the universal application of electricity obtained direct from the main whether it is a continuous or an alternating current. The principal exhibit on the stall of Messrs. F. R. Butt and Co. of 11, Denmark-street, Charing Cross-road, London, W.C., was a universal interrupter, for which it is claimed there is no noise or smell, and no motor is required. There were also shown a heavy discharge coil, an X ray couch, and other special apparatus indispensable to good X ray work. A series of excellent accumulators adapted for medical purposes was shown by Messrs. Longstreths, Limited, of 190, Queen's-road, Battersea, London, S.W. Amongst these Lithanode specialities, as they are called, were some medical hand lamps, cautery and lighting sets, and accumulators for X ray work and general scientific purposes. Lastly, in this section was included the exhibit of the Dowsing Radiant Heat Co., Limited, of 24, Budge-row, Cannon-street, London, E.C. This company showed their new and improved type of radiant heat bed, as well as some local appliances for treating limbs, applicable, for example, to stiff and painful joints in which the luminous heat rays of the incandescent electric lamp are utilised.

We may next pass in rapid review the excellent array of exhibits comprising surgical instruments and hospital furniture, of which there was an instructive representation. All the well-known firms were represented. There was plenty to examine and inspect in the way of up-to-date appliances at the stall of Messrs. Down Brothers, Limited, of 21 and 23, St. Thomas-street, London, S.E. Besides surgical instruments and appliances constructed on modern lines at the suggestion of surgeons, a feature was made of the aseptic hospital furniture, the work carried out by this firm in this connexion receiving obvious approval. The series of appliances for fractures and joint diseases exhibited by Messrs. C. A. Hoeffteke, Limited, of 21, Woodstock-street, London, W., attracted considerable attention by reason of their ingenuity and suitability for the purposes for which they are designed. The exhibit included appliances for tubercular hip- or knee-joints with or without contraction, fractured legs, and osteo-arthritis in hip and knee. Messrs. John Weiss and Son, Limited, of 287, Oxford-street, London, W., exhibited a wide variety of surgical instruments of approved design and utility; amongst other things shown were a saline infusion apparatus and a carbon dioxide snow apparatus for the treatment of nævus, ulcers, and so forth. Close by, Mr. Harry Brook, of 34, Illingworth-road, Bradshaw, Halifax, presented a series of interesting examples of artificial restorations of the face. An ingenious artificial finger was also shown. The restorations are constructed of aluminium coloured by a special process. The weight of an artificial nose is about a quarter of an ounce and of an ear about one-third of an ounce. Messrs. Mayer and Meltzer, of 71, Great Portland-street, London, W., had an excellent assortment of "new introductions," but they made a feature of their university examination lamps for use in the operation theatre, in the out-patient department, or in the ward. These lamps are very universally appreciated, judging from the large number now in use at hospitals and in private practice. There were some interesting examples of aseptic furniture in the exhibit of Messrs. S. Maw, Son and Sons, of 7 to 12, Aldersgate-street, London, E.C. The exhibit included a series of catheters and some special sterilising apparatus. Surgical instruments were shown on a separate stall. There were some admirable examples of operating tables, aseptic hospital furniture, electrical appliances, and sterilisers for hospital use at the stall of Messrs. Allen and Hanbury, of 48, Wigmore-street, Cavendish-square, London, W. This firm had two exhibits over which a very interesting series of appliances was distributed. Messrs. John J. Griffin and Sons, Limited, of Kimbells-street, Kingsway, London, W.C., demonstrated the advantages of administering chloroform with the well-known Harcourt inhaler, designed to give an accurate dose of the anæsthetic which may be maintained or varied at will. Messrs. Mathieu, of 4, Hercules-place, Holloway, London, N., showed the universal operating table connected with their name, as well as the table known as the Doyen-Mathieu. They also showed some of their newly invented instruments and examples of those adopted by professors of the University of Paris.

At the stall of Messrs. Skeffingtons, of 49, Ulundi-road, Blackheath, London, S.E., the advantage of their recumbent invalid lifters was practically demonstrated. The device is clamped to the bedstead and prevents a weak patient from slipping to the foot of the bed, while it enables the patient to be raised into a sitting posture and to be maintained there without exertion on his part or that of the attendant. A further device, known as the "Anastasia," is designed for the relief of patients requiring constant sanitary attention. Both appliances are of the greatest assistance and convenience. Close by, the Holborn Surgical Instrument Company, Limited, of Holborn-circus, London, E.C., showed a very interesting series of surgical instruments representing the latest designs approved; the exhibit included some excellent apparatus for sterilising instruments and dressings. A well-designed chair and one that is convenient to move without any jar to the patient is the Eastbourne improved invalid chair, designed by Mr. R. H. Woodland of 38A, Commercial-road, Eastbourne, Sussex. The Medical Supply Association of 228 and 230, Gray's Inn-road, London, W.C., exhibited the Macdonald steriliser which is of ingenious and simple construction. It is practically a steam jacketed container, but works at ordinary pressures, and by an ingenious arrangement the dressings are kept dry, a vacuum lid serving to prevent condensation on the materials. At the same stall the Guyot-Greville operating table was shown, and an example of the Grevillite vitrenamel hospital furniture. The material is steel, covered with vitreons enamel similar to the enamel on iron baths. Messrs. Arnold and Sons, of 26, 30, and 31, West Smithfield, London, E.C., had two stalls devoted to the exhibition of their aseptic hospital furniture. Their dressing tables in "everbrite" metal

(which will not corrode or rust), aurum (a metal with a golden appearance), and vitreous and other enamels were generally approved. The exhibit included a remarkable array of surgical instruments covering practically every kind of instrument invented. Sterilised dressings were the feature of the stall of Messrs. John Bell and Croyden, Limited, of 50, Wigmore-street, W., and a number of specially designed catheters. The exhibit included an excellent model of the sterilising rooms which have been erected at this firm's premises. The inlet of the apparatus is in one room and the outlet in another. The dressings are contained in hermetically sealed tins of a patented design. Messrs. Reynolds and Branson, Limited, of 13, Briggate, Leeds, exhibited a useful series of surgical apparatus, in addition to a number of special drugs and combinations which we shall refer to in the section on drugs.

Messrs. Aerators, Limited, of Upper Edmonton, London, N., showed their "Prana" carbon dioxide snow apparatus for the rapid and easy production of solid CO_2 which serves as a freezing caustic in the treatment of nævus, lupus, &c. They also showed a simple apparatus for the production of a carbonic acid effervescent bath which can be used in the manner of the Nauheim bath in the treatment of rheumatism and certain cardiac disorders. Close by, Messrs. John Timpson and Co. exhibited the well-known Johnson and Johnson adhesive plasters, ligatures, lints, and so on. The plasters have a reputation which is thoroughly deserved, owing to their uniformity, certainty, and promptness of action. Mr. Frank A. Rogers, of 327, Oxford-street, London, W., showed a selection of standard sprays, atomisers, vaporisers, &c., representing a branch of work in which he has specialised. There were spray apparatus for all kinds of application and adapted for administering solutions of varying densities. The well-known "Repello" clinical thermometer, which does not require shaking down to re-set, was shown by Mr. G. H. Zeal, of 82, Turnmill-street, London, E.C. There was also shown at this stall a new clinical thermometer, which can be kept aseptic, fitting into an outer container like a stoppered bottle. Mr. Robinett Scruby, of Sanctuary House, 11, Tothill-street, Westminster, S.W., exhibited a simple and inexpensive domestic telephone set, which is of the greatest convenience to those engaged in administering to the sick. It places the patient's room in communication with any other part of the house and altogether has obvious advantages to all concerned. Mr. S. Lee of 51, Conduit-street, London, W., demonstrated the action of his antiseptic air producer, the advantages of which were fully described in our columns last year. Seabury's standard gauzes were the feature of the exhibit of Messrs. Fassett and Johnson of 86, Clerkenwell-road, London, E.C. Besides these there were shown examples of aseptic and emergency ligatures, and the excellent medicinal and surgical plasters in indiarubber combination known as Seabury's. The above firm exhibited also on behalf of the Thermogene Company, Limited, the thermogene dressing, an absorbent wool impregnated with slightly irritant agents provoking gentle counter-irritation of the skin, and serving under certain conditions as a good substitute for poultices or stimulating plasters. A useful series of dressings and sheetings was exhibited by the Liverpool Lint Company of Mark-street Mills, Netherfield-road, North, Liverpool. Dressings of all kinds were shown, including some specially prepared tows. "Vulnoplast," which this firm makes, is described as the newest and most complete dressing with self-adhesive edges the centre portion being composed of several layers of gauze treated with any of the usual antiseptics.

Messrs. W. H. Bailey and Son, of 38, Oxford-street, London, W., exhibited a special consulting-room couch which has found considerable favour, besides some excellent examples of operation accessories, including their special registered operating table. Messrs. Hawksley and Son, of 357, Oxford-street, London, W., exhibited an interesting series of apparatus used in blood diagnosis, hæmoglobinometers by various inventors, hæmacytometers, the calcimeter, viscosimeter, and coagulometer. There were exhibited also blood-pressure apparatus, sphygmomanometers, and hæmometers. The Hospitals and General Contracts Company, Limited, of 25 to 35, Mortimer-street, London, W., exhibited their patent porcelite hospital furniture, a beautiful enamel which does not chip or change; there were also high pressure sterilisers and portable operation tables and a number of useful accessories, minor operating instruments, and so forth. Electro-surgical and ophthalmological instruments were exhibited on the stall of Messrs. E. B. Meyrowitz, of 1A, Old Bond-street, London, W. The exhibit included Dr. Edridge-Green's lanterns and wool tests for colour blindness and colour perception, Dr. J. H. Tomlinson's scotomagraph, Mr. W. Brooksbank James's test for stereoscopic visual acuity and diaphragm test, Mr. W. Wyndham's urethroscope, and an irrigation cystocope designed by Mr. J. W. Thomson Walker. There were some interesting illustrations of apparatus at the stall of the Holmquist Electric Company, Limited, of 52, Regent-street, London, W.: among others the flexible electro-thermal pad, which is intended to supersede hot-water bottles, hot compresses, or hot fomentations. There was also illustrated the Holmquist electric hot air and light apparatus for local treatment with hot air or light or both combined.

It will be seen from the foregoing account that a very wide range of exhibits was presented in this section, and there was obvious evidence that the exhibits were examined with very general interest. Next week we shall review the more important drugs and special foods which were shown.

(To be concluded.)

Medical News.

UNIVERSITY OF DURHAM.—At examinations held recently the following candidates were successful:—

THIRD EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

Pathology, Medical Jurisprudence, Public Health and Elementary Bacteriology.—Second-class Honours: Samuel Knibb Young and Thomas Copeland Storey, College of Medicine, Newcastle-upon-Tyne. Pass List: Everard Cecil Abraham and Frederick Ernest Chapman, College of Medicine, Newcastle-upon-Tyne; Evelyn Amy Constable, London School of Medicine for Women; Frederick John Henry Tobias Frere, Norman Hodgson, James Kerr, and Edwin Kidd, College of Medicine, Newcastle-upon-Tyne; George Eric Warner Lacey, College of Medicine, Newcastle-upon-Tyne, and Guy's Hospital; and Francis James Lidderdale, John George Ogle, and Fred Phillips, B.A., College of Medicine, Newcastle-upon-Tyne.

FIRST EXAMINATION FOR THE DIPLOMA IN DENTAL SURGERY.

Chemistry and Physics.—Harold Birt Coley, Aaron Gompertz Marks, Edward Errington Spencer, and George Vernon Watt, College of Medicine, Newcastle-upon-Tyne.

THE Alvarenga Prize of the Hufeland Society, for which the subject proposed this year was "Increase of Blood-pressure considered from an Etiological and Therapeutical Standpoint," has been awarded to Dr. Hasebroek of Hamburg.

THE Paris Academy of Medicine has elected Dr. Spillmann of Nancy and Dr. Testut of Lyons as corresponding members.

PRESENTATION TO A MEDICAL MAN.—Mr. A. G. Lawrence, M.D. St. And., J.P., was on July 20th presented by the inhabitants of Chepstow with a massive silver tray, bearing the inscription: "Presented to Arthur Garnons Lawrence, M.D., by many friends in token of the esteem and regard in which he has been held during the 50 years of medical service to sick and poor in and around Chepstow." Mrs. Lawrence was presented with a silver kettle and stand suitably inscribed. The presents were accompanied by a large album containing the names of the subscribers.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Public Health (Health Visitors) Bill.

THE Public Health (Health Visitors) Bill, which was introduced in the House of Commons by Mr. BURNS to enable local authorities under the Notification of Births Act, 1907, to appoint health visitors, has been published. Its operative clause is in the following terms: (1) The local authority for the purposes of the Notification of Births Act, 1907, of any area outside London in which that Act is for the time being in force may appoint suitable women, to be known as health visitors, for the purpose of giving to persons advice as to the proper nurture, care, and

management of children under five years of age, including the promotion of cleanliness. (2) The qualifications to be possessed by persons appointed to be health visitors under this section shall be such as the local authority may, after consultation with their medical officer of health, require.

HOUSE OF LORDS.

THURSDAY, JULY 21ST.

Voluntary Aid Detachments of the Territorial Force.

Viscount GALWAY raised the question of the efficient nursing of the Territorial Force and alluded to the scheme issued by the Order of St. John of Jerusalem. He expressed the hope that if a limited number of lectures were given in connexion with the scheme by nurses to women candidates for certificates, the remaining lectures in the course would be delivered by medical men, and the examinations for the final certificates should be conducted by them.

Lord LUCAS (Under Secretary of State for War) said in reply that the St. John Ambulance Association had formed a special branch in connexion with the Territorial Force. An Advisory Council had been formed recently, and was sitting at the War Office. Recommendations had been submitted to the Army Council by it, but no decision had yet been given upon them. There was no intention to lower the standard of efficiency of persons entering the voluntary aid detachments of the Territorial Force. There was a great demand that the grant of certificates should be facilitated, and the acceptance of a certain number of candidates who had not certificates granted by the St. John Ambulance Association was under consideration. The vexed question whether classes should be trained by nurses or medical men was being considered by the Advisory Council, and he added that the War Office would recognise only those voluntary aid detachments which were recognised by the county associations.

TUESDAY, JULY 26TH.

The Midwives Bill.

The House considered the Midwives Bill in Committee.

Clause 1 laid down the composition of the Central Midwives Board. It distributed the right to nominate members amongst various bodies and provided that two certificated midwives were to be appointed members of the Board—one by the Incorporated Midwives' Institute and one by the Royal British Nurses' Association.

Lord AMPTHILL moved an amendment the effect of which was to give to the Incorporated Midwives' Institute two members, one of whom was to be a certificated midwife. That would preserve to the institute the right to be represented by a medical man, as it had been in the past. This institute was the only body representing the midwives of the country. It raised the funds necessary for carrying through the Midwives Act, 1902.

Earl BEAUCHAMP (the Lord President of the Council), who was in charge of the Bill, thought it most desirable that there should be certificated midwives on the Board. He was not, however, prepared to accept the amendment unless there was a general expression of opinion in favour of it.

The Earl of DONOUGHMORE and Viscount GOSCHEN both spoke in favour of the amendment.

Earl BEAUCHAMP then announced that he would accept it.

The amendment was agreed to.

Lord AMPTHILL moved an amendment to the effect that the representative of the British Nurses' Association need not necessarily be a certificated midwife.

The Earl of LYTTON supported the amendment on behalf of the Royal British Nurses' Association. As the Bill now stood, one representative, who must be a midwife, was given to the association, but the association desired to have the option of appointing such person as seemed fit to them at the time being. There was no suggestion that they would not appoint a midwife. They might appoint a midwife if their interests were best served by such an appointment, but on the council of the association there were medical men as well as nurses. The association being composed of those elements should not be confined to representation by a midwife.

Earl BEAUCHAMP said that their lordships had under discussion a board to deal with midwives, but the Bill only provided that two of its members out of more than a dozen should be midwives. He thought that that provision ought to remain.

On a division the amendment was carried by 32 votes to 26.

The clause as amended was agreed to.

Clause 11 of the Bill, which deals with notification of practice, was as follows:—

(1) Where a woman certified under the principal Act who has not given to the local supervising authority such a notice as is mentioned in section 10 of the principal Act attends any women in childbirth in any capacity other than that of midwife, and a duly qualified medical practitioner is not present at the time of the birth, she shall, within forty-eight hours from the birth, give to the local supervising authority notice in writing of the fact that she so attended, and if she omits to do so shall be liable on summary conviction to a fine not exceeding five pounds, but nothing in this section shall be construed as exempting any woman practising as a midwife, or holding herself out as so practising, from the obligation to give any notice which, under section 10 of the principal Act, she is required to give.

(2) Where a woman certified under the principal Act has given a notice in compliance with section 10 of that Act and subsequently changes her address, she shall, within seven days after such change, give notice of the change to every local supervising authority to which she had previously given notice under that section, and if she omits to do so shall, on summary conviction, be liable to a fine not exceeding two pounds.

Viscount GOSCHEN had an amendment on the paper to leave out subsection 1 of the clause.

Earl BEAUCHAMP asked the noble viscount not to move it as he had an amendment which he believed would meet the case which the noble viscount had in view. He then moved an amendment to make the clause read: "Where a woman certified under the principal Act who has not given to the local supervising authorities such a notice as is mentioned in Section 10 of the principal Act, or a woman not so certified attends any woman in childbirth," &c. He quite admitted that the amendment was somewhat clumsy. In the case of the attendance of the uncertified woman becoming habitual, the Central Midwives Board would be able under the amendment to take the necessary steps. As the Bill stood at present it did act unfairly towards certifi midwives. He hoped that the amendment would meet the case.

Viscount GOSCHEN said that the amendment met his objection to t section.

The amendment was agreed to and the clause was passed.

Clause 12 of the Bill gives reciprocal treatment to midwives certifi in other parts of His Majesty's dominions.

Earl BEAUCHAMP moved an amendment to permit women to certified who were qualified to be appointed midwives by boards guardians in Ireland under any regulations of the Local Governme Board for Ireland for the time being in force. The Bill, he said, cou not properly be adapted to include Ireland, but by the amendment was possible to deal with a grievance affecting midwives in th country.

Lord CLONBROCK said that he had been informed that the Governme was prepared to bring in a special Bill dealing with Ireland ne year containing the provisions embodied in existing English legisl tion. He asked the Government to give him a definite answer on th subject.

The amendment was agreed to.

Lord CLONBROCK repeated his question.

Earl BEAUCHAMP said that the introduction of a Bill dealing wit this subject in Ireland was not in his province. He had, however, bee in consultation with the Chief Secretary for Ireland, who authorised hi to say that he would be glad to deal with this subject, but whether suc a measure would follow the lines of this Bill it was impossible for him t say. The conditions in Ireland were different from those in Englan The Government would be glad to have the support of noble lords for a Irish Bill.

The clause was agreed to.

Clause 13 provides that a local supervising authority may aid th training of midwives whether within or without their area, and ma make grants for the purpose.

Lord AMPTHILL moved an amendment to permit the local supervisin authority to make grants in aid of maintenance of midwives also.

Earl BEAUCHAMP resisted the amendment on the ground that would place a large burden on local taxation.

The amendment was negatived without a division, and the claus agreed to.

Clause 17, which deals with the payment of fees of medical practitioners called in on the advice of midwives, was in the followin terms:—

(1) Where a duly qualified medical practitioner has been summone upon the advice of a certified midwife attending a woman in child-birt to render assistance in a case of emergency in pursuance of any rul framed by the Central Midwives Board, he shall, on complying wit the prescribed conditions, be entitled to recover from the board o guardians of the Poor-law union in which the woman resided such fe in respect of his attendance as may be prescribed.

(2) Where any such fees have been paid by a board of guardians the amount thereof may, if the board of guardians think fit, be recovere summarily as a civil debt from the patient or person liable to provid the patient with medical aid.

(3) Every board of guardians shall in each quarter send to every loca supervising authority concerned a list of the cases within the area o the authority in respect of which fees have been paid by the board o guardians under this section.

(4) The Local Government Board may make regulations with respec to any matter which under this section is to be prescribed and as t the manner in which boards of guardians are to carry out their power and duties under this section.

(5) The payment of fees by boards of guardians under this sectio shall not be considered to be parochial relief, alms, or charitable allow ance to any person, nor shall any person by reason thereof be deprive of any right or privilege, or be subjected to any disability o disqualification.

Lord AMPTHILL moved the first of a series of amendments, the object of which was to substitute the local supervising authority of the county or county borough for the board of guardians of the Poor-law unior as the authority from whom the fee should be recovered, and to excis subsections (2), (3), (4), and (5). His proposal, he said, was one of very great importance. The Bill had been before the House for some time, and when it was withdrawn it was generally supposed that the object of withdrawing it was to amend this very clause in order to meet a large number of objections which had been raised to it. The Bill, however, returned to the House with the same objectionable clause in it. The objection to the clause was that it would bring thousands of poor but thrifty persons within touch of the Poor-law. The noble Earl in charge of the Bill had said that he had removed this objection by inserting a new subsection that declared that the payment of the medical man was not to be regarded as parochial relief. There was, however, really no change in the clause. It would still bring people within the grip of the Poor-law guardians without their consent if they were forced by law to make payments for which they did not contract.

The Earl of LYTTON supported the amendment.

Earl BEAUCHAMP resisted the amendment. It made no provision for the ultimate recovery of the fee either from the patient or from her husband. The amendment raised the whole question of the way in which free medical assistance should be given to these people. His Majesty's Government said that the authorities mentioned in the Bill were the appropriate authorities to deal with this question. It was far more business-like not to prejudge a large question which must be raised sooner or later. The Bill was much more likely to get through in its present form.

The Earl of DONOUGHMORE opposed the amendment.

The amendment was ultimately negatived and the clause agreed to.

The Bill passed through committee.

HOUSE OF COMMONS

WEDNESDAY, JULY 20TH.

Nursing the Sick Poor.

Mr. ERNEST JARDINE asked the President of the Local Government Board whether he would consider the issuing of an order by which boards of guardians should be empowered to contribute towards the cost of cottage nursing in the homes of the sick poor by nursing associations, in the proportion of visits paid and total cost, on the same lines that

such boards could contribute towards the cost of workhouse children attending elementary schools.—Mr. BURNS replied: Boards of guardians are already empowered under Section 10 of the Poor-law Act, 1879, with the consent of the Local Government Board, to subscribe towards associations for providing nurses, and the Board has sanctioned many subscriptions under this enactment. In the recent circular on outdoor relief I drew attention to the importance to guardians of being in a position to supply nurses in case of need, and expressed the opinion that nurses are generally best provided through the agency of local nursing associations. At the same time I intimated willingness to continue to sanction subscriptions for this purpose.

The Metropolitan Asylums Board and Sanatoriums.

Mr. EDMUND HARVEY asked the President of the Local Government Board whether he was prepared favourably to consider a scheme for making use of some of the vacant hospital accommodation under the control of the Metropolitan Asylums Board for the provision of sanatoriums for consumptives if the Metropolitan Asylums Board would submit such a scheme.—Mr. BURNS answered: The whole question of utilising the spare accommodation in the institutions under the control of the managers of the Metropolitan Asylums District is under consideration. I may say, however, that the question of using such accommodation for consumptive patients is one involving special difficulties.

Industrial Diseases and Accidents and Certifying Surgeons.

On the discussion in report of the Home Office Vote,

Sir CHARLES DILKE raised questions connected with factory legislation, and in particular with regard to lead poisoning. There had been a good deal of progress, he said, as regarded industrial poisoning except perhaps lead. In regard to phosphorus there was a new Act of Parliament, and he was glad to learn that the Government of India was considering the introduction of similar legislation into India. The report on factory inspection which had been submitted to Parliament took credit that necrosis had been stamped out. However, there had unfortunately been an outbreak of one of those old cases of phosphorus necrosis, which gave rise to some suspicion whether the statements which had been previously made upon the subject were all true, or whether there had been instances of the disease. He would ask the Home Office that a very careful watch should be kept upon any factories that might be suspect in order to see that there was no infraction of a very beneficial law. Dealing with the use of lead in the Potteries, he said that it was open to the Home Office, no doubt, to say that the inquiry had done good and there was improvement in the figures with regard to cases of lead poisoning. However, the improvement was a fluctuating one alike in the Potteries and in the lead trade, and as the cases had gone up in one they would go up in the other too. As regarded lead, there was a falling off in the figures of last year. On the other hand, there had been a total increase again this year. Whatever the explanation, the fact remained that whilst lead was used in certain industrial processes these cases, with whatever fluctuations, would continue to occur. It was only two years since the Home Office went back upon their policy of prohibiting or discouraging the use of dangerous material and reverted to the idea of curing the danger by ventilation, which was unsatisfactory to many of those who had watched it in these trades. It seemed impossible to secure safety by that means. He went at length into the findings of the recent inquiry. He thought that the suggested scheme of self-inspection was one which the House would never look at. He would press upon the Home Office certain points in regard to the inquiry—for instance, those which concerned the whole system of certifying surgeons and medical referees in dangerous trades. The fees were different in Ireland from what they were in England. They were five times as high in the case of an action for workmen's compensation as in the case of the same action taken under the dangerous trades provisions, so that a poor man in one case had to pay 5*s.* for the same certificate which he could get for 1*s.* in another case. Another matter which the right honourable gentleman raised was the employment of industrial mothers at times not far removed from confinement. He hoped that in connexion with the invalidity insurance legislation suggested for next year maternity insurance would be considered. Last year the dangers in connexion with the Potteries had been raised. He hoped that this year he would be excused for referring to the terrible rate of infant mortality in connexion with employment in dangerous trades in that district. THE LANCET had made a special inquiry since last year, and it published the results in June. That journal pointed out that a very serious situation existed in the Potteries in consequence of the excessive mortality amongst the infant population.[1]

Mr. HILLS also dealt at length with the question of lead poisoning in the Potteries. The cases of lead poisoning in 1896 were about 400. After five years had elapsed there were 100 cases in 1900, showing that in that period the cases fell by three-fourths. Since 1901 the figures had been stationary. The figures for last year looked rather lower at first sight, as though there was a progressive fall. He was sorry to say that that was not the case. The figures for the first half of this year showed a very substantial rise. The death-rate was about 1 in 1000. The whole evil was not contained in these figures. The dangers to health extended far wider than that. It fell especially hardly on women. Lead poisoning injured the child-bearing capacity of women, so much so that miscarriages were three or four times above the average. He thought that fresh measures should be taken to exterminate the terrible evil of lead poisoning.

Mr. GILL dealt with the position of medical referees. He said that when the Workmen's Compensation Act was in committee the Labour party pressed very strongly that referees who were appointed should not be engaged in private practice. They were unsuccessful. The Home Secretary of that day thought that it would cost too much money. The result was that the referees who finally decided whether or not a person after injury was fit for his work were medical men engaged in private practice. This gave rise to a considerable amount of dissatisfaction both amongst the workmen and amongst employers in Lancashire. The vice-chairman of the Cotton Employers Federation told him only last night that he would prefer that instead of the medical referees being engaged in private practice they should be State officials with large districts and that they would then be able to give unbiassed decisions because they would not depend for part of their salaries on being engaged by other people. It was said, he believed with some truth, that some of these medical referees were engaged in examining injured persons for the insurance companies. It was distinctly understood that that should not take place. He believed that it was provided in the Workmen's Compensation Act—at any rate, it was stated about the time of its passing—that if they were engaged in any case by an insurance company they would not in that case act as medical referees. That was not enough by any means. The medical referees ought to be in such a position that they could have no bias whatever. He knew one case where the partner of a medical referee examined a person for the insurance company, and afterwards the same person was sent to the medical referee who declared that he was fit for his work. That man had to give up his situation as he was not able to perform the work, and his compensation was stopped. In a very serious case a man was examined by a medical referee, who declared him to be fit to follow his occupation. The man, however, could not do so, and the committee of the Spinners Association, every member of which was a practical man and knew exactly what was required for the purpose of performing the work, felt that the man was so seriously injured that they paid him £100 as permanent accident grant. The House could not expect workmen to be satisfied when the decisions of medical referees were given in this way and there was no appeal. In many cases employers were now asking injured persons to bring certificates of medical men to show their condition from time to time. That was distinctly illegal. These certificates generally cost 1*s.*, and it was not right that an injured person should be put to that expense because an employer wanted to know his condition. The Act provided that an employer could have a workman examined by his own medical man at his own expense, and so long as that was the case he thought that it was decidedly wrong to require workmen to bring certificates in the way he had described. He wanted the Workmen's Compensation Act to be administered in as efficient a manner as possible.

Mr. MASTERMAN (Under Secretary of State for the Home Department) replied to the debate. He said that for many years a perpetual fight had been carried on with lead poisoning, one of the most terrible diseases of our industrial system. He shared the rejoicing that last year's return showed a diminution of nearly one-half in the Pottery district. But the first six months of this year failed to carry out the expectations which the previous return had led honourable Members to entertain. In the industry trade had greatly improved, and this was unfortunately reflected in the increase in the number of cases of lead poisoning. He disagreed with some of the criticisms which had been passed on the report of the Lead Poisoning Committee. Investigations had been carried on for two years, and he could assure all those who were interested that the evidence taken was most voluminous. The inquiry was carried on by representatives of the masters and of the employees along with impartial persons, and the result was an unanimous report, with the single exception of the Labour representative of the women workers, who, in her memorandum, did not so much take exception to the recommendation in the report, but recommended more drastic measures of dealing with the question. He thought that it would be a very serious matter if the Home Secretary threw over a report on such a subject upon which so much unanimity had been displayed in order to start a rival policy of his own, or, what would be more fatal still, to appoint another committee. There were one or two subjects connected with the report on which he (Mr. Masterman) would have preferred that the committee should have come to another conclusion. He should have been pleased if the committee had seen its way to schedule certain articles. The question was considered very thoroughly, but the committee recognised the difficulty in regard to the importation of articles from abroad. It came with reluctance to the conclusion that the remedy suggested was impracticable. With regard to the use of phosphorus, he might point out that the use of yellow phosphorus had been stamped out under an international convention, but there was no international convention in regard to the use of lead. If all the countries engaged in lead manufacture were to join in the prohibition in certain cases in the use of lead the position would soon be very different. The report of the Lead Committee recommended a very considerable extension of the special order which at present existed, and recommended what some honourable Members rather unduly condemned—namely, self-inspection in factories. He did not see why the course suggested should not be given a trial as a supplementary system to the present factory inspection. If the special rules and this system of self-inspection proved a failure those who had considered this question were anxious to be in a position to recommend the total prohibition of the employment of women—or at any rate of women under a certain age—in the lead factories. If within a reasonable time it was proved that lead poisoning could not be got rid of by special rules and self-inspection, he thought due notice should be given to the masters that other action would be taken if the figures in regard to the disease did not come down. A suggestion was made that the Home Office could put into operation the power to close the worst factories. Might he point out that that power was not in possession of the Home Office, and it could only appeal for a decision in this matter. One such factory was closed last year, but a very strong case indeed had to be made out in order to obtain a conviction. The honourable gentleman continued: "One word as to the question of the certifying surgeons. I agree the position is not a very satisfactory one, and I recognise that some action will probably have to be taken in the not distant future. We all recognise that sooner or later a committee will have to be appointed to consider the working of the Workmen's Compensation Act in regard to such questions as whether old people are being driven out of employment, as well as questions regarding the certifying surgeons and medical referees. The Act has only been in operation three years, and the committee will be better appointed when it has settled down and we can get the greatest possible evidence as to the necessity for any change. The right honourable gentleman the Member for the Forest of Dean (Sir C. Dilke) recognises the divergence of fees demanded. The fee of 1*s.* is supplemented under the Factory Order of 1901 by an additional amount given by the Home Office, but the fee of 5*s.* under the Workmen's Compensation Act for a complete examination cannot be supplemented. We do not feel very much inclined to deplore the very small fee paid for a very thorough examination, and what we should press for is not a reduction of the fee of 5*s.*, but whether it might not be possible for the Home Office to supplement in the one case as in the other the fee paid to the medical man." The case of infant mortality in industrial centres,

[1] THE LANCET, June 4th, 1910, p. 1575.

the honourable gentleman continued, had been raised. The Home Office was concerned with the question. It had called for special reports from the medical officers of health, especially from those of the districts most concerned. These reports, which were of a voluminous character, were now before the Home Office, and he hoped that they would give some definite guidance.

Small-pox in Bombay.

Sir MAURICE LEVY asked the Under-Secretary of State for India whether an epidemic of small-pox had recently occurred in Bombay; whether records were kept as to the vaccinal condition of the cases in the hospitals; and, if so, whether the Government had any information as to the causes of the severity of the outbreak.—Mr. MONTAGU wrote in reply: Small-pox in an epidemic form was prevalent in Bombay city from the middle of February last to the middle of May. The Secretary of State understands that the practice in Indian hospitals is to keep a record of the vaccinal condition of every patient suffering from small-pox, but he has no information as to the data thus obtained in the recent epidemic in Bombay or as to the light thereby thrown on the causes of the outbreak. According to statements in the Bombay newspapers the severity of the epidemic was largely due to cases imported by pilgrim ships returning from Jeddah and other ports in the Red Sea.

THURSDAY, JULY 21ST.

Malta Fever.

Answering Mr. CHANCELLOR, who asked a long question in regard to the new Commission to be appointed for the purpose of investigating Malta fever,

Colonel SEELY said: It is not proposed that the new Commission shall concern itself with any other question than the manner in which goats become infected, which is the only matter in connexion with the causation of Malta fever which remains obscure. The elected members of the council of Government are only prepared to concur in the appointment of the committee on the condition that this question is made the special object of their inquiry. The Secretary of State has agreed to the proposal of the elected members that they should be allowed to nominate an independent local practitioner to be a member of the Commission. It is not yet known whom they will choose.

Sir J. RANDLES: Is the right honourable gentleman quite satisfied that the insanitary conditions which prevailed at Malta had not a great deal to do with this fever?—Colonel SEELY: It is rather difficult to discuss this highly technical matter by means of question and answer. Of course, every sanitary improvement tends to reduce disease. Speaking for myself, having inquired into the matter as much as I can, I think there is no doubt whatever that goats' milk was the principal cause is proved without a shadow of a doubt.

An Experiment on Rabbits.

Mr. GREENWOOD asked the Under Secretary of State for the Home Department whether his attention had been called to an account of certain operations of oöphorectomy performed by Mr. S. G. Shattock upon two rabbits on Oct. 12th and Nov. 5th, 1908, respectively, and published in the Proceedings of the Royal Society of Medicine, Vol. III., No. 2, issued in December last, after which operations the animals were allowed to recover from the effects of the anæsthetic administered and were kept alive for observation, as part of the experiments, until April 10th and Oct. 11th, 1909, respectively; and whether Mr. Shattock held a certificate authorising these experiments at the time when he performed them.—Mr. MASTERMAN replied: As my honourable friend is doubtless aware, Mr. Shattock is the licensee referred to in the Home Secretary's reply of July 5th. The facts are as stated in the question and the renewal of the licence was refused in consequence. My right honourable friend regrets that after what he said in his previous reply the honourable member should have thought it necessary to bring forward the name of the licensee.

Combating Tuberculosis.

Mr. LYNCH asked the President of the Board of Education whether, in making grants to medical schools this year, he would pay special attention to that branch of medical research which was directed to combating tuberculosis; and whether, in view of the far-reaching importance of the original research which had been carried out at St. Mary's Hospital bacteriological department, he would remove the financial embarrassment which threatened to impede the development of that work.—Mr. RUNCIMAN said, in reply: The Board's grants to such institutions as medical schools are made in respect of organised courses of instruction and not in respect of particular subjects or departments.

MONDAY, JULY 25TH.

Medical Degrees and Diplomas.

Mr. LYNCH asked the Secretary of State for the Home Department whether his attention had been called to the disparity in the value of medical degrees and diplomas which entitled their possessors to practise medicine in this country; and whether he would take steps, by legislation or otherwise, towards establishing a fair standard of examination qualifying for medical practice.—Mr. CHURCHILL replied: It is the statutory duty of the General Medical Council to inspect and report upon all qualifying examinations, and if it appears to it that the standard of proficiency required at the qualifying examinations held by any of the licensing bodies is insufficient to make a representation to that effect to the Privy Council who are empowered, if they think fit after due inquiry, to order the withdrawal from medical authorities of the right to hold qualifying examinations.

ORDER OF ST. JOHN OF JERUSALEM.—The Service Medal of the Order for long and efficient service to the ambulance department has been conferred upon the following members of the St. John Ambulance Brigade: Honorary Surgeon A. F. Street, M.D. Cantab., Westgate-on-Sea; and Honorary Surgeon J. Crew, L.R.C.P. Lond., M.R.C.S., Wellingborough Corps.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

AWBURN, G. J., M.B., M.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Mottram and Glossop District of the counties of Chester and Derby.

BRACHI, F., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant School Medical Officer to the Borough of Portsmouth.

CAMERON, JOHN, M.D. Aberd., has been appointed Examiner in Anatomy at the University of St. Andrews.

CAMPBELL, A. J., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ross District of the county of Hereford.

MANN, DAVID, M.B., Ch.B. Edin., F.R.C.S. Edin., has been appointed Honorary Anæsthetist to the Wolverhampton and Staffordshire General Hospital.

PARAMORE, R. H., M.D. Lond., F.R.C.S. Eng., has been appointed Pathologist and Registrar to the Hospital for Women, Soho-square, W.

PRICE, FREDERICK W., M.D. Edin., M.R.C.P. Lond., has been appointed Additional Examiner in Medicine and Clinical Medicine in the University of St. Andrews.

REVIE, DUGALD, M.B., C.M. Glasg., has been appointed Physician-Superintendent at the Strathmore Hospital, Blairgowrie.

STRANGE, E. W., M.D. Lond., has been appointed Honorary Anæsthetist to the Wolverhampton and Staffordshire General Hospital.

WALSHE, F. M. R., M.B., B.S., L.R.C.P. Lond., has been appointed House Physician at University College Hospital.

WILBERFORCE-SMITH, D., M.B., B.S., has been appointed Assistant Registrar to the Samaritan Free Hospital, London.

WOODSEND, R. N., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at University College Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM GENERAL HOSPITAL.—Resident Pathologist for six months. Salary £50 per annum, with board and residence. Also Two House Physicians for six months. Salary £50 per annum, with residence, board, and washing. Also Two Assistant House Surgeons for three months. Salary at rate of £40 per annum, with residence, board, and washing.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Surgeon. Salary at rate of £50 per annum, with board, lodging, and washing.

BOURNEMOUTH, ROYAL NATIONAL SANATORIUM.—Resident Medical Officer. Salary £10 per month, with board, residence, and washing.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Two Assistant House Surgeons, unmarried. Salary £60 and £50 per annum respectively, with apartments, board, and laundry.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar.

CAMBRIDGE, CAMBRIDGESHIRE, &c., LUNATIC ASYLUM, Fulbourn.—Second Assistant Medical Officer, unmarried. Salary £120 per annum, with board, lodging, and attendance.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon, for six months. Salary £30, with board, residence, and laundry.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with board, apartments, and laundry.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Clinical Assistant.

CUMBERLAND COUNTY COUNCIL.—Junior Assistant to Medical Officer of Health. Salary £225 per annum.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 per annum, with board, apartments, and laundry.

DORCHESTER, COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £140 per annum, with board, &c.

DOVER, ROYAL VICTORIA HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

EASTBY SANATORIUM, near Skipton.—Assistant Resident Medical Officer, unmarried. Salary £130 per annum, with rations, apartments, and laundry.

GLOUCESTER, GLOUCESTERSHIRE EDUCATION COMMITTEE.—School Medical Inspector. Salary £250 per annum.

GUEST HOSPITAL, Dudley.—Assistant House Surgeon for six months. Salary £75 per annum, with residence, board, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with rooms, board, and washing.

HÔPITAL FRANÇAIS, 172, Shaftesbury-avenue, W.C.—Second Resident Medical Officer, unmarried. Salary £50 per annum, with board and laundry.

HULL, ROYAL INFIRMARY.—Two Casualty House Surgeons. Salary £80 per annum, with board and lodging.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH.—Assistant Clinical Pathologist.

LEEDS PUBLIC DISPENSARY.—Honorary Surgeon.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Assistant Medical Officer and Pathologist. Salary £60 per annum.

MEDICAL DEPARTMENT OF THE NAVY, London, S.W.—Dental Surgeon for duty with the Naval Forces in the United Kingdom. Salary £1 per diem.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

MILE END OLD TOWN, HAMLET OF.—Senior Assistant Medical Officer. Salary £150 per annum, with board, lodging, and washing. Also Junior Assistant Medical Officer. Salary £120 per annum, with board, lodging, and washing.

NEWCASTLE-UPON-TYNE UNION WORKHOUSE.—Assistant Medical Officer (female), unmarried. Salary at rate of £100 per anuum, with apartments, rations, and washing.

NOTTINGHAM GENERAL HOSPITAL.—Honorary Assistant Physician.

OLDHAM INFIRMARY.—Three House Surgeons for six months. Salaries £120, £100, and £80 per annum, with residence, board, and laundry.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary at rate of £80 per annum, with board, &c.

REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with board, lodging, aud washing.

ROYAL NATIONAL MISSION TO DEEP SEA FISHERMEN.—Medical Officer. Salary £4 4s. per week and board.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

ST. PAUL'S HOSPITAL FOR SKIN AND URINARY DISEASES, Red Lion-square, W.C.—Clinical Assistant for three months. Salary 50 guineas per annum.

ST. PETER'S HOSPITAL, Henrietta-street, Covent Garden, W.C.—Two Clinical Assistants.

SALFORD UNION INFIRMARY, Hope, Pendleton.—Medical Superintendent. Salary £350 per annum.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.

SUNDERLAND INFIRMARY.—Two House Surgeons. Salary £80 per annum, with board, residence, and washing.

THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board, residence, and laundry.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, uumarried. Salary £100 per annum and board.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, &c.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL—House Physician.

WORCESTER GENERAL INFIRMARY.—House Physician. Salary £100 per annum, with board, residence, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Alyth, in the counties of Forfar and Perth; and at Upton, in the eouuty of Worcester.

Births, Marriages, and Deaths.

BIRTHS.

BARNES.—On July 21st, at Eye, Suffolk, the wife of Henry E. Barnes, M.D., of a son.

BENNETT.—On July 21st, at Hillcrest, Northwood, the wife of Norman G. Bennett, M.A., M.B., B.C. Cantab., L.D.S. Eng., of Brook-street, Grosvenor-square, of a son.

BLOMFIELD.—On July 23rd, at Queen's-road, Peckham, S.E., the wife of Alfred Blomfield, M.R.C.S., L.R.C.P., of a son.

CARNEGIE DICKSON.—On July 20th, at Findhorn-place, Edinhurgh, the wife of W. E. Carnegie Dickson, M.D., F.R.C.P.E., University of Edinhurgh, of a son.

KENDREW.—On July 22nd, at Newport-terrace, Barnstaple, the wife of A. J. Kendrew, M.B., B.S., of a son.

NATTLE.—On June 24th, 1910, at Mohales Hoek, Basutoland, the wife of W. R. Nattle, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

SARGENT.—On July 21st, at Harley-street, W., the wife of Percy Sargent, F.R.C.S., of a son.

SMITH.—On July 27th, at Walden House, Watford, the wife of G. Francis Smith, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

MARRIAGES.

BALME—CARR.—On July 8th, at Holy Trinity Cathedral, Shanghai, Harold Balme, F.R.C.S. Eng., L.R.C.P., to Hilda Elizaheth, second daughter of the late T. W. Carr, Esq., Carlisle.

BOYD—FOX.—On July 16th, at St. Mary's, Wimhledon, hy the Right Rev. Bishop Taylor-Smith, C.V.O., Sidney Boyd, M.S., F.R.C.S., of 10, Chandos-street, Cavendish-square, W., to Violet Evangeline, daughter of Mr. and Mrs. Henry Fox, of Moorfoot, Putney.

GRAHAM—COCHRANE.—On July 22nd, at St Luke's Church, Chelsea, London, S.W., Alexander Graham, M.B., Ch.B., B.Sc., of Forest Gate, London, E., to Margaret Jewel Small, only daughter of Mrs. James Cochrane, Coupar-Angus, N.B.

TA BOIS—TYDEMAN.—On the 21st July, at St. Peter's, Brockley, S.E., hy the Rev. C. H. Grundy, M.A., Vicar, Alfred C. Ta Bois, M.D., to Mary Tydeman.

DEATHS.

MARTIN.—On Friday, July 22nd, Stephen Luther Martin, L.S.A., of 55, Oxford-terrace, Hyde Park, W.

SIMSON.—On July 22nd, at Nowshera, India, of cholera, Captain E. D. Simson, I.M.S.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SCURRILITY.

A CORRESPONDENT who contributes "South-Eastern Notes" to *The Fruit Grower, Fruiterer, Florist, and Market Gardener*, referring to our observations on the unwashed strawherry in an annotation in THE LANCET of July 2nd, writes in the issue of that journal of July 14th, 1910: "THE LANCET has been having a sling at strawberrics quite in its own way." He then proceeds straightway to justify this "sling" hy adding, "I wish the medical men would exert themselves and get an Act passed to make it a penal offence to use manure as litter under the strawherry. The filthy practice is gradually dying out, hut is still practised in some private and semi-private places, also in a few less modern market gardens ..... If the manure is put down early enough to wash away clean then the weeds, oats, &c., will grow sufficiently large to smother the crop; if it is put down late, in the natural course of things the fruit must become contaminated." In spite of this complete endorsement of our view of the case, "the medical profession," we learn elsewhere in the same numher of this journal, "is ever ready to make silly proposals as to the washing of soft fruits before consumption." We should not have referred to this amusing inconsistency of statement had it not heen for the fact that the writer of the "South-Eastern Notes," in expounding his suhject further on, goes out of his way to puhlish a foolish charge against the medical profession, which he knows, or his editor should know, perfectly well cannot he sustained. "The silence of the medical profession on this vital matter (the question of milk and vegetables produced on the sewage farm) can, to my miud," he writes, "only have one explanation—the sewage-grown produce as well as the stinking sewage farm itself brings grist to their mill. It must he so, or we should hear more from them on the subject, I am sure." A correspondent who can make a scurrilous statement of this kind should he firmly discouraged by a fair editor.

"DEATH IN THE POT" OR ON THE GRILL.

"DIET Reform on the Continent" (writes our Italian Correspondent) has a significance and a relevauce for the sojourner South of the Alps not contemplated in the interesting communication under that heading in THE LANCET of July 9th (pp. 139–140). For, in his case, it is not a question of the claims of an exclusively vegetable as against an exclusively animal menu, or even of the proportions in which the one or the other of these constituents ought in a mixed diet to preponderate, hut the far more vital and elementary one as to the soundness of the edibles put before him—of their fitness, indeed, for human consumption. A tragic instance in point is reported from that much-frequented resort, Lake Como, where on July 15th, at the attractive township of Onno, 30 individuals were placed in imminent danger of life, and one, a little girl of eight, succumhed within a few hours through having partaken, more or less heartily, of calf's flesh. The animal it seems, according to the official statemeut, had some eight days after hirth died a natural death, and its proprietor, in contravention of the law, instead of hurying, after destroying, it, had exposed it for sale. Distrihuted in portions through the community everyone who ate of it was stricken within a few hours with what the report calls "gravissimi disturbi gastro-enterici," presenting all the symptoms of acute poisoning. The little girl referred to was the first victim—no medical treatment proving of any avail; while 10 of the other 30 were placed in a critical condition. The calf had not heen depleted of its blood, while all the viscera had heen left in its interior! Legal proceedings, of course, have becu taken against the inculpated proprietor, the result of which we have yet to learn. Meanwhile, the consternation of the townsfolk of Onno has spread all over the province, conveying a loud warning, particularly to the unsuspecting foreigner, as to the danger he incurs in quarters where he may happen to have strayed from the beaten track. "Never in those places," said an English artist whose enthusiasm for landscape led him far afield, "ask for any article of food not used by the natives themselves. The innkeeper, more or less 'perfidus,' is apt to promise anything you order, and to put before you a substitute anything but safe." Another point. In these semi-civilised places anything that savours of modernity is prized as "up-to-date," not to say "chic," and for this reason the innkeeper will give the guest tiuned vegetables or tinned meats under the impressiou that he is humouring metropolitan requirements, too fastidious to be satisfied with the fresh products of the kitchen garden or the dairy farm, or the shambles! The date at which these edibles have heen (more or less) "hermetically" immured in their metallic prison is often of remote antiquity, leaving time for any nutrient value they originally possessed to disappear and to be replaced by some product of decomposition the reverse of "nutrient," if not absolutely daugerous. "Diet reform on the Continent," it will

thus be seen, is more than a question between "vegetables" and "butcher's meat," and the traveller will do well to be on his guard, particularly in countries where hygienic law is too recent to be thorough, and where, if adequately framed, it is apt to be perfunctorily enforced.

THE LONDON MILK-SUPPLY.

DURING the year ended June 30th, 1910, 2432 samples were taken by London County Council officials of milk coming into the metropolis, and 2247 of these were examined by the Lister Institute. The number found to be tuberculous was 199, or 8·9 per cent.; 10,723 cows were examined on 419 farms scattered over the home, midland, and western counties, and 142 of the cows, or 1·3 per cent., were found to have tuberculous udders. In the previous year 1217 samples of milk were enamined, 157, or 12·9 per cent., were found to be tuberculous, and 262 cows out of 10,103 inspected—2·6 per cent.—were found to have tuberculous udders. The cost this year of the administration of Part IV. of the London County Council (General Powers) Act, 1907, under which these investigations were made, was £1896, as compared with £999 in the previous year.

THE RÔLE OF THE SHEET.

IN connexion with the International Congress of School Hygiene which was held in London in 1907 we referred to an invention designed by Mr. D. H. Shuttleworth Brown of Wimbledon for the purpose of preventing soiled sheets coming into contact with the other articles of bedding, and we again call attention to the matter because anything which tends to inculcate habits of cleanliness cannot too often be reiterated. Many people have the idea that the purpose of sheets is to keep the occupant of the bed warm, but obviously their real use is to insulate by a washable material the sleeper from the mattress and blankets. Therefore the same side of the sheet should always be in apposition to the body, and we note that at a recent meeting of Manchester sheeting manufacturers a resolution was carried unanimously declaring that a bed-sheet should be used for the purpose of insulating the sleeper. In order to ensure that the person making the bed may be able to distingush the two sides of a sheet, and also that a traveller at a hotel, for instance, may be able to see at a glance whether his bed has been properly made in this respect, Mr. Brown runs a tuck across the top and bottom sheets in such positions that when the top sheet is turned back over the counterpane the tucks are quite visible. Bed-ticking is seldom cleaned, and blankets, even by the most careful people, are probably washed not more than once a year, so that unless the "human" side of the sheet is kept from contact with the parts of the bedding less often, or never, washed, there is certainly a risk to health. Especially is this the case in public institutions where sleeping accommodation is provided.

THE HOLT SANATORIUM, NORFOLK.

ONE of the few sanatoriums in the country for consumptive children, the Holt institution in Norfolk, which was temporarily constructed to accommodate 20 children, has now been in existence for four years, and has done excellent work. During the last six months of 1909 there were 107 applications for admission, but for want of accommodation only 18 cases could be received. This state of things is very regrettable when it is considered that the only means of stamping out this terrible disease is to deal promptly with cases in their early stages. It has been decided to erect permanent buildings at Holt, and with this object in view the council of King Edward's Hospital Fund has promised a grant of £500. The cost of erecting a permanent building to accommodate 40 children will be £6000, and a special appeal for this sum has now been issued by the committee of management of the institution, it being a stipulation of King Edward's Hospital Fund that the grant shall be claimed within two years. Any appeal with the object of helping to free the country from tuberculosis, a disease which it is estimated claims 60,000 lives annually, should meet with a ready response; but when, as in the present case, the appeal is also made on behalf of the little child, the amount of money asked for should be at once forthcoming. Donations and subscriptions may be paid to the Sanatorium Account at Messrs. Hoare's Bank, 37, Fleet-street, E.C., or may be sent to the honorary secretary, Mr. T. H. Wyatt, M.V.O., at the London offices, 68, Denison House, Vauxhall Bridge-road, S.W., by whom all particulars will be gladly supplied.

THE BAT AND BALL CLUB.

Princess Ludwig of Löwenstein-Wertheim distributed the toys to 1000 destitute boys and girls at the annual summer entertainment of *The Ladies' Field* Bat and Ball Club on July 26th. The fête was at the headquarters of the London Scottish, Buckingham Gate, by kind permission of the commanding officer, and proved a great success. The little guests were drawn from the Ragged School Union, the Church Army, Chelsea, the Waifs and Strays, Children's Happy Evening Association, Brompton, Invalid Children's Aid Society and Dr. Barnardo's Homes, these last being newly admitted children from off the streets. On arriving they were welcomed by the martial strains of the pipers and buglers from Dr. Barnardo's, and then sat down to a substantial repast. Afterwards "Punch and Judy" gave huge delight to the happy youngsters. The stacks of cricket bats and balls, battledores and shuttlecocks, racquets, tops, and dolls rapidly diminished as the boys and girls filed by and received their presents. The Bat and Ball Club was, we are informed, inauguarated some 18 months ago to interest the children of the better classes in the children of the poor, and this is the fourth entertainment the club has given since its inception. The club is justifying its existence, and we are happy to bring it to the notice of our readers, for it has its distinctly sanitary side. To bring joy to little children, and to provide them with an incentive to orderly recreation, is truly to work in the cause of public health.

AN EYE DIAGNOSIS CHART.

Dr. Chas. A. Adair Dighton has sent us a specimen of an eye diagnosis chart which has been drawn up for him by the Medical Supply Association (Gray's Inn-road, London). The object of the chart is to combine on one piece of paper, perforated for easy filing and subsequent reference, the full history of the case, the ophthalmoscopic phenomena, and details of treatment. Columns are also ruled in which a note of the fees paid can be kept. We can understand that such charts may be of distinct value in consultant work.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

CONGRESSES are now getting so numerous that we have thought that a diary like the one printed below might be of service to our readers. With that idea we shall repeat it occasionally, with any necessary additions or subtractions. The following Congresses, Conferences and Exhibitions are announced for 1910:—

August 1st–7th (Brussels and Liège).—Congress of French-speaking Psychiatrists and Neurologists.
,, 2nd–7th (Paris).—Third International Congress on School Hygiene.
,, 4th–10th (Brussels).—Iuternational Congress of Legal Medicine.
,, 21st–26th (Brussels).—International Home Education Congress.
August 31st (Sheffield).—British Association for the Advancement of Science.
Sept. 5th–10th (Brighton).—Congress of the Royal Sanitary Institute.
,, 10th–14th (Brussels).—Second International Congress of Occupational Diseases.
,, 13th–15th (Brussels).—International Congress on Radiology and Electricity.
,, 18th–24th (Königsberg).—Eighty-second Congress of German Scientists and Medical Men.
,, 22nd–27th (Toulouse).—Sixth French Congress of Gynæcology, Obstetrics, and Pædiatrics.
,, 22nd–28th (St. Petersburg).—Fifth Iuternational Congress of Obstetrics and Gynæcology.
,, 27th–30th (Vienna).—Eighth Internatioual Physiological Congress.
Oct. 1st–5th (Paris).—Second International Conference for the Study of Cancer.
,, 3rd–7th (London).—Sixth London Medical Exhibition.
,, 3rd–7th (Berlin).—International Congress on the Care of the Insane.
,, 4th–8th (Brussels).—Second International Congress of Alimentary Hygiene.
,, 13th–15th (Paris).—Eleventh Freuch Congress of Medicine.
,, 16th–22nd (Barcelona).—First International Spanish Congress of Tuberculosis.

In 1911:—
May–October (Dresden).—International Hygiene Exhibition.
August or September (Berlin).—Third International Laryngo-Rhinological Congress.
September (Brussels).—Exhibition of Fractures.
October (Cologne).—International Congress of Criminal Anthropology.

In 1912:—
September (Washington, D.C.).—Fifteenth International Congress of Hygiene and Demography.

In 1913 the only fixture so far is in London, where the Seventeenth International Congress of Medicine will take place.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 27th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
July 21	29·61	S.W.	0·29	109	71	60	61	62	Cloudy
,, 22	29·68	S.W.	0·08	103	66	58	58	59	Cloudy
,, 23	29·77	N.W.	0·07	110	67	57	57	61	Cloudy
,, 24	30·02	S.W.	...	89	61	52	55	57	Cloudy
,, 25	29·46	S.W.	0·11	123	67	53	57	59	Raining
,, 26	29·67	W.	0·11	100	62	53	52	54	Raining
,, 27	29·99	S.W.	...	119	65	53	55	60	Fine

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

TUESDAY.—5 P.M., Mr. H. G. T. Fairbank: Deformities, illustrated by cases, specimens, skiagrams, and sketches. (Lecture VII.). (Post-graduate Course).

THURSDAY.—5 P.M., Mr. H. G. T. Fairbank: Deformities, illustrated by cases, specimens, skiagrams, and sketches. (Lecture VIII.). (Post-graduate Course).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (2nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (3rd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (4th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (6th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (9 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

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A Clinical Lecture
ON
THE STATUS LYMPHATICUS IN ITS RELATIONS TO THE USE OF ANÆSTHETICS IN SURGERY.

Delivered at University College Hospital,

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GENTLEMEN,—The subject of the status lymphaticus or lymphatism has acquired such importance recently that I feel no apology is needed for introducing it to you in this clinical lecture. Although the group of pathological changes in the tissues and clinical symptoms associated with them have been recognised for many years, yet it is only quite within recent times that attention has been called to the condition as constituting a definite danger associated with surgical anæsthesia. We have learned a good deal about these cases of lymphatism, and have by our increased familiarity with their records begun to appreciate how little can we rely upon our present knowledge when any attempt is made to explain the underlying causes operative in certain deaths occurring under anæsthetics when the patients suffer from status lymphaticus. It must be admitted that during life the diagnosis of the status lymphaticus is often rather matter of guesswork than based on any definite or precise knowledge; that although the pathological findings are fairly uniform, yet they present no clear indications why persons who suffer from the characteristic pathological lesions should fall victims to sudden death during anæsthesia. Indeed, even if we admit that, as some authorities have asserted, most sudden deaths for which no obvious reason appears to exist are probably due to the status lymphaticus, it is difficult to understand the mechanism of such deaths, and still less easy to appreciate why they should occur in association with agents which produce narcosis. It is abundantly clear that, even if the condition called lymphatism is in fact a disease in the sense that myxœdema is a disease, it is displayed in many ways and results in death under various and diverse conditions, and such deaths often arise wholly independently of the use of anæsthetics. Obviously we need exercise great caution in arriving at any conclusions about these fatalities under anæsthetics. It is necessary in every case to be sure that the death arose through the action of the drug and not merely coincidentally with its employment. It is not enough for us to find certain pathological conditions occurring in necropsies in order to place them in a causal relation with the death.

Owing to the difficulty of diagnosing with certainty the condition we call status lymphaticus during life we are unable to determine what is the incidence of lymphatism among the living. Many persons assert lymphatism to be a common disease, and if it is so may it not be possible that the true incidence of fatalities under anæsthetics among persons of this diathesis is not greater than that of persons suffering from any other depressing disease, such, for example, as diabetes or tuberculosis? Again, the pathological and clinical signs which have been associated under the heading of status lymphaticus by different persons are rather sharply divided, some being associated with respiratory, some with circulatory forms of death. We may perhaps remove certain of the difficulties by examining in detail the leading features of these cases under the headings of (1) diagnosis; (2) clinical symptoms; (3) modes of death; (4) pathological phenomena; (5) examination of deaths under anæsthetics occurring in persons apparently of the lymphoid state; and (6) indications in practice in dealing with cases which suggest the presence of such a disease.

DIAGNOSIS.

The patients are usually infants or young persons. The latter are tall and weedy individuals. The skin is fair, clear, and pale, but not necessarily pallid; later in the disease the complexion may become pasty (Hufeland), but this is not a constant sign. The temperament is a curious blend; the patients are slow but highly intelligent, shy and self-conscious, and unduly affected by physical and moral stimulation. Thus they are intolerant of cold, and although highly emotional yet maintain an external calm, while their pulse—which is normally very slow, 50 to 60—will be found to be rendered quick and irregular by some trifling occurrence which may have annoyed them. Escherich describes the presence of much subcutaneous fat and hyperplasia of all the lymphoid tissues. The thyroid gland is enlarged in about 50 per cent. of the cases, and, as has been pointed out by Professor John Berg, the condition frequently coexists with the symptoms of Graves's disease, and probably accounts for some, if not all, of the sudden deaths which occur during operations upon patients suffering from exophthalmic goitre. The tonsils are chronically enlarged, and the nasopharyngeal vault is commonly filled with adenoid vegetations. The lymphatic glands, especially the cervical, show enlargement, although owing to the quantity of subcutaneous fat it is difficult in many cases to palpate them. The mesenteric glands and the spleen are described as commonly hypertrophied and are palpable in many subjects. Dr. W. McCardie, who has collected many of the published cases and described with much care others in his own practice, lays great stress upon the constant presence of hypertrophied lingual follicles as well as lymphoid nodules in the sinus pyriformis, anterior surface of the epiglottis, and pharyngeal wall. Hochsinger states that the thymus, which appears to be not only unduly persistent but greatly hypertrophied in these cases, may sometimes be seen as a pulsating tumour rising above the episternal notch. Even when not seen it may be percussed and gives a shadow when a radiogram is taken. However, as Mr. R. E. Humphry points out in THE LANCET, dulness behind the upper end of the sternum is of little diagnostic value.

CLINICAL SYMPTOMS.

Mr. Humphry has examined a number of children and has shown that at the age of four or thereabouts it was impossible to obtain reliable evidence of the presence of the thymus by means of careful percussion, although the thymus is present at this age and should give some dulness if percussion is to be relied upon in diagnosing the thymic state. The positive sign may be accepted, the negative must not be taken as of any value. The blood is, according to Paltauf, deficient in hæmoglobin, and lymphocytosis is commonly present. Among conditions found associated with the status lymphaticus may be mentioned Graves's disease, cretinism, epilepsy, rachitis, and infantilism. Although no objective circulatory symptoms beyond occasional brachycardia can be relied on, it may be noted that in several of the fatal cases the heart sounds were remarked to be "flappy" and distant, but on the other hand many children in this state were noted as being apparently healthy looking and without any obvious morbid symptom beyond enlargement of the tonsils and the presence of post-nasal adenoid growths.

Dr. Sidney Phillips has recorded a case which illustrates extremely well another type of patient in whom dyspnœa is the prominent symptom. The distress, at one time called thymic asthma, is often associated with a peculiar brassy cough, and exists without any obvious cause. In Dr. Phillips's case a radiogram was taken to see if any foreign body could be found in the air passages, but apparently in this case either the thymus gave no indication on the screen, or the shadow was overlooked in the search for the foreign body. It thus appears that unless so-called thymic asthma is present none of the clinical symptoms are sufficiently distinctive to establish a diagnosis, although when the type is borne in mind, and it is found associated with enlarged lymphatic glands and hyperplasia of the tonsils and lymphoid tissues, a tentative diagnosis may be made.

MODES OF DEATHS.

When we come to the modes of death we find two very well-marked types: the sudden or cardiac type, which seems to be the one most commonly associated with anæsthetic fatalities, and the more gradual or respiratory type—a type which Mr. Humphry is inclined to believe arises through the central nervous system. Thymus-Tod, a condition closely associated with, if not identical with, status lymphaticus, falls into the latter type, as in it the thymus is extremely large and death arises from mechanical pressure. In it the mesenteric glands are not altered, while they are commonly enlarged in the status lymphaticus. The mechanism of

death is by no means clear when the various apparently distinct types are associated. At one time it was thought that the death was uniform and mechanical, and the cause was to be sought in the constantly enlarged thymus. Many authorities now contend that unless this gland is enormously hypertrophied it does not press injuriously upon the trachea or blood-vessels. In very young children, in whom the trachea is more liable to be flattened, mechanical pressure certainly constitutes a factor in bringing about the fatal issue. Marfau has met with obvious cases of this. Further, surgical operations upon the thymus, thymopexia or extirpation, have been undertaken by Kœnig, Perrucker, and Siegle, and the symptoms due to thymic pressure have been relieved. It is obvious, however, that we cannot accept the explanation of mechanical suffocation as having caused most of the deaths in lymphatism. If, as Professor August Hammar has suggested, we regard the thymus gland as a body which produces an internal secretion analogous to that of the thyroid, it is quite consonant with our knowledge of the behaviour of various ductless glands to suggest that the thymus may, under certain conditions, originate a toxæmia and, further, that the sudden deaths in status lymphaticus are the result of toxins acting directly upon the heart or nervous system. Paltauf and Escherich have advanced similar arguments, while Blumer is inclined to believe that the toxin is not necessarily a thymus secretion, but may find its initiation in the lymphatic glands, so that, he suggests, the status lymphaticus is in fact the result of a lymphotoxæmia. We do not at present know what part the normal thymus plays in the metabolism of an animal. Swale Vincent's experiments indicate that ablation of the thymus in guinea-pigs causes no obvious effect upon the animals after operation. and although Tarulli and Lo Monaco corroborate this for adult dogs, they affirm that thymus ablation in young animals does cause a transitory disturbance of nutrition, a lessening of muscular vigour, and a diminution of the number of red corpuscles and the quantity of hæmoglobin. Swale Vincent further asserts that extracts of thymus possess depressor effects, but since such extracts share this property in common with extracts of most other tissues we are not able to endow them with any influence which is specific to them. As to the physiological effects of the "internal secretion" hypothecated by Soehla and Hammar, we know little or nothing that is precise or is supported by definite experimental evidence. When we pass to the pathological phenomena of status lymphaticus we are able to frame a more definite picture of the results of the disease.

PATHOLOGICAL PHENOMENA.

Besides the objective counterparts of the lymphoid hyperplasia in the lymphatic glands of the neck, axillæ, groins, we discover similar conditions more or less apparent in the mediastinum and mesenteries, although the degree and extent of this glandular overgrowth differ widely in the cases which have been examined. The thyroid is commonly affected but not by any means universally so. The thymus, although not obviously enlarged in all cases, is usually so and sometimes most markedly, and occasionally it is fatty, while various changes of a degenerative character have been described in individual cases. Gallatti insists upon a tendency to œdema, which reveals itself in the skin, and according to Ohlmacher in the lungs. Wiesel attaches much importance to the hypoplasia of the adrenal tissues which is described as appearing in status lymphaticus. The cells of these tissues, whose physiological function is to promote tonicity in the heart and vascular musculature and so maintain the blood pressure, are gradually destroyed, and as a result the hæmodynamic system becomes impaired, and clinically we find blood pressure is abnormal in sufferers from lymphatism. In certain cases narrowing of the aorta and thinning of the ventricular muscle with dilatation are recorded.

THE STATUS LYMPHATICUS AND DEATHS UNDER ANÆSTHETICS.

As early as 1614 Plater noticed that in various cases of sudden death which occurred without obvious cause the fatality happened to persons in whom post-mortem examination revealed the presence of an enlarged and persistent thymus. Paltauf, in 1889, collected a number of records of sudden deaths of adults and found that the necropsies demonstrated the pathological appearances which have been accepted as typical of status lymphaticus. Many deaths—all more or less sudden and not traceable to obvious lesions—have been recorded since that time. Some have been determined by the most trivial incident, such as the pricking with a hypodermic needle, the application of cold or heat to the skin; some have occurred in the night when infants have expired, and have been supposed to have been destroyed by overlying, and others have taken place during the performance of some trifling surgical operation. In these last instances a general or local anæsthetic has been administered, and so frequent have such cases been that it has come at the present time to be regarded as a fact that sufferers from the status lymphaticus run a peculiar risk of death if they are subjected to anæsthetisation. Kolisko states that he has for some years met with a yearly mortality of six cases, the patients dying under chloroform and all revealing the symptoms of lymphatism. Examination of the records of deaths under chloroform at the Gratz Hospital for Children shows that during the last 20 years all the chloroform deaths have revealed the signs of lymphatism. Hedinger also asserts all cases dying under chloroform have in his experience suffered from lymphatism. Blake records five deaths due to this state, three under anæsthetics and two independent of such drugs. Two deaths have been mentioned, one by Horoszkiewicz when tropacocaine was locally injected, and one by Nettel which occurred during the infiltration of the subdermic tissues by Schleich's method. Dr. McCardie, in his admirable papers on the subject, has referred to these, and has collected 30 cases associated with anæsthetics. Seventeen died while chloroform was used—six with ether, five with mixtures of chloroform and ether, and two doubtful ones occurring after nitrous oxide gas. Of these last one patient was stated to be very anæmic, the other was a cretin without any thyroid body; this patient had previously taken nitrous oxide gas without any mishap or bad symptoms. The ages of the 35 persons under review were between early infancy and 55 years, with an average of 16. The incidence of death appears to be equal in the sexes. Mr. Humphry records five cases. Of these one died during the use of chloride of ethyl, four had not taken any anæsthetic. In Dr. Phillips's case no anæsthetic had been administered. Dr. Vintras, although referring to an experience of several cases, does not specify the number or trace any connexion between their sudden death and the inhalation of an anæsthetic. In this connexion it is at least significant to notice that the operation upon the thyroid of persons who suffer from Graves's disease, a condition which we have seen is commonly associated with some, or all, of the pathological phenomena found in the status lymphaticus, is attended with a peculiar danger of sudden death, and the patients not infrequently succumb whilst under, or immediately after, the cessation of the anæsthetic, and these fatalities have been in some instances put down as deaths due to poisoning through an overdose of the anæsthetic. It is not improbable that many of these patients were subjects of the status lymphaticus, although as no special attention was paid in the necropsies to the specific lesions of that disease its presence may very easily have been overlooked.

That this assumption is less improbable than may appear is shown by the experience of many of those who have made a special study of the condition. Unless the necropsy is made by a pathologist who has had his attention drawn to the pathological appearances of lymphatism, it easily happens that while some lesions are not looked for, others attract no especial attention since glandular enlargement is found in a large number of diseases and may appear of no particular significance. Although taken as a whole, the congeries of signs of the status lymphaticus are very convincing, yet when many of the lesions are absent or slightly marked it is extremely easy to overlook them. They have been overlooked again and again, and many well-informed persons are still sceptical about the causal association of slight pathological lesions with the clinical evidence, again often very meagre, of status lymphaticus. If the toxæmic theory is correct the lymphatic state is a *condition*, not a *disease*, and its manifestations, whether pathological or clinical, must naturally appear slight or marked according as the degree of intoxication is small or profound.

Besides the cases of deaths under anæsthetics of persons subject to lymphatism, and those which occurred in Dr. McCardie's own experience, two deaths have taken place in London, both in the practice of specialists of recognised

kill. In all these cases it can be safely assumed that all the ccepted precautions were adopted, and great care exercised o avoid accidents. Recently an inquest was held upon a lady vho died on a hairdresser's premises, under circumstances vhich appeared to indicate that the sudden death was due to tatus lymphaticus. The necropsy confirmed the suspicion. Iowever, as the powerful anæsthetic tetrachloride of carbon vas employed in this case as a hair-wash, its fumes were hought by some expert witnesses to have been asso- iated with the fatality in a causal relation. Let us xamine these cases. When we analyse the records we are truck by the fact that the surgical procedures which were nvolved were comparatively free from danger. In one case ome hæmorrhage is mentioned, but, speaking generally, it is lear that the patients under normal conditions were not laced in any special danger from the surgeon's point of iew. The deaths usually took place at the end of the opera- ion, although in some instances a little more anæsthetic had een administered to the patient in order to prolong the eriod of unconsciousness. One knows that there is a special anger in suddenly "crowding on" an anæsthetic when a atient has been allowed to "come round" towards the end f a case. No special or uniform difficulties seem to have een met with in the induction of anæsthesia, and in nost or all of the cases no apprehension was enter- ained before inhalation was commenced that a normal eriod of anæsthesia would not be readily prodnced. The tatus lymphaticus was not suspected or recognised before he anæsthetic was administered, although the patients were arefnlly examined. This examination was conducted with igilance, especially in certain of the cases, as the delicacy f the patients was remarked. In one person, a male, the resence of an enlarged thyroid was detected, and its pos- ible dangers were considered by the anæsthetist in selecting the anæsthetic and method to be adopted. It is evident, herefore, that even heedful examination may fail entirely o detect any evidence of the condition unless it is looked or, and looked for most thoroughly. The mode of death appears in most or all cases to have been sudden and circu- atory in type, for, although it is recorded that in some of the cases resuscitative measures appeared to have been temporarily successful, yet death was in no instance pre- vented. In all these cases definite signs of status lym- phaticus were seen in the necropsies, although missed when examined clinically. I am aware that the statement I am about to make that many persons suffer from this lymphatism and take anæsthetics with safety has not been capable of being verified in the past, but may, I hope, be so when our knowledge is more clear. Dr. McCardie remarks that he thinks in many cases of danger, stopping short of death, under anæsthetics, the danger is due to the diseased condi- tion called lymphatism, although it was not recognised, and Dr. Vintras tells us that as they emerge from adolescence persons of lymphatic tendencies outlive the diathesis.

Taking all these facts and opinions into consideration, we are compelled, I think, to recognise that anæsthetics, if they have occupied a causal relation to the deaths, have done so only as supplying one possible factor among many others. In other words, that although these unfortunate persons are possibly more liable to die under anæsthetics than are normal patients, yet it is not on account of any special quality of any anæsthetic which is particularly obnoxious to the life of the person who suffers from lymphatism. These people die through heart failure—since for the moment I am excluding the cases of respiratory failure the result of mechanical pressure—and this circulatory collapse is brought about by some inadequate cause. Among such causes we must place the effects of the anæsthetic as well as the nervous "upset" incident to undergoing an operation, since nerve shock is so strongly evoked among hypersensitive and neurotic persons. It is only in this way that we can explain fatalities occurring when local analgesics are employed or trifling injections of such drugs as tropacocaine have been used.

There is, however, another reason which may lead us to regard general anæsthetics as specially dangerous to life in these cases. We have seen that chloroform alone, or in mixtures such as those of chloroform and ether, mixtures which, as Schäfer has shown, act merely as diluted chloroform, has been used in most of the fatal cases. That chloroform has been employed in most of these cases is partly due, no doubt, to the facts that (1) this anæsthetic is most commonly used in operations on the naso-pharynx and for extirpation of goitres; (2) for young persons and infants—for those persons, in fact, among whom most fatalities have occurred when lymphatism has been assigned as the cause of death; and (3) chloroform also is used very commonly on the continent, and the records of deaths in lymphatism have been more carefully kept there than in countries where ether is used in preference to chloroform. But, admitting these facts, it is at least remarkable that the anæsthetic which experimental research as well as clinical observation have shown induces both a fall in blood pressure and a depression of the cardiac function has been far more commonly employed in the fatalities arising in the lymphatic state. I think we should do well to recall certain facts insisted upon by those who have met with these accidents, which may explain this peculiar peril of chloroform as commonly employed. The method of giving the anæsthetic has been practically in every case either that of dropping chloroform upon a mask or injecting its vapour into the air-passages by means of a tube attached to a Junker's bottle supplied with a bellows. Many of the operations have involved some interference with lung ventilation, and especially with respiration—e.g., removal of tonsils and adenoid growths, in which the instruments and hands of the operator and commonly the depression of the tongue and lower jaw impedes normal breathing. The anatomical complication due to an enlarged thyroid or a persistent and hypertrophied thymus, or both together, although causing little or no perceptible respira- tory difficulties during consciousness, would undoubtedly produce some interference with breathing as soon as the anæsthetic had caused the tonus of the muscular and other tissues to pass into abeyance. It is the experience of all anæsthetists who have seen many cases of goitre or other disease about the upper and mid air-passages which tend to induce obstruction that stridor and dyspnœa develop as soon as anæsthesia is established. Indeed, it is a well-recognised fact that persons with respiratory difficulties learn little tricks of breathing, of posture, and so on, which perhaps unconsciously to themselves enable them to avoid the distress incident to their disease as long as they retain control of their senses. In such persons when conscious effort ceases respiration at once becomes difficult or impossible. Further, it is a remarkable fact about the sufferers from lymphatism that they are affected with less than the usual strength of anæsthetic vapour, their content, so to speak, is less for anæsthetics than is that of their normal brethren. Brachycardia, an irritable heart, a depraved blood condition evinced by an inadequate amount of hæmoglobin and lympho- cytosis, often associated with a tendency to exudation and production of œdema, stenosis of the aorta, are all at one time or another found in the status lymphaticus, and these abnormalities must play some part in prodncing tha disturbance of the hæmodynamics which so commonly ends fatally. If, as we have every right to believe, it is the fact that the blood pressure is usually lowered in these persons, and that owing to their peculiar heart condition the blood pressure undergoes a further rapid declension under chloroform, it is easy to understand how a percentage vapour safe in ordinary states would prove dangerous or even fatal in a patient in the status lymphaticus. This is so both because the lowest point of blood pressure where safety ends is soon reached and because the medullary centres are even at their best starved owing to the depraved condition of the blood constituents, and therefore incur depletive anæmia with terrible rapidity. The combination of anæmia with toxæmia completes the vicious cycle and consti- tutes a grave danger. This result would be further arrived at should even slight asphyxial conditions arise inter- currently. As I have said, some degree of asphyxia, even though trifling, does arise through the exigencies of the surgeon in many operations, and especially is this so in those operations which sufferers from lymphatism are called upon to undergo. It is not necessary to insist upon the enhanced danger arising through the viscious circle to which I have drawn attention, one which may be brought about if the theory of a lympho-toxæmia or other toxæmia is present in the status lymphaticus. The heart, the blood-vessels, and the nervous system under such conditions would enter readily into danger if even a slight chloroform toxæmia were allowed to occur, and the most trifling overdose would prove fatal.

INDICATIONS IN PRACTICE TO ENSURE SAFETY.

When we turn to prophylaxis we are upon more difficult ground, since, unless we adopt the attitude of believing all delicate children and all persons with glandular and goitrous growths are possibly sufferers from lymphatism, we may readily overlook the nature of the case and neglect the necessary precautions. The cardinal features in these precautions which knowledge of the condition teaches us are the employment of a low strength vapour of chloroform and avoidance of even the slightest interference with respiration. I have no doubt that the employment of oxygen ensures this last most important point, especially when from the very nature of the operation some obstruction to breathing may arise during the surgical manipulation. If, as I think our present knowledge must convince us, we should adopt a regulating inhaler in every instance, at all events, during the induction of anæsthesia, and supply oxygen *pari passu* with the chloroform, and commence the inhalation with a very low tension vapour, such as a ½ per cent., we are practically adopting a method which offers safety to all, whether normal or afflicted with the status lymphaticus. It is also important to be quite assured that complete anæsthesia is obtained before a surgical manipulation is commenced. A uniform, even if light, narcosis must be maintained throughout the operation. The transitions from light to deep narcosis, so difficult to avoid unless a definite percentage is administered, offer peculiar dangers to such patients and must be rigorously avoided. As to the employment of ether instead of chloroform, it should be borne in mind that all obstructive conditions, such as those due to goitre, are intensified by ether, and they certainly contra-indicate its use. If no obvious cause of obstruction to respiration exists and we can be certain thymic spasm may not be provoked by etherisation, ether possesses an advantage in that it will, if administered with care, raise blood pressure and not embarrass the heart. If, however, it interferes with respiration, as it may, it will react prejudicially upon the infirm heart and bring about the very danger its use was adopted in order to prevent. Indeed, the important question of the choice of the anæsthetic for these cases may be summed up by saying that it is extremely doubtful whether any one anæsthetic is, as such, safer than another; the danger lies rather in the manner in which it is administered. When obstructive symptoms are present, or pathological lesions are known to exist which may cause obstructive symptoms to arise during the administration, nitrous oxide and ether are fraught with danger. Their danger is due to their tendency to produce venous engorgement and so to hamper respiration. In persons who although subjects of the lymphatic diathesis have no marked symptoms of respiratory obstruction, even when the tonsils are full and flabby, the use of nitrous oxide or ether is not necessarily contra-indicated. If used by methods which are not provocative of spasm or of engorgement of the tissues of the tonsils and faucial arches nitrous oxide gas may, I think, be safely employed, but should be given with oxygen. Ether, although less certainly free from the risk of producing some respiratory difficulty and venosity of the blood in such patients, does not appear to be especially dangerous, and its use again must be adopted by methods which allow free dilution of its vapour with air or, still better, with oxygen.

Chloride of ethyl has passed out of favour for some reason in the status lymphaticus. Mr. Humphry contests this prejudice and extols this drug. Personally, I should place this anæsthetic in the same category as chloroform, both because its dangers are those of chloroform and because experience has convinced me that its action is somewhat uncertain. In many cases it answers well, but dangerous symptoms are apt to arise in others without any apparent reason. In the type of case of lymphatism which offers no obvious respiratory difficulty, the dangers are not less than in the type associated with dyspnœa. In it, as in every case when the status lymphaticus is present, the circulation is carried on at a disadvantage. The heart is asthenic, often dilated, and the blood pressure liable to sudden and undue depression. Chloroform given by any method which does not allow the administrator to know the precise strength of vapour he is employing must be a dangerous anæsthetic. Its danger is not insuperable, but very definite. The number of deaths under chloroform condemn the methods, it appears to me, rather than contra-indicate the employment of the drug. If you once appreciate the salient requirements of these patients and give chloroform in such a manner as to fulfil these you will hardly find a greater fatality among the cases of lymphatism than amongst other delicate persons. These requirements are: (1) to restrict the strength of vapour of the anæsthetic to one below the usual one and avoid sudden variations in it; (2) to prevent any interference with the breathing due to the anæsthetic or the operation; (3) avoid raising the head above the body level, so that the medullary centres are not drained of blood; and (4) obviate as far as possible loss of blood and lessen the strength of the anæsthetic vapour as soon as hæmorrhage occurs.

The great question which interests the public is, Does the status lymphaticus materially increase the risk of patients who have to face inhaling a general anæsthetic, and can that risk be definitely appraised? Probably we have not as yet accumulated sufficient knowledge either of the condition or the incidence of death under it, associated or independent of inhaling anæsthetics. The view urged by some, that every case of death under an anæsthetic is probably due to status lymphaticus, is far too vague and wide a statement to carry conviction to my mind, especially as it is not supported by anything like an adequate weight of evidence. If we are to accept the view that glandular enlargement, associated with lymphoid hyperplasia, is a proof of a child suffering from lymphatism, then that state must be a very widely distributed one. The diathesis or disease generally call for surgical interference sooner or later, and so such persons face the ordeals of anæsthesia and surgery more commonly than the population as a whole, and the incidence of fatality would mathematically work out at a higher figure. As far as our knowledge goes at present, we are compelled to admit the case against anæsthetics as the cause of death in the status lymphaticus is not proved. Their danger is probably the same as that incurred by any feeble child or adolescent and not more. The diagnosis of a case of lymphatism would not be a contra-indication to operation or the use of an anæsthetic; it would, however, compel us to take especial care both in the direction of building up the physique of the patient before operation, when this is possible, and in the direction of selecting one of those methods of giving the anæsthetic to which I have referred above rather than permitting the less reliable plans to be employed. These cases are not to be undertaken in a light-hearted way; they need the utmost care, experience, and special attention; and no one who values his peace of mind should embark upon the anæsthetisation in a case of lymphatism without adequate knowledge and skill and more than common experience. Given a competent anæsthetist and a full recognition of the possible danger of overlooking the delicacy and physical feebleness of children in lymphatism, I think we may reassure the public about the reputed perils of this state. If all doubtful cases were brought to the anæsthetist for his examination and expert judgment some days antecedent to the employment of the anæsthetic, it is probable there would be fewer fatalities and certainly fewer and less severe after-effects from inhaling anæsthetics.

REMOVAL OF THE APPENDIX IN THE "QUIET" PERIOD.

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IN the treatment of appendicitis there is no doubt that the ideal result would be obtained by removal of the appendix within 24 hours of the commencement of the disease. By this means the mortality would be reduced to the smallest possible extent, the septic manifestations of the disease would be avoided, as well as many days or weeks of illness with much anxiety and expense. For reasons which are too numerous to mention this "advice of perfection" is not always possible, or accepted when given; one reason may be that the public have heard of so many friends who have recovered after an attack that they can only look on that side of the question in their desire to escape from immediate operation. They do not know anything of the other side of the question, that during one year more than 2000 deaths occurred in the United Kingdom from appendicitis alone. Whenever this stubborn resistance to immediate operation

is found, the duty of the profession is to endeavour to be able to say when it is safe to permit postponement and when immediate operation is imperative.

When operation is performed in the quiet period, the patient having recovered from one or more attacks, we want to know the rate of mortality of the operation, the result as regards freedom from subsequent abdominal trouble, the time required for the completion of the after-treatment, and the condition of the abdominal wall afterwards.

I have yielded to the request of some members of the profession and put together a series of consecutive cases in which the patients were treated by one method of operation, hoping thus to give facts on which statements can be founded of much more value than the expression of any individual opinion. I have therefore taken the first 400 cases operated on by myself as being a convenient number—one which should give a fair average of what may be expected. Sufficient time has elapsed (more than 12 months) since the last operation to enable me to speak with confidence as to the result obtained by the operation. The cases were all of them operated on as appendix operations at a time selected by myself, and amongst them are none in which operation was required by the urgency of the attack. The cases in which abscess had been undoubtedly present are of special interest on account of the statement that these afford greater difficulty to the operator, and therefore operation is more dangerous. The following table gives a rough grouping of the conditions found at the operation as regards the appendix, also the ages of the patients:—

—	M.	F.	Under—						Over 60
			10	20	30	40	50	60	
Normal	1	1	—	—	1	1	—	—	—
Hypertrophy	1	—	—	—	1	—	—	—	—
Obliteration	1	2	—	—	—	—	2	1	—
Tubercle	—	2	—	1	1	—	—	—	—
Carcinoma	—	1	—	1	—	—	—	—	—
Catarrhal	100	82	4	48	77	27	19	6	1
Strictured	81	49	4	23	59	30	11	3	—
After abscess	43	36	11	22	24	13	5	1	3
Totals	227	173	19	95	163	70	37	11	4

The cases under the heading "after abscess" require further subdivision, but may for the present be grouped together. The normal appendices were removed at the request of the patients; in one instance the patient was a nurse who had been nursing a fatal case of suppurative peritonitis due to a gangrenous appendix. The case of hypertrophy was one of recurring attacks of colic in a youth in whom the appendix was empty and not inflamed, but eight inches long. In one case of tubercle, in which the cæcum was affected and required excision, the condition was primarily in the appendix; in the other it was associated with general tuberculous infection of the peritoneum, and it was not possible to say where the disease commenced. The case of carcinoma occurred in a young girl, and was published in THE LANCET some years ago.[1]

After a first attack it is quite impossible to give a trustworthy opinion as to the probability of further attacks in any case, nor can we tell what the character of the next attack will be. We know that, as a rule, the most dangerous attack is the first, but most surgeons have seen peritonitis after subsequent attacks, sometimes after several, and recovery cannot be assured. These attacks sometimes come on when the patient is far from help, and no one can say when the next attack will manifest itself. The advice which is given by "friends" is often accepted and the warnings of the medical man neglected, to the loss of valuable lives. An adult male, or a woman who is likely to have children is quite as dangerously situated, if possessing a diseased appendix, as a man who occasionally smokes a pipe in a powder magazine. That the wise person is the one who, having a diseased appendix, gets rid of it as soon as possible, is an undoubted fact to which there are few exceptions.

Of the 182 cases of catarrhal appendicitis, 44 underwent operation after the first attack, 37 after the second, 26 after the third, 7 after the fourth, and 68 after more than four attacks. In one patient, the subject of catarrhal appendicitis, the attacks of pain were so numerous that she thought she had had at least a hundred in about three years, the pain being severe at times and recurring every few days; there had also been more characteristic attacks with rise of temperature and a swelling in the side.

When stricture was the most marked pathological change (130) the appendix was removed after the first attack in 36, after the second in 33, after the third in 31, after the fourth in 10, and after many attacks in 20. In this group the average severity of the attack was greater than in the catarrhal group, and therefore there was less hesitation in applying for relief by operation.

In one woman there was an interval of ten years before the second attack came on; here it is probable that the first attack was due to a catarrhal inflammation which left little change in the appendix—the stricture present at the operation was evidently not of such a long standing. Another patient suffered from recurring attacks for a period of 15 years before she could be induced to submit to operation, and she never knew when another attack might not lay her aside. In recurrent attacks it was not unusual for the employer to insist on operation or dismissal, the frequent absences due to illness making serious disturbance of business. The intervals between attacks therefore varied very much, and no rule could be drawn from this to help in the diagnosis of the presence of a stricture, but it was a matter of remark how very often extensive stricturing was found with a history of only one attack and that a mild one.

In the removals after localised suppuration (79) the operation was performed after the first attack in 50, after the second attack in 12, after the third attack in 4, and after more than three attacks in 13. In more than 40 the operation was performed within the first three months after apparent healing of the abscess, whilst in 11 there was a persistent sinus, and treatment other than removal of the appendix had failed to effect a cure. Once or twice these operations were exceptionally severe on account of the density of the adhesions and the depth of the appendix from the surface.

The third omentum—ileo-cæcal omentum. A, Appendix. C, Cæcum. I, Ileum. 1, Thin double layer of omentum containing vessels and fat. 2, Meso-appendix.

The condition of the appendix in the catarrhal cases was as follows: in 31 it was much thickened; there was evidence of old perforation in 20; there was a kink or twist in it in 32; concretions were found within the appendix in 20; and in 4 instances there were more than one. In 5 of these there was a foreign body. In only 16 could a definite tumour in the appendix region be felt before operation, whilst in 3 concealed abscesses were found amongst the adhesions. In 78 the appendix was adherent to surrounding parts. In one male adult there was a very unusual development of the ileo-cæcal fold, so that it formed a definite third omentum (ileo-cæcal omentum of Little).

Amongst the cases of stricture, in 20 there were two distinct of the lumen, and in 27 the appendix was also

[1] THE LANCET, Sept. 23rd, 1905, p. 889.

kinked or twisted. In 17 there had been perforations beyond the stricture, and in more than one case of double stricture a perforation beyond each, whilst only 8 concretions were found. There were varying adhesions in 69, the appendix being occasionally quite covered over; in several these were very firm. In 19 the appendix was dilated beyond the stricture, forming a mucocele; in other 19 it was bulbous and much thickened, whilst in 10 there was a chronic empyema of the part. In only 8 was a tumour felt before operation.

Of the 79 cases in which operation was performed after a definite attack of localised suppuration, 30 were "catarrhal" and 49 strictured, with the exception of one in which the appendix was much contracted generally. The situation of the stricture is of importance, one placed towards the end being far less dangerous than one situated near the cæcum, the amount of septic material diffused when rupture of the appendix takes place in the latter being so much greater in quantity. Here there were 15 "proximal," 26 "distal," and 8 placed in the middle third of the passage.

No less than 46 had evidence of old perforation; whilst in 15 the appendix contained a concretion at the time of removal, and in 4 instances concretions were found in the peritoneum. In one case hairs were found in it, and in another an ascaris was taken out. Marked dilatation was present beyond the stricture in 24. In 1 there was a polypus of the appendix. In 69 the appendix was adherent, sometimes strongly so, and in 6 it was necessary to suture a hole in the cæcum. In 21 inspissated pus was found in the region of the appendix.

In 4 cases there had been obstruction of the bowel from adhesions, whilst in 3 removal was effected after urgent operation for intraperitoneal rupture of the abscess.

Complications of the Disease.

In this series of 173 female cases it was necessary to remove the ovary for cystic disease in 13 (2 suppurating); in 1 a dermoid was removed, and in 1 a cyst of the broad ligament. Some of these were very adherent in Douglas's pouch as a result of previous inflammation. The routine practice is to examine the pelvic organs in all female cases. This should be the invariable rule.

Caseating glands were removed in 5 of the 400 cases, whilst in several some other operation was performed at the same time—Bassini's operation 6, for femoral hernia 1, adenoma of the thyroid, hæmorrhoids, fissure, &c.

In one patient with a stricture of the appendix a late operation for gall-stones was required; in another, also suffering from stricture, a renal calculus was excised.

Complications in the After-treatment.

In 5 there was superficial vein thrombosis in the left leg, the temperature being normal before the onset of the thrombosis, and the wound without suppuration. These were mostly in instances where the patients were kept too strictly in one position after the operation.

In all ether was the anæsthetic employed, and three patients developed ether bronchitis after the operation. In one an attack of influenza caused alarm, because the symptoms were not unlike those of pylephlebitis, but the diagnosis of influenza was unfortunately confirmed by the fact that the patient's wife contracted the disease from him and died from it. With these exceptions the after progress was mostly uneventful.

Results.

As regards mortality, &c.—One case proved fatal, the patient dying from acute peritonitis due to infection by the staphylococcus pyogenes aureus. He was a seaman, 31 years of age, admitted in 1904. (It may be added that there has been no fatality in this class of case since that date.) Suppuration was met with in the after-treatment in 7 per cent. of all cases. In one instance this continued for a long time, the patient having been infected from a case of septic wound of the chin under treatment in the ward for recurring hæmorrhage. This was also due to the staphylococcus pyogenes aureus.

As regards the subsequent strength of the abdominal wall.—In only one patient is there any hernia, a stout man with flabby muscles, in whom it is probable that one of the stitches in the posterior sheath gave way. In one of the earlier cases, in which there was a local weakness, gymnastic exercises have effected a cure. There is now no hernia, although the patient has had a child.

The strength of the abdominal wall is shown by the fact that no belt is required, and the patient can undergo any amount of bodily exertion without danger. The usual trouble is to induce a patient to take sufficient exercise. He has heard that it is risky. Some "friend" tells him that everyone must be careful and wear a belt. As regards the local condition, there is no risk, but frequently a patient finds that the mental effect of the illness makes a holiday advisable.

As regards freedom from pain.—In one case of colitis in the early stage much relief has been afforded; in two others some relief was obtained from the attacks of pain, but the disease has apparently been very little influenced by the operation. The question of appendicostomy is not considered here. In a man whose appendix was removed for stricture subsequent attacks of typhlitis were experienced, with iliac swelling in each, and some months after operation he passed a large egg-shaped fæcal concretion, after which these attacks ceased.

One patient was re-admitted to the hospital two years after removal following a severe attack and died. He had a band obstructing the lower ileum, with symptoms of seven days' obstruction. Immediate operation was too late to save him.

In more than one neurotic patient there has since been occasional complaint of pain; in one woman who suffered from these attacks the omentum was found adherent in the appendix region, but the separation of this did not get rid of her complaint. She had undergone operations for gastro-enterostomy, nephrorrhaphy, and femoral hernia on the right side. She has probably some complaint of pain now. In the larger number there was no evidence of adhesions and no operation was indicated, relief being afforded by ordinary remedies; yet, from the character of the adhesions found in many cases at the time of operation and freed, there can be little doubt that obstruction of the bowels must have ensued in some had this not been done.

Method of Operation.

These patients were operated on by the method of temporary displacement of the rectus muscle which I suggested and performed for the first time some 15 years ago, and which is generally known in the profession by my name. It possesses the following advantages. It is applicable to all cases of operation in the quiet period; when the appendix is not adherent, it can be removed through an opening in the peritoneum the size of a finger. When the case is a difficult one the incision can be quickly extended upwards and downwards as far as necessary. The abdomen having been opened to the inner side of the appendix region, at a point where there are no adhesions to the abdominal wall, the area involved can be isolated by gauze packing and the appendix separated in full view of the operator. There is thus less chance of the tearing of important adhesions, and less likelihood of making holes in the adherent intestine, a most fatal thing if they escape notice; moreover, bleeding points can be readily secured. From this incision the pelvic organs can be examined with the finger, and disease affecting the right ovary or tube dealt with.

I am sometimes asked how long the operation takes; this, of course, depends entirely on the case. The surgeon who thinks that he is going to perform his appendix operations with the rapidity of lightning will soon meet with disaster. There are few operations in which it is so necessary to exercise caution. Only by doing so can continued success be assured by any method of operating. From the patient's point of view, it is a great boon not to be obliged to wear a belt for the remainder of his life.

For the skin sutures fish-gut is used, and for ligatures and sutures in other parts nothing but silk. This material is quite safe; catgut has not proved to be so. It is possible that the improved methods of preparation of catgut may make it more satisfactory now, but the same remark applies to the preparation of silk. If there is any doubt, it is possible to sterilise silk again by boiling in a few minutes. As far as possible the aseptic method is employed in all cases.

For the illustration I am indebted to Messrs. Constable and Co.

Harley-street, W.

THE PREVENTIVE AND ADMINISTRATIVE MEASURES FOR THE CONTROL OF TUBERCULOSIS IN NEW YORK CITY.[1]

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I DESIRE to express my warm appreciation of your kindness in affording me an opportunity to take part in this discussion. It seems fitting in one way that New York should be represented in a discussion in Edinburgh on the administrative and preventive measures to be adopted with reference to tuberculosis, for Edinburgh and New York are the two cities in which such measures were very early instituted and in which a coördinated scheme for dealing with the tuberculosis problem was rather early elaborated. The method of attacking the problem, however, in the two cities has been quite different, although the result so far as a complete scheme for the prevention of the disease is concerned, is not unlike.

To Dr. R. W. Philip and to Edinburgh belong the great credit of having established a special tuberculosis dispensary in the very beginning of the tuberculosis movement. This dispensary indeed may be said to have initiated the movement. From it Dr. Philip and his co-workers have gradually elaborated a most admirable and comprehensive scheme for dealing with the various phases of the question. Within the last few years to their voluntary efforts has been added the coöperation of the sanitary authorities in providing for notification, registration, disinfection, and other preventive measures.

In New York the procedure has been quite different. From the first the initiative came from the sanitary authorities. In 1886-87 I presented my first communication to the Board of Health urging the adoption of administrative measures for the prevention of this disease. Certain procedures looking towards the education of the public, and the registration of premises where deaths from tuberculosis occurred were then instituted, but nothing further was done until 1893 when a second communication on this subject was presented by the writer to the board. After considerable deliberation, in the beginning of 1894 the Board of Health adopted resolutions providing for a plan including partially voluntary and partially compulsory notification, sputum examination, disinfection of vacated premises, an educational propagandum, domiciliary visitation of tuberculous patients, and other similar measures.

The scheme adopted in 1894 has been gradually extended and elaborated by the sanitary authorities. For a long time there was strong and determined opposition from the medical profession and the laity. It was not until five or six years ago that the authorities began to have assistance extended through the coöperation of voluntary associations organised to deal with various phases of the problem, especially the committee for the Prevention of Tuberculosis, and later the Association of Tuberculosis Clinics, an organisation which was formed about three years ago, and the auxiliary of the Department of Health Clinics.

The conditions in New York so far as the administration of sanitary affairs is concerned are so different from those obtaining in Great Britain that I desire for a moment to refer to the situation there and to describe briefly the existing conditions.

The administration of all sanitary matters in the entire city of New York (with its nearly 5,000,000 inhabitants) is absolutely under the control of the Board of Health of the Department of Health of the city of New York. The Board of Health has been clothed by the State legislature with extraordinary powers and within the city of New York with exclusive jurisdiction. The State Board of Health of New York State is expressly exempted from any jurisdiction in New York City. The Board of Health of New York City has legislative, judicial, and executive powers. Its regulations on all matters pertaining to the public health are final, and there does not exist in any individual or in any body any power of review or revision of the action of the Board of Health excepting in the courts. A sanitary ordinance passed by the Board of Health becomes effective at the end of two weeks, and a violation of it is punishable as a misdemeanour by a fine or imprisonment, or both. The Board of Health also controls and administers the hospitals for infectious diseases and has the power to establish and extend such hospitals in its discretion, and in so far as funds for the purpose are made available by the financial authorities.

It will thus be readily understood that peculiarly favourable conditions exist in New York for the institution and development of any sanitary scheme, because the only legislative enactment required for the initiation of new measures is the action of the Board of Heath. It is not necessary to convince the general public, the medical profession, the legislative bodies, or even any lay boards as to the propriety or necessity of any sanitary procedure. The first and the final decision rest in the board, consisting of three members with a general medical officer as its adviser.

I do not think that any sanitary authorities anywhere have had granted to them such extraordinary and even arbitrary powers as rest in the hands of the Board of Health of New York City, and it might seem unwise to many to place such autocratic powers in the hands of a small body of men, even if these powers applied only to matters pertaining to the public health. The conditions existing in New York City, however, date back more than 40 years, and experience has shown that the authority vested in the board has not been unwisely, indiscreetly, or arbitrarily employed, and has been always in the public interest.

I should have perhaps added that the Board of Health has a squad of sanitary police, numbering about 100 men, who are assigned from the Department of Police to the Department of Health for the express purpose of enforcing the sanitary ordinances.

It will be readily understood that, given such conditions as exist in New York, the development of preventive and administrative measures with relation to tuberculosis might well go on in a normal, rational, and progressive way provided that the Board of Health was in sympathy with the movement. Such has been the history, I believe, in New York.

Before referring to the measures now in force, I wish to direct attention to the enormously increased difficulties there of every sanitary problem as compared with the conditions existing in any of the large cities of Great Britain or on the continent of Europe. These difficulties relate particularly to three features of the situation. First, the great density of the population existing in many parts of New York dependent upon the high and often insanitary tenement houses complicates all sanitary work. There are large districts in New York which have a population of from 600 to 1000 persons to the acre. I believe I am correct in saying that nowhere in any European cities does the population exceed 400 to the acre, and even this number is only found in some small districts in three or four cities. Second, the work of the sanitary authorities is rendered immensely more difficult because of the large proportion of the population which is foreign born, and which speaks only foreign language. There are comparatively large districts in New York in which German, Yiddish, Italian, and other foreign languages are spoken, and these districts are those in which the population is most dense. It is particularly, too, among these foreigners that the action of the sanitary authorities is regarded with suspicion, and the greatest difficulty is experienced in obtaining information as to cases of illness existing among them. It is naturally also among these foreigners that educational measures make the slowest progress. The circulars of information on sanitary measures issued by the Department of Health are often printed in eight or ten different languages. The third difficulty relates to the great variations and the extremes of temperature which exist in New York.

The present administrative scheme relating to tuberculosis is as follows:—

1. Notification and registration of all cases are compulsory. In 1894, with a population of 1,800,000, there were 4166 cases of tuberculosis reported. This was the first year under the scheme of partially compulsory and partially voluntary registration. Last year in Greater New York, with a population of 4,564,000, there were 41,890 cases reported, of which 16,223 were duplicates, leaving 25,667 new cases. It is believed that in the present year the

[1] A paper read at the Tuberculosis Conference at Edinburgh, July, 1910

total number of notifications will reach 47,000 or 48,000, and the new cases 28,000.

2. Sputum examination. The Board of Health of New York City was the first sanitary authority in the world to establish municipal bacteriological laboratories, and it was in New York that on my recommendation in 1894 provision was first made for the free bacteriological examination of sputum to assist in the diagnosis of pulmonary tuberculosis. The action of the Board of Health in New York in this respect has been widely followed throughout the United States and in Great Britain. In 1894, the first year in which this procedure was in effect, 511 specimens were examined and last year 36,031 specimens were examined. I need not refer further to the importance of this provision in any scheme for dealing with tuberculosis, as it is a measure the importance of which is well recognised in Great Britain.

3. Educational propagandum. Sanitary authorities have always placed great importance upon educational measures. In this work in recent years the Department of Health of New York has received most important assistance through the coöperation of the Committee on Tuberculosis of the Charity Organisations Society and the Association of Tuberculosis Clinics. Great impetus was given to the popular interest and knowledge of the tuberculosis problem in New York City by the tuberculosis exhibit of the last International Tuberculosis Congress. As many of you may know, after the termination of the Congress in Washington arrangements were made for the transfer of the entire exhibit to New York City, where it was on view for a period of six weeks, during which time nearly 800,000 people visited it. The Tuberculosis Committee has shown in the city almost continuously for the last three years a travelling exhibit. This goes from one part of the city to another, being installed in empty stores at central points where it will readily attract attention and be accessible to a large number of persons.

Hundreds of thousands of circulars of information on tuberculosis, designed to reach various classes of the population, have been prepared and distributed by the Department of Health. About two years ago nearly 800,000 circulars, prepared especially for school children, were distributed in the public and parochial schools of New York. Stereopticon exhibitions are given in summer in the public parks; lectures before various organisations, in churches, and the public schools, &c., are regularly given.

4. Premises which have been vacated by death or removal of tuberculous persons are either disinfected by the authorities or renovated by the owner under the supervision of the Board of Health. To a very large extent renovation has taken the place of disinfection. The sanitary authorities have always encouraged this procedure as much as possible, and where the sanitary conditions in vacated apartments are bad have compelled renovation by orders issued on the owner of the premises. In such cases the premises are placarded forbidding the occupancy by others until the order of the Board has been complied with.

A great difficulty has always been experienced in New York in obtaining early notification of the removal of families containing tuberculous persons from one apartment to another. The objections to compelling the landlords to report such removals are obvious, as such action is likely to bring more or less hardship to the tuberculous individuals and their families. Recently in New York it has been possible through the frequent visits of the trained nurses connected with the tuberculosis clinics to follow pretty closely the removals. Textile fabrics, carpets, bedding, &c., from vacated apartments are removed by the Department of Health, disinfected by steam, and returned free to the owners.

5. Special domiciliary visits by medical inspectors. A number of medical men are specially detailed to visit cases at their homes for different purposes, viz.: (1) To make physical examination to determine the existence of tuberculosis in persons who have no medical attendance, and who are too ill or are unwilling to attend the clinics. (2) To make special inspections of the home conditions previous to the issuing of orders for forcible removal of tuberculous persons to the hospital or the retention in a hospital of a person wishing his discharge. (3) For special sanitary investigations previous to the issuing of renovation orders.

6. The sanitary authorities in New York have provided various kinds of institutions for the care of tuberculous persons as follows:—

(*a*) *Clinics.*—The first free tuberculosis clinic in New York City instead of being the earliest development, as was the case of Edinburgh, was a comparatively late one and was authorised by the Board of Health in 1902. Since that time, however, the work has been rapid and, I believe, at the present time a more complete, comprehensive, and well-coördinated system of tuberculosis dispensaries exists in New York than is found in any other large city of the world. The entire city is divided into about 30 districts and each district has a special tuberculosis clinic. Of these about half are maintained directly by the city; the others are conducted by various voluntary private or semi-public organisations or societies. A number of the large public hospitals maintain such clinics in connexion with their general out-patient departments. An association has been incorporated, the New York Association of Tuberculosis Clinics, on the board of managers of which every tuberculosis clinic, accepted and recognised as such, is represented. Certain conditions must be complied with in order that membership in this association may be granted. These include the provision of trained nurses to visit cases under the care of the clinic at their homes, the provision of definite rooms and the assignment of hours and competent physicians to care for patients, the compliance with certain methods of administration, history taking, &c. Only cases living in the respective clinic districts are treated at these clinics. Any patient appearing at any clinic from outside of its own district is after the first examination reported to the Department of Health and referred to the clinic situated in the district in which the patient lives. Thus needless duplication of labour is avoided and concentration of work is possible. Each clinic through its visiting nurses is able to keep constantly in rather close touch with all the patients in its district. If the patient moves from one district to another, the history cards are transferred to the clinic of the district to which the patient has moved. The organisation is most complete and satisfactory. It will be noted that the organisation is an independent association outside of the Department of Health, but the authorities coöperate in every way in its administration. A number of the clinics not under the direct supervision of the city authorities provide their own visiting nurses. About 160 nurses are furnished by the city. To each clinic is assigned a corps of nurses (with one head nurse in charge) depending in number upon the size of the clinic and the number of tuberculous patients attending it. Connected with several of the clinics, including the clinics of the Department of Health, are auxiliaries composed of ladies interested in the tuberculosis work. They supplement the work of the sanitary authorities by providing those things needed by tuberculous patients and their families which the former are unable to furnish, such as better living apartments, additional beds, clothing, and food, care of the family in the absence of the bread-winner in a hospital or sanatorium, &c. These have given invaluable assistance on many occasions.

I believe that during the present year nearly or quite 150,000 separate visits will be made at the tuberculosis clinics by tuberculous patients. The clinic nurses visit the homes of the patients to give instructions, leave circulars, obtain data as to the history of the sick person and of the family, the social position and financial income, the number of persons in family, the sanitary condition of premises, the health of the other members of the family, the character of light and ventilation, the amount of air space for each person, whether the patient has a separate bed and room, the precautions being observed, the possible need of any further interference on the part of the authorities, the necessity of relief in the way of additional food, clothing, and beds, or the provision of more sanitary apartments or assistance in nursing, cleaning, house work, &c. The nurses make monthly visits and where necessary more frequent visits. Every case discharged from a hospital or sanatorium on returning home comes directly under the supervision of the clinic nurses of the clinic district in which the patient lives. The nurses also assist in bringing the apparently well children in tuberculous families to the clinic for examination.

A few special classes for tuberculous children have been established in connexion with the clinics. These are distinctly for tuberculous children and their work is to be distinguished from that which is done in all of the clinics in connexion with the examination of the children from families in which one or more cases of tuberculosis exist.

(*b*) *The Admission Bureau.*—An Admission Bureau is being organised in connexion with the work of the three great

city departments which come into relation with tuberculous patients in some way—i.e., the Department of Charities, the Department of Bellevue and Allied Hospitals, and the Department of Health. The first two departments have the supervision of certain hospitals which care for tuberculous patients. The Admission Bureau is to be under the charge of, and to be administered by, the Department of Health. Through it will pass all cases which are admitted to any public institution of any kind, and all cases which are discharged or transferred from one institution to another. It is believed that this Admission Bureau will help greatly in coördinating this part of the work. At the present time there are about 3600 beds available for the tuberculous persons of New York City in various public or semi-public institutions supported wholly or largely by the city.

(*c*) *Day camps.*—Four ferry-boat day camps are maintained by the city for tuberculous persons. These are conducted on large ferry boats moored at different points on the river front. They take the place of the ordinary country camp of other cities. The latter in New York is not feasible, because of the limited amount of unoccupied property and the long distances which it would be necessary for patients to travel to reach the camps. One open-air roof camp is also maintained in connexion with the Vanderbilt Tuberculosis Clinic. On each one of the ferry boats is also maintained a school for tuberculous children in the open air; the capacity of each ferry boat is about 100. Patients attending these receive a morning and afternoon luncheon and a full meal in the middle of the day. On several of them sleeping quarters are also provided at night.

(*d*) *Sea-shore hospital for tuberculous disease of the bones, joints, and glands in children.*—Such an institution has been established by the city in connexion with the Association for Improving the Condition of the Poor at Sea Breeze on Coney Island. This institution was originally established in an experimental way by the Association for Improving the Condition of the Poor and was most successful. Through the efforts of the association $250,000 was donated to erect an institution on condition that the city would furnish the site for it and the funds for its subsequent maintenance. This gift was accepted by the city authorities under these conditions.

(*e*) *The tuberculous preventorium for children.*—A private institution has been incorporated in New York City to erect and maintain an institution for the care of children from tuberculous families who have no definite ascertainable tuberculous lesion, but who may show a positive reaction to tuberculin and who are in poor physical condition, the purpose of the institution being to improve the general health of the children and thus to protect them from the development of tuberculous disease or from the extension of any existing disease, while measures are being taken in the homes to obviate the danger of subsequent infection. It is proposed to provide an institution for the care of 400 children. Children are admitted to the institution through the tuberculosis clinics on recommendation of the chief physicians of the respective clinics.

In connexion with the preventive work for children, reference should be made to the provision by the Board of Education of open-air schools for children who are not tuberculous but who are in poor physical condition and likely to become tuberculous, and also to the work of the Garden and Playground Association, which deals with a similar class.

(*f*) *Hospitals for tuberculous cases.*—There are two classes of hospitals for advanced cases.

(1) Riverside Hospital, conducted by the Department of Health and intended for advanced and dangerously infectious cases and those which are compulsorily removed and retained. It is, of course, evident that the point of view of the sanitary authorities and institutional authorities with reference to inmates of an institution must be quite different. Managers of an institution desire to dismiss from the institution any patient who is vicious or insubordinate, or who does not comply with the rules of the institution, or one who is particularly undesirable. From the sanitary standpoint, such cases are those which should be first provided for because they are the ones which are the most serious menace to others. Riverside Hospital was first designed particularly for the care of cases of this kind.

(2) Hospitals for advanced hopeless cases. These are really homes. The New York municipal authorities provide either in their own institutions or by subsidy for the care of more than 2500 advanced cases.

(*g*) *Sanatoriums for hopeful cases.*—Sanatoriums which are open to hopeful cases of tuberculosis are of three varieties—municipal, State, and private. The city is building a sanatorium which now has accommodation for 400 patients. It is intended to provide at this institution for 1000. The sanatorium is situated about 75 miles from New York in a delightful hilly country at an elevation of about 1200 feet.

There is a State sanatorium for incipient cases with 320 beds situated in the Adirondack mountains, 350 miles from New York. The city of New York has a definite quota of beds assigned to it in this sanatorium (about half the capacity of the sanatorium), and the city pays for the care of its patients in this institution 50 cents per diem. The remainder of the cost of maintenance is provided by the State through annual appropriations.

There are several private or semi-public sanatoriums, which do not receive public funds, which have a capacity of about 350 patients. These institutions are either free or have only a nominal charge.

Before concluding, I wish to note that in New York we have entirely excluded the terms "consumption" and "phthisis" from use, and now refer only to tuberculosis in its various forms. These older names have lost their significance and only add confusion, and as the laity are in the process of being educated, it is quite as easy to teach them to use correct names from the outset.

As to the results in New York, I will only give briefly the comparative death-rates from tuberculosis. The death-rate from all tuberculous diseases in the old city of New York, including only the borough of Manhattan and the Bronx (where the rate has always been highest), was in 1886 4·42 per 1000 of the population, and for the five years preceding 1887 it averaged 4·47. In 1909 the rate was 2·45, and for the five-year period ending in 1909 it was 2·61. The death-rate for pulmonary tuberculosis alone for 1909 was 2·15. In the Greater City of New York the rate for 1909 for all tuberculous diseases was 2·17, and for pulmonary tuberculosis it was 1·89.

THE INCIDENCE OF TUBERCULOSIS IN CHILDREN, WITH SPECIAL REFERENCE TO SCHOOL ATTENDANCE.[1]

BY J. EDWARD SQUIRE, C.B., M.D. LOND., F.R.C.P. LOND.

MY remarks will be, in the main, directed to the incidence of tuberculosis amongst children of school age, for I presume that the practical object of our discussion is in great measure associated with the general examination of children in our elementary schools.

The subject of the incidence of tuberculosis in children is a very wide one and may be approached in several ways according to the special object of the inquiry. We may, for example, endeavour to determine the total number of children in whom the tubercle bacillus has been implanted, an inquiry which at the present time is academic rather than practical, or we may restrict our investigations to the more immediately practical question as to the number of children who suffer from tuberculosis in such a manner or to such a degree as materially to affect their mode of life or their education.

The wide discrepancies in the published statistics of the proportion of children who are tuberculous—ranging from about 5 per 1000 to 95 per cent.—are to some extent due to the differences in the object of inquiry and to some extent to the methods of investigation. Glandular enlargement and hardening are far from uncommon in the children living in the poorer parts of our towns, but these are by no means always due to tuberculosis. Caries of the spine, hip-joint disease, tuberculosis of other bones and joints, and the results of these conditions are, unfortunately, frequently met with; many of the children—perhaps 10 per cent. in a poor neighbourhood—will give some physical signs on examination which make it impossible to describe their lungs as perfectly

[1] A paper read as an introduction to the discussion on the Incidence of Tuberculosis in Childhood at the Tuberculosis Conference, Edinburgh, July, 1910.

healthy (such as poor air-entry, bronchitic râles, or fine crepitations at the lung margins or elsewhere), and a large proportion also of the poor children may be said to suffer from debility.

These facts will not be disputed, but are we justified in considering all or even the majority of these conditions as evidence of tuberculosis? I do not think this would be a fair inference. Possibly—perhaps probably—the majority of such children would give some reaction to one of the so-called tuberculin tests.

Whatever limits we may place on the class of cases to be included in our inquiry, the *results* of the inquiry must be brought down to the practical consideration of the effects of the disease on the welfare of the child and his companions, and the steps which are required to counteract or to overcome these. We shall find amongst the children who are undoubtedly tuberculous some who, for their own good, should be removed from school and some who will be better at school than at their homes, for the hygienic condition of the school is often immeasurably better than that of the home. Some also must be excluded from school in the interests of the other children whom they might infect with the disease, though "open" tuberculosis is not common in childhood.

What, then, is the extent of the mischief; what proportion of children are affected with tuberculosis? There are two recognised methods of conducting an inquiry into this matter: (1) by ordinary clinical examination alone; and (2) by employing the tuberculin test in one of the various methods in use. By the first mode of investigation we can only determine the number of children in whom tuberculous infection has resulted in some actual morbid changes in the organs. From the nature of the examination the personal equation, as well as the degree of skill and experience of the examiner, must, to some extent, affect the result. The second mode of investigation by itself can only indicate at the most the existence of tuberculosis without determining its site. It must, therefore, be combined with physical examination.

The employment of the various tuberculin tests has resulted in some extraordinary estimates of the prevalence of tuberculosis amongst children. Hamburger of Vienna has, in fact, been led to express the opinion that tuberculosis should be looked upon as a disease of children comparable with measles in its almost universal incidence amongst children. Can we accept the results of the tuberculin test as evidence of the prevalence of tuberculosis? I think not.

In the first place, there is no consensus of opinion as to the reliability of any of these tests. Positive results may be obtained where no other evidence of tuberculosis can be obtained, and where, in fact, every other evidence is against the existence of tuberculous implantation. On the other hand, no reaction is obtained in some cases of obvious and undoubted tuberculosis, the existence of which is proved by the presence of the tubercle bacillus.

But apart from this, what scientific warrant have we for asserting that a reaction indicates the presence of the disease? It may indicate susceptibility, though the most we are entitled to say is that it shows the potential activity of protective processes in the body. Successful vaccination against small-pox (though I grant the analogy is not exact) is taken to show susceptibility and therefore danger if exposed to infection, but no one suggests that it indicates the actual presence of small-pox, active or latent. What justification have we for assuming that a reaction to tuberculin proves more than a susceptibility to tuberculous infection and a certain protective capability in the individual? True, the specific protective metabolism does not come into existence except in response to a specific stimulus, so that if reaction occurs immediately on the entrance into the body of a minute dose of the toxin there is a presumption that the protective metabolism of the body cells may have been already called into activity; in other words, that the specific toxin was already present in the body. It is, however, I think, conceivably possible that the small dose of tuberculous toxin which is inoculated in these tests might be sufficient in itself to start the protective processes in the cells in the immediate neighbourhood of the irritant, and thus produce a local though, perhaps, not a general reaction.

It is, therefore, to a large extent a question of dosage, and, as we constantly see exemplified, a reaction may be obtained with a larger dose when negative results have followed a smaller dose. Without knowing how great a stimulus is needed to secure a response in any given individual, we have no definite means of knowing whether the dose of tuberculin administered was sufficient by itself to cause a reaction, or insufficient without the addition of some tuberculous toxin already present in the body. The diagnosis of tuberculosis merely because there is a reaction to tuberculin is an inference from incomplete and insufficient data, though the employment of the test is a valuable addition to the methods of clinical investigation.

If the reaction to tuberculin is taken as an indication of susceptibility we can easily understand the 50 to 95 per cent. of children between 10 and 14 years of age who react; though, as a recent writer (Nothmann) says, the proportion varies with the test employed. Tuberculin is, however, not even a certain test of susceptibility, for reactions are not generally obtained in infants, amongst whom the mortality from tuberculosis is very great; nor is a reaction always obtained in advanced cases of the disease. These facts are easily understood if we remember that the tuberculin reaction is merely a measure of protective capability which is exhausted in the advanced consumptive and, as we may judge from the high mortality from tuberculosis in infancy, is imperfectly developed in the first year or so of life.

Disregarding, then, as I consider we may do, the figures obtained by the tuberculin test, let us examine the results obtained by clinical examination. These vary so much in different reports that it seems impossible to explain the difference by variations in incidence of tuberculosis due to local conditions or to the social status of children examined.

Take, for example, the statistics with regard to tuberculosis of the lungs. In examining 1670 London school children with Dr. Annie C. Gowdey in 1906–07, I found less than 5 per 1000 who had signs in the chest that I could attribute to tuberculosis; another 8 per 1000 gave signs which might have been caused by tuberculosis, though neither Dr. Gowdey nor myself considered them to be so. Another 28 per 1000 had lung signs due to conditions other than tuberculosis. Similar results have been obtained by expert examiners in Brighton and other parts of this country and by observers abroad—e.g., Fraenkel, in Berlin.

Other observers, with a larger idea of the potentialities of tuberculous infection in the lung, include in their figures many children who have no signs beyond general debility and all who have bronchitic râles in the chest. Other investigators commence by defining what signs shall be taken as indicative of tuberculosis, and include as tuberculous all who come within the limits laid down, forgetting that the protean character of the manifestations of pulmonary tuberculosis in children makes it impossible to diagnose it by rule of thumb, whilst on the other hand such a scheme will include cases of infection by micro-organisms other than the tubercle bacillus. In some such way we get the proportion of tuberculous children stated at from 15 to 30 per cent.

I have quite recently examined the 672 children of a school in a poor part of London south of the Thames. I found less than 1 per cent. with signs that I considered indicative of tuberculosis of the lungs, though about 9 per cent. had signs in the lungs which were not quite normal. An estimate of the number of consumptive children attending school, based on the statement of parents, teachers, or visitors, cannot be accepted as having any value whatever. As the result of a special examination of 47 girls from 8 to 13 years of age in one school, all of whom were stated to be consumptive, I found three only who presented signs which I recognised as indicative of pulmonary tuberculosis, and three others with slight abnormal signs in the lungs which were suspicious of tuberculosis but not distinctive. In 32 I was unable to detect any abnormal signs whatever in the chest. I have had children under observation in hospital who have been kept out of school for three to five years because of "consumption" in whom I have been quite unable to detect any sign of either past or present tuberculosis.

I am convinced, after the examination of several thousands of school children, that pulmonary tuberculosis at least is not a frequent cause of serious ill-health in children of school age. That it is not uncommon is proved by the well-known records of post-mortem examinations on children

dying from causes other than tuberculosis, though these records at the same time show how little the lung infection may affect the health and how frequently complete recovery takes place. There is unfortunately a tendency to consider a child always tuberculous when once the disease has been diagnosed, and to include amongst the actively tuberculous those who have recovered.

My hospital experience would lead me to infer that when pulmonary tuberculosis is sufficiently extensive to produce ill-health it very frequently follows a prolonged course of several years, during much of which the disease is subacute—remaining active in the lungs but not producing any serious effects on the general health. This is, I believe, hardly in accord with the text-books, but will, I think, be endorsed by all who have had much experience of the sanatorium treatment of consumptive children. During part at least of the course of the disease, and in some cases during the whole course, the child may attend school without detriment to itself and without danger to others.

As the incidence of consumption amongst school teachers is said to be in excess of that for the general population, it is certainly essential to guard against the presence of an infective consumptive teacher in the school.

It is in the home, however, and not in the school, that we shall find the conditions which determine the onset of the disease and which favour its advance. In many cases, if not in all, the conditions at school will be less harmful to the tuberculous child, as well as to the predisposed, than those of his home. These children, when the faulty hygienic conditions of the home cannot be overcome, would benefit most by complete removal to a residential school at the seaside or in the country.

In conclusion, I should like to direct your thoughts to some considerations which are perhaps as yet hardly beyond the realm of conjecture.

There seems to be evidence to justify a belief that tubercle bacilli may enter the body and remain for long periods if the conditions are unfavourable to their growth and development, hybernating or in a condition of suspended vitality and producing no ill-effects, local or general, unless, or until, some accident or illness causes the soil to become fertile. If this is what is meant by "latent tuberculosis," then I not only believe in the possibility of latent tuberculosis, but I am ready to believe that, in large towns at least, we are most of us, children and adults, the subjects of latent tuberculosis as we are of latent pneumonia. In a similar sense many persons have latent diphtheria during an epidemic of this disease, and some persons have latent enteric fever. In none of these conditions, unless it be in the case of tuberculosis, are we accustomed to speak of the affected individual as having the disease, but it must not be forgotten that in some at least of these cases persons may convey the seeds of the disease to others perhaps more susceptible than themselves. Kayserling (Berlin) suggested, so long ago as 1906, that the children living with consumptives under the unfavourable conditions so often found amongst the poor may possibly serve as carriers of tubercle bacilli, though they may themselves present no evidence of tuberculous implantation.

If the conditions hinted at above are in fact actually existent they would nevertheless furnish no argument in favour of considering tuberculosis as a frequent and dangerous condition amongst children at school, nor of excluding cases of "latent tuberculosis" from school. They would, however, add one more to the numerous and potent arguments in favour of tracking tuberculosis to its breeding ground in the poorer homes and attacking it there at its source. Though we do well to direct attention to the prevalence of tuberculosis amongst the children attending the elementary schools, the *terrain* which should be chosen for the main operations of a campaign against tuberculosis in children is in the homes of these children rather than in the school.

I have in these remarks endeavoured to suggest thoughts for discussion rather than to dogmatise. If I succeed in stimulating others to express their opinions and to bring forward their experience my remarks will have fulfilled their purpose, and I shall have performed the function which was allotted to me when the committee did me the honour to select me to introduce the discussion on this important subject.

Harley-street, W.

BILHARZIOSIS AND HOW TO PREVENT IT.

BY JAMES F. ALLEN, M.D., M.CH. R.U.I.

THE two Egyptian bilharzial conditions described by Professor Frank C. Madden in THE LANCET of Oct. 23rd, 1909, p. 1204, are certainly, from a South African experience of the disease, most interesting, unusual, and instructive; so also is the mortality he mentions. "Bilharziosis," he writes, "appears to manifest itself very lightly outside of Egypt; for a recent writer states that in a long experience of the disease in Natal he has never seen a fatal case." Such, however, is the fact in Natal and other parts of South Africa where the condition exists. Not only is the invasion of the parasite never followed by fatal results, but such cases as Professor Madden describes are not met with. With a not inconsiderable hospital and general experience I have never seen or heard of such cases. For 25 years I was medical officer to the corporation of Pietermaritzburg and had to prepare my reports from the death register of that city, but I cannot remember having to record a single fatal case of bilharziosis. There must, therefore, be some reason for this strange immunity in South Africa from the serious features of the condition met with in Egypt. There can, I think, be no doubt but that the parasite is identical in both regions. This immunity must therefore be due to the host offering some facilities for invasion in one locality but not in the other; these, I think, may be classed under two heads—habits and ignorance.

In Natal the natives suffer very little from bilharziosis, the reason being that they are not aquatic in their habits; they wash by laving the water with the hands. I doubt if the affected water ever enters the prepuce and rarely the rectum. It is this peculiar method of washing themselves which protects them from invasion. They bathe and swim, of course, in the rivers like other children and youths, but they do not spend much of their time in the water. It is, however, evident from the symptoms of Egyptian bilharziosis detailed by Professor Madden that Egyptian children must spend much of their time in the water and that it enters both their prepuce and rectum and is long in contact with both. Thus the parasites in the water have ample time to enter the urethra and rectum and even to penetrate the mucous membrane behind the glans penis and invade both urinary and intestinal tract. In Egypt the common practice of young children wearing no clothes increases their liability to infection.

In South Africa European children do bathe and swim in affected streams and spend too much time in the water. Those who do so invariably become invaded, but when they come out of the water, if they do not dry themselves, as they frequently do not, they dress themselves, and the friction of their clothes tends to free them from any parasites which may be adhering to the edge of the prepuce or anus. They have thus in their clothes a protection which the Egyptian child has not, but the principal reason of their comparative immunity is that the South Africans know something about the subject. The modern Egyptian in consequence of his ignorance continues exposing himself to invasion, where the South African brings re-entry of fresh parasites to an end.

In South Africa it is possible for those adults with whom the prepuce has retracted to bathe and swim in bilharzial streams and remain some considerable time in the water with comparative safety, and they have entire immunity from invasion if they dry themselves. Those adults with whom retraction has not taken place, and children under the age of puberty, can and do bathe in an ordinary bath in their houses in water from the infested streams, and also escape invasion if they do not spend a long time in the water—that is, if they do not very much exceed the time such a bath ordinarily takes. It is mostly boys under the age of puberty and adults with long prepuces who spend much time bathing in infested streams and do not dry themselves who become invaded.

Similar facts must have occurred in ancient as in modern Egypt. Many people, especially women and girls, did not bathe or spend much time in the Nile. And all such persons then as now must have escaped bilharziosis. This must have led to the identification of the Nile as the source from which the disease emanated, and since attention would be directed

to the genital organs as being the primary and the most frequent parts attacked, it would not be a difficult guess to make that the prepuce was an important aid to invasion. Thus step by step the Egyptians in prehistoric times would be led to the adoption of circumcision as a protection, and its success would confirm the practice. Subsequently the secret which suggested it was lost, and to the modern Egyptian the comparative immunity of his women and girls from this complaint has suggested nothing. To him it must appear to be an absolutely hopeless disease. He sees those suffering from it daily getting worse, developing such terrible symptoms as Professor Madden describes, until at last death releases the victim from his sufferings. It never dawns upon him that he by his own act not only invites the guest which may kill him, but continues this invitation time after time. It never enters his mind that the disease is not progressive within him, but always gains accession from without. None of these speculations pass through the mind of the modern Egyptian, but they must have been in the brain of that man who in the dim ages of the past instituted circumcision.

Bilharziosis is a continual menace to the white population of South Africa, and might have become as severe and fatal as it appears to be in Egypt if some light had not been thrown upon its history. By this means the people in South Africa have been enabled either to avoid the disease or very materially to lessen the risk of contracting it, and when it does appear by adopting effective precautions to check its advance and finally, if slowly, lead to its disappearance.

A good deal concerning the subject had to be rejected. We had to abandon the theory that the parasite entered the body by the mouth in drinking water, for everyone consumed water filtered and unfiltered, but we found that only a small section of the population became afflicted with bilharziosis. It is practically in its first appearance confined to boys who have not yet reached the age of puberty, who bathe freely in the infested rivers, ponds, and streams, and who do not dry themselves when they leave the water. Boys who used water from the same source but bathed briefly in the house and dried themselves afterwards did not contract the condition. Girls and women sometimes became invaded, but only those who bathed too freely and too long in the infested rivers, ponds, and streams, and did not dry themselves thoroughly or at all on leaving the water. Again, girls and women who briefly bathed in water from the same source in their houses and dried themselves afterwards entirely escaped.

These facts have been known in South Africa for many years, and they pointed conclusively to long immersion in infested water as the only mode by which invasion took place. No one now contracts the condition, except either some stranger, who does not know the secrets of the land in which he finds himself, or some errant boy, who disregards the cautions of his parents and friends and bathes for too long a time in the infested rivers.

Of late years the condition is seldom allowed to advance. The boy either discloses his state to his parents or friends, or they find it out, and further invasion is stopped by discontinuing river bathing. This is about the amount of knowledge which the general public in South Africa possesses on the matter. I have detailed other evidence pointing to direct urethral and anal invasion as the almost exclusive method of entry of the parasite in an article on the subject published in THE LANCET of May 8th, 1909, p. 1317. I have also stated elsewhere some evidence showing that the parasite is unable to reproduce itself within the human body. In addition to this there are facts within the power of those affected to observe which should bring conviction to the general public. If the parasite was capable of developing within the human body from eggs and embryos which are to be found in every one who becomes invaded, bilharziosis should pass from male to female in sexual intercourse, as most certainly eggs and embryos do. But the disease never so arises. No man has ever given it to his wife, and no man ever will. The embryo requires some intermediate host or media in which to develop until it reaches the stage at which it can enter, fix itself, and survive within the human body. The discovery that the parasite cannot reproduce itself within the body, coupled with the fact that by avoiding protracted bathing in the infested streams further invasion can be stopped, is of enormous importance, for in these two facts we have the whole secret of the prevention and cure of bilharziosis. That the prepuce plays a most important rôle in the entry of the parasite to the urethra must be evident to any one who has read my previous article on this subject, and as urethral invasion is by far the most frequent it is clearly desirable that those who live in bilharzial countries should be circumcised. If the European population in South Africa were to refuse attention to all the manifest facts regarding this condition, as the Egyptians do, there can be but little doubt that continued invasion would here develop grave and fatal cases. When it is taken into account how widely bilharziosis is distributed in South Africa, such a state of things would militate greatly against the successful colonisation of this country by Europeans. Bilharziosis is to be found in the Cape Colony, the Orange River Colony, the Transvaal, Natal, and in all the native protectorates, except, perhaps, Basutoland. It appears to be absent from the highlands, which are naturally the cooler parts of the continent. But I attribute this to the fact that in such regions the water is often very cold, so that young people do not pass much time in it, and drying the body afterwards is the usual practice.

At this point it may be convenient to recapitulate what is known regarding the cause and prevention of bilharziosis. We know that the disease is caused by a parasite which exists in the water of rivers, streams, and ponds; that it enters the body directly from the water by the urethra or anus during long immersion; and that the longer the immersion the greater is the danger of invasion. We are aware that brief bathing in infected water either at home or in a river if followed by thorough drying is absolutely safe; that the prepuce most materially assists invasion of the urinary tract; that circumcision gives comparative protection; and, finally, that the parasite cannot reproduce itself within the human body. If, therefore, precautions are taken to stop re-entry, the disease will not advance, but, on the contrary, will slowly recede, so that by a combination of precautions we can finally get rid of it. The proof of the efficacy of this knowledge is that we have no dangerous or fatal cases of bilharziosis in South Africa.

The question now arises, Could this knowledge which is so beneficial in South Africa be applied in Egypt, so as to mitigate the ravages of bilharziosis in that country? I think that this could be done, provided that care is taken to conciliate the people. It is true that in India there has been considerable trouble in carrying out plague regulations, but these measures could not be enforced without much interference with the domestic customs of the people—indeed, to such a degree as to be in their eyes an outrage. In Egypt there probably would be considerable difficulty in getting the Mohammadan population to adopt infant circumcision, partly because infant circumcision is an essential tenet of Judaism, and partly because the child in Mohammadan circumcision takes a leading part in the previous festivities, which he could not do if he was an infant. Mohammadan children contract bilharziosis before they are circumcised, but the invasion will not have advanced far, and we now know it can be stopped at any stage by the adoption of precautions which prevent further invasion. This difficulty would not arise among the Jews; and other sections of the population might offer little or no objection if they could be convinced of the necessity for the operation. The people must also be made to understand that in addition to circumcision they must avoid spending much time in the water. All that is known concerning the parasite should be taught in every boys' school. Pictures of the parasite, its eggs, and embryos should be on the walls of every schoolroom. The fact that the parasite enters the body during bathing, and where it enters, should be made absolutely clear and convincing. It should be pointed out that the girls in every household who do not bathe in the river Nile and its canals do not become invaded, and that it is as easy to protect the boys as the girls, indeed more easy, if they are circumcised.

State instruction in this matter, together with facilities for infant circumcision, will cause serious and fatal cases of bilharziosis to disappear from Egypt and will make the disease as innocuous and as infrequent in that country as it is in South Africa.

Pietermaritzburg.

HEART PUNCTURE.

BY J. WALLACE MILNE, M.B., C.M. ABERD., M.R.C.S. ENG., L.R.C.P. LOND.,
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I REPORT the following case of heart puncture to relieve istension in the hope that the result may be sufficiently bvious to cause others to adopt it in like cases, such as one ieets with frequently. The procedure is simple and safe, nd the results, at least in my case, are so immediate and bvious that I have no hesitation in feeling sure that if per-ormed to relieve a heart at the crisis of its struggle, such as 1 an acute pneumonia, by lessening the weight and volume f the blood, it might in many instances preserve life. In the resent case it was done in a case of well-marked mitral eart disease caused by recurrent attacks of acute heumatism, and thus at best could but restore the atient to a condition of very poor health. The case is as ollows.

A girl, aged 20 years, was quite healthy up to two years go, when she had rheumatic fever and lay ill for three ionths. The heart was damaged and she ever after had a itral bruit, systolic in time, but with no dilatation and no nasarca. Six months ago she had a recurrence which left he heart still more damaged, and the apex beat was ow always in the nipple line and one inch below. he had still no evidences of failure till she was aken ill again with a cold and rheumatic pains. This vas about the beginning of April of this year. On my eturn from a holiday I found the patient in a very ow condition; she was sinking, to all appearance, in the udgment of my locum-tenent and myself. In addition to ier cardiac condition there was now well-marked hypostatic ngorgement of both lung bases, chiefly on the right side. Heat was applied to this region and stimulating expectorants vere given. In the course of a few days this cleared up and he continued to gain strength till May 17th, when she ad a sudden recurrence of the same complication and was yanosed and bathed in cold sweat. Hypodermic injection vas made of digitalin and strychnine, and I left her for lying. From this date she again commenced and con-inued to improve, receiving in addition to a quinine and strychnine mixture two hypodermic injections of strychnine ydrochlorate (1-30th grain) in the morning and the same at ight, with the addition to the latter of morphine sulphate ⅛th grain) if the pulse was very quick or the patient was very restless.

On May 23rd I was called at 11.50 A.M., and found the same state of matters as on the night of the 17th and the morning of the 18th, but the condition was worse if possible. There was dilatation of the heart one inch beyond the nipple to the left, and one inch beyond the right border of the sternum to the right. I removed all the pillows and raised the foot of the bed on two chairs. The patient was given strychnine hydrochlorate (1-30th grain), morphine sulphate (¼ grain), and an inhalation of ammonium chloride through Wellcome's apparatus with the idea of thinning the mucus which was clogging the trachea and larger bronchi. She was so feeble and dyspnœic that she could not inhale the vapour, and I adopted the plan of blowing into the end of the cross T-piece of the instrument synchronously with each inspiration. These expedients did not seem to relieve the stasis in the heart, and I perceived that heart failure was imminent, and that nothing but a reduction in the volume of the blood could avert death. I therefore proceeded to open the left median basilic, but no blood flowed. Next I opened the right median basilic with a like result. I cut deeper on the left into the brachial artery above its division into the ulnar and radial arteries, and only a feeble trickle of dark blood flowed. During all these manipulations the patient felt no pain, but lay half conscious, with dilated pupils, cold sweats, and cyanosed colour and stertorous respiration, while the heart was getting more and more distended and I could feel no pulse of the temporals over the zygomata. I then selected the fifth intercostal space, close to the left border of the sternum, as being in the circumstances likely to lie over the right auricle, since the distension had been making more and more to the left. Having frozen the spot with ethyl-chloride, I inserted a trocar and cannula of about the size of a No. 3 catheter vertically into the heart. Blood immediately flowed of about the colour of porter and thick in consistency, and the cannula oscillated with the heart beats through an angle of about 25°, inclining from the original vertical position to this extent to the right. The blood came in jets only when the cannula was vertical—that is, when its point was pulled to the right. I drew off 20 ounces and then withdrew the cannula and closed the puncture by acupressure. Almost suddenly the patient revived, becoming quite clear and collected; she expressed herself as having felt no pain and as being quite relieved. A small probang was passed down the trachea and took up a lot of mucus. The patient was left in a different state altogether, with no cyanosis to speak of, and the venesections showing blood through their dressings. The pulse at the temporals was fair, the lips were pink, and the pupils normal, and when the sweat was wiped off no more appeared. This was at 3.30 P.M., the puncture having been made at 3.20 P.M. I called later in the afternoon (about 5.30) and found her much more comfortable, and though without blood stasis and with the heart much smaller she was losing general strength gradually. She remained clear and free from pain and distress till 7.20 P.M. when she died.

Puncture of the heart thus prolonged life, in my opinion, for four hours after the circulation was so feeble as not only not to make the opened veins bleed, but even the brachial artery was unable to show pressure at all. The position for puncture must in such conditions be a matter for discussion and selection in each case, as the departure from the anatomical point will be constantly different in degree in each instance.

Aberdeen.

THE SERUM-DIAGNOSIS OF HYDATID DISEASE: FIXATION OF THE COMPLEMENT.

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DURING the last ten years considerable attention has been paid to the diagnosis of hydatid disease by laboratory methods. Until recently the increase in the number of eosinophiles in the blood (suggested by Sabrazès[1] in 1899) was the only method used. These may be present in large numbers (57 per cent. in the case reported by Seligmann and Dudgeon[2]). Although eosinophilia is a very constant sign, especially when the cyst is situated in the liver, it may be slight or even absent when the cyst is dead or has suppurated. Moreover, eosinophilia characterises the presence of almost every vermiform parasite, so that other symptoms of hydatid disease must be present before a diagnosis can be made.

During the last three years two new methods have been introduced: the precipitin reaction, which consists in observing the precipitate formed when the serum of a patient suffering from hydatid disease is added to hydatid fluid (Fleig and Lisbonne,[3] Welsh and Chapman[4]), and the fixation of the complement, with which the present article is concerned.

In the region to the south-west of Bordeaux, known as the "landes," hydatid disease is frequently met with both in man and animals; I have thus been able to collect a certain number of cases, and to obtain hydatid cysts from the sheep seized at the abattoir in Bordeaux.

I propose to give a short account of the principal articles which have been published in connexion with this subject. Guedini[5] in 1906 was the first to propose the application of the Bordet-Gengou reaction to the diagnosis of hydatid disease. Next, Weinberg and Parvu[6] investigated the reaction of fixation in horses infested by different intestinal parasites, with an aqueous extract of the parasites as antigen. The results, however, were not altogether satisfactory. In December, 1908, they published their first results with regard to hydatid disease. Various papers have since been published by Weinberg, Parvu, Apphatie and Lorentz, Rossello, and others.

The method generally employed is analogous to that indicated by Wassermann for syphilis. Weinberg*,[7] uses two methods which he calls the "rapid" and the "slow" method. His "rapid" method is similar to that of Bauer, but he states that it does not always give satisfactory results, and in such cases recourse must be had to the "slow" method which is similar to that of Wassermann.

In a recent article in THE LANCET, by Professor Sabrazès and myself,[8] we described a method derived from that of Hecht which we have used for the diagnosis of syphilis. This method we have applied to the diagnosis of hydatid disease, replacing the alcoholic extract of heart muscle used as antigen by hydatid fluid obtained from the sheep. Parvu[9] has described a method which is practically the same as that which we employ.

There is considerable difference in the preparation of the antigen used by different observers. Weinberg employs the hydatid fluid obtained from a sheep, preserved in capsules which are sealed in the flame and stored in an ice-chest. He also recommends the following method of preparation. The fluid is evaporated *in vacuo*, and the dried residue is stored; when required for use a small quantity is dissolved in an equal volume of distilled water.

Apphatie and Lorentz[10] make use of the fluid from a human cyst, and for preference that obtained from a cyst rich in scolices. They collect the fluid aseptically, and preserve it beneath a layer of liquid paraffin to which 0·5 per cent. of phenol has been added. They maintain that the fluid thus preserved will retain the fixing properties for at least two months. Before use they centrifugalise the fluid.

Parvu[9] has prepared an alcoholic extract. He adds 5 volumes of absolute alcohol to 1 volume (10 c.c.) of hydatid fluid obtained from either a human or a sheep's cyst. After 24 hours in an ice-chest the precipitate is got rid of by centrifugalisation; the supernatant liquid is then passed through a filter and evaporated *in vacuo* at 60° C. The residue is taken up with salt solution and titrated. Weinberg has also prepared another antigen, by dissolving in salt solution the precipitate obtained after centrifugalisation in the above method. This antigen is called "the alcoholic residue."

Rossello[11] employs two antigens—(*a*) hydatid fluid obtained from a human subject; and (*b*) an aqueous extract of hydatid membrane. The latter is prepared thus: The membrane, hardened in alcohol, is dried in a desiccator and reduced to powder in a mortar. The powder is suspended in salt solution during five hours in the proportion of 1 part of powder to 10 parts of salt solution. The antigen is the supernatant liquid, which should be clear.

Originally I obtained the fluid from a sheep's cyst fresh before each test, but later, in order to have it always at hand, I endeavoured to find a simple method of preserving it. The fluid placed in capsules and sealed in the flame became putrid after 48 hours. At the suggestion of Professor Sabrazès, intermittent sterilisation was then tried. The hydatid fluid, obtained as soon as possible after the animal had been killed, was placed in capsules, each containing about 2·5 c.c., which were sealed in the flame. The capsules were then subjected to a temperature of 60° C. for 20 minutes. This was repeated on the two following days. By this method I have been able to preserve a fluid which has remained perfectly limpid, and which has retained its fixing properties three months after being sterilised.

From the criticisms which have been made of the different methods of preparing the antigen it would seem that either the hydatid fluid or the dried extract as prepared by Weinberg gives the best results. Paisseau and Tixier[12] believe that the other methods may sometimes give inconstant results. They report the case of a young girl with an enlarged liver, urticaria, and slight jaundice; eosinophiles 6 per cent. Weinberg tested the reaction of this patient, and obtained a negative result with the dried extract and "the alcoholic residue" as antigens, and a reaction which was partially but distinctly positive with the alcoholic extract of Parvu. At the operation tuberculosis of the peritoneum was found. The results obtained in this case caused Weinberg to investigate the different antigens.

Using a simplified method of fixation of the complement, he tested five sera, two of which were obtained from patients with hydatid cysts, and three from healthy subjects. With the dried extract as antigen the two cases of hydatid cysts gave a positive, and the three controls a negative, result. With the alcoholic extract a positive reaction was obtained with one of the controls only. With the "alcoholic residue" one of the hydatid cysts was found to be positive, the other sera were negative.

Paisseau and Tixier therefore conclude that alcoholic extracts should be abandoned. They consider that the cause of the variable results obtained was either that the antigen is incompletely soluble in alcohol, or that the alcohol abstracts certain substances which may prevent hæmolysis, in addition to the substances which form the antigen. Kreuter,[13] on the other hand, prefers the alcoholic extract, and does not approve of aqueous extracts. He does not mention the use of hydatid fluid as antigen. He was only able to examine two positive cases.

Rossello, as stated above, has used an antigen obtained from the cyst membrane. He states, however, that although he has not obtained such good results as with the fluid as antigen, he prefers the former as it is easier to preserve. In seven cases in which the cysts were active he obtained a positive reaction in each case when he used the fluid as antigen, whilst in three incomplete hæmolysis occurred when the extract of membrane was employed. With five cases of dead or degenerating cysts two gave a positive result both with fluid and membrane, two a positive result with the fluid, but a negative result with the membrane, and in the fifth case a positive result was obtained with the extract of membrane alone.

Further, Rossello performed the following experiments. He took four series of guinea-pigs, each series consisting of four animals. These he injected three times at intervals of 8 and 20 days, with 20 c.c. of the following substances. The first series received injections of the fluid of an active cyst obtained from a human subject; the second series, an aqueous extract of the membranes of the same cyst; the third, a mixture of equal parts of the two fluids. The animals of the fourth series were used as controls. The serum was withdrawn 15 days after the last injection. The reaction was tested with the serum of each animal with regard to antigens of both fluid and extract of membrane. The first series gave positive results with the fluid only. The second series gave results which were positive, but less marked, with the extract of membrane. In the third series the four guinea-pigs gave positive reactions with the fluid, but only two were positive with the membrane. With the fourth series negative results were obtained with both antigens.

From these results Rossello draws the following conclusions: (*a*) that it is relatively easy artificially to produce antibodies in the guinea-pig; (*b*) that there is a double production of antibodies—one for the fluid, another for the membrane; and that the reaction excited by the fluid is greater than that excited by the membrane; hence the results obtained with the former are more constant than when the latter is employed as antigen.

As to the source of the fluid, several observers, including Weinberg, prefer that which is obtained from the sheep. Hydatid fluid from a human subject has been found to cause fixation of the complement, even with the serum of a healthy subject. It is possible that the fixing power of the fluid may vary with the animal from which it has been obtained, as I have found that the fluid obtained from a calf or a pig has not given such good results as that obtained from a sheep. It is also probable that there is a difference in the fluid obtained from different animals of the same species. It has seemed to me that this may be so, and recently Lippmann has stated that the fluid from different sheep may give different results, and he mentions that with one antigen which he used in eight cases (controls) the complement was totally fixed in half the tubes, even when fairly high dilutions were employed. It is therefore important to make sure that the fluid gives reliable results before using it as a stock antigen.

Technique.—The technique has been described elsewhere,[8] but I will give shortly the essential details. Before use the antigen must be diluted with salt solution. The correct dilution is found by testing the hydatid fluid with different sera, as is done with the heart extract in the sero-reaction for

* Weinberg's paper in the Annales de l'Institut Pasteur contains the substance of the notes published by him, alone or with Parvu, in the following numbers of the Comptes Rendus de la Société de Biologie: Tome lxv., No. 35, 11 Déc.; No. 37, 25 Déc., 1908; Tome lxvi., No. 3, 29 Jan.; No. 5, 12 Fev. No. 12, 2 Avril, 1909.

syphilis. The dilution of the antigen which I am now using is 1 in 5. Originally the fluid was used undiluted, but the results were inconstant. Thus, on one occasion the undiluted fluid completely prevented hæmolysis with several sera obtained from patients, all of whom were free from hydatid disease.

Three rows of tubes are required and the unit used is 100 c.mm. The following solutions are added:—

To tube 1:—1 unit of serum, 1 unit of salt solution (9 per 1000), 1 unit of antigen.
To tube 2:—1 unit of serum, 2 units of antigen.
To tube 3:—1 unit of serum, 2 units of salt solution.

The tubes are incubated at 37° C. for about one and a half hours. One unit of washed sheep's corpuscles (5 per cent.) is added to each tube, and the whole returned to the incubator until hæmolysis has taken place in the control tubes. The third tube serves as a control for the hæmolytic power of the serum examined. Each time it is advisable to test at least two sera obtained from healthy subjects in order to control the antigen.

A positive result is obtained when there is no hæmolysis in the first and second tubes, but hæmolysis in the third tube; a negative result when hæmolysis takes place in all three tubes.

The objection has been made to these simplified methods that human serum may contain substances which at one time favour hæmolysis, at another time prevent it (Weinberg); but, as we have shown elsewhere, in practice this does not prevent a result from being obtained in nearly all cases. Another objection is that the serum may contain such a small quantity of antibody that it is necessary to use a method which permits of the dosage of the complement and the minimal dose being employed. This may perhaps account for the negative result obtained in observation No. 12. Lippmann also refers to this, and recommends that a larger dose of serum should be used in such cases.

Results.—Weinberg, who has published the most important statistics up to the present time, has examined 52 sera obtained from cases in which a diagnosis of hydatid disease was possible. Hydatid disease was found at operation in 27 cases, and in 26 a positive sero-reaction was obtained. The serum which gave a negative result was re-examined 20 days after operation, and was then found to be positive. Weinberg suggests that the patient may have absorbed a quantity of hydatid fluid during the operation, and that the positive reaction was due to the formation of fresh antibodies.

Laubry and Parvu [14] have published three cases, with two positive results. The negative result was obtained in the case of a woman with a tumour in the left hypochondrium, accompanied by urticaria. At the operation a tumour was found in the liver, which on microscopical examination was probably a gumma. Rossello has examined 12 cases of hydatid cyst, with 10 positive and 2 doubtful results. Apphatie and Lorentz have published nine cases, all of which were positive.

Most of the above results were obtained in cases of uncomplicated hydatid disease. There are, however, two conditions which may influence the reaction: (1) the death or degeneration of the cyst; (2) operation.

1. Apphatie and Lorentz believe that the reaction is independent of the activity of the cyst. In six of their cases there were signs of commencing suppuration; in one case the caseous contents indicated that the cyst had been dead for some time. In two cases only was the fluid perfectly clear. 73 controls were negative. Rossello, on the other hand, believes that death of the cyst may cause the reaction to be wanting. In five of his cases in which more or less degeneration of the cyst had taken place, a doubtful reaction was twice obtained. Weinberg considers that degeneration of the cyst has no influence on the reaction, and he mentions a number of cases in which he obtained a positive reaction with cysts either dead or undergoing degenerative changes.

2. Weinberg states that patients with hydatid cysts may give a positive reaction long after operation, especially if a portion of the wall has been left behind. He suggests that whenever possible the cyst should be completely removed, and he believes that the amount of antibodies increases after operation, when the site of the cyst, or adhesions to neighbouring organs, prevent the surgeon from removing it intact. In 26 of his cases examined after operation (two weeks to six years) a positive reaction was obtained in 16.

Parvu and Laubry [15] have investigated the reaction with cerebro-spinal fluid, but have failed to obtain positive results with cases in which the serum was positive. Weinberg and Parvu have also failed to discover the presence of antibodies in the urine.

Leopold Durand [16] chose this subject for a thesis in July, 1909. He describes Weinberg's technique, and gives details of Weinberg's 52 cases. He also mentions four unpublished cases, one of which was an undoubted case of hydatid cyst of the liver, but which twice gave a negative reaction. A few cases have been published by German workers (Kreuter, Jianu, Lippmann).

I now give a table of the results obtained personally:—

Number.	Sex.	Clinical diagnosis.	Eosinophilia percentage.	Result of serum reaction for hydatid disease.	Condition found at operation.	Result of serum reaction for syphilis.
1	F.	Hydatid cyst.	8·33	P.	Hydatid cyst.	N.
2	M.	? Hydatid cyst.	1·85	N.	Carcinoma of liver.	—
3	M.	Hydatid cyst.	—	P.	Hydatid cyst.	N.
4	F.	,,	—	P.	,,	—
5	F.	,,	—	P.	,,	N.
6	F.	? Hydatid cyst.	3·33	P.	Operation March 2nd. Dermoid ovarian cyst, enlarged gall-bladder, peritoneal tuberculosis.	N.
		2nd exam.	3·4	D.		
		3rd exam.	2·32	N.		
		4th exam.	2·8	N.		
7	F.	Abdominal tumour.	3·77	P.	Hydatid cyst of kidney.	N.
8	F.	? Hydatid cyst.	0·65	N.	Hydronephrosis.	N.
9	F.	? Tumour of liver.	2·80	N.	Cholecystitis.	N.
10	F.	Hydatid cyst.	15·00	P.	Hydatid cyst.	N.
11	F.	Carcinoma of liver.	—	N.	Carcinoma.	N.
12	F.	Hydatid cyst.	1·44	N.	Hydatid cyst (degenerated).	N.
		2nd exam.	9·34	P.		
13	M.	Renal tumour.	1·33	N.	No operation.	N.
14	M.	Tumour of liver.	0·50	N.	,,	N.
15	F.	Abdominal tumour.	3·00	P.	Hydatid cysts of peritoneum.	N.
16	F.	,,	3·33	N.	No operation.	P.
17	M.	Popliteal cyst.	0·50	N.	Cyst.	N.
18	M.	Epiplocele.	1·58	N.	Hydatid cyst in inguinal canal.	N.

P = positive, N = negative, D = doubtful.

Remarks.—Unless otherwise stated the hydatid cyst was situated in the liver. *Case 6:* At the first examination on Oct. 12th, 1909, undiluted fluid was used as antigen. The following examinations were on Dec. 15th, 1909, Jan. 19th, 1910, and Feb. 22nd, 1910, respectively. *Case 12:* The second examination was made three weeks after the operation. *Case 13:* Tuberculosis of kidney. *Case 14:* ? Abscess of liver. *Case 15:* Examined after operation. *Case 16:* There was a history of three successive miscarriages. Syphilis was denied, but subsequently a primary sore was admitted. Operation was refused. *Case 18:* Examined five days after total excision of cyst.

I have included in the accompanying table only those cases in which a tumour was present, and in which, in most cases, there was a possibility of hydatid disease. Hydatid disease was found at operation in nine cases. Of these, seven were tested before operation, and a positive result was obtained in six. The case (No. 12) which was negative was that of a patient who had a small tumour in the right hypochondrium; eosinophiles 1·44 per cent. Operation revealed a small cyst of the liver with two small daughter cysts, one of which was undergoing retrogressive changes. Three weeks after the operation 9·34 per cent. of eosinophiles were found in the blood, and a positive reaction was obtained. This may perhaps be explained by Weinberg's suggestion as to the increase in antibody after operation.

Case 6 also requires a few words of explanation. A woman, aged 40 years, was sent to Dr. Muratet, chief assistant in the clinical laboratory, for examination of the blood on account of a small tumour apparently connected with the liver, and which was thought to be possibly a hydatid cyst. She had been seen by several medical men, but opinion was divided as to the nature of the tumour. As there was no marked eosinophilia in the blood I was asked to test her reaction. This was positive at a first examination,

but subsequently a doubtful and then two negative results were obtained. The patient was operated on early in March, 1910, with every care and a dermoid ovarian cyst, together with tuberculosis of the peritoneum, was found. An enlarged gall-bladder was discovered, but as far as could be determined during the operation no hydatid disease was present. The first positive result may have been due to the use of an undiluted and unsuitable fluid, as at that time the fluid was obtained fresh before each series of tests.

Case 15 is interesting on account of the low percentage of eosinophiles. A young woman, aged 20 years, was admitted to hospital in May, 1909, under the care of Professor Demons with a diagnosis of either hydatid cyst or tuberculosis of the peritoneum. There were 2·73 per cent. of eosinophiles present in the blood, and at the operation hydatid disease of the peritoneum was found. A second operation for recurrence was performed in December. The eosinophilia was then 3·41 per cent. On Feb. 8th, 1910, the serum reaction was tested for the first time and a positive result obtained. The eosinophiles were then 3 per cent.

In two cases of syphilis a positive reaction was obtained for this disease and a negative result for hydatid cyst. The other sera (25) which were tested were obtained from patients suffering from various diseases and were used as controls. In most cases the serum reaction for syphilis was also tested, and it is interesting to compare the results obtained in the two reactions.

As to the relationship between the serum reaction for hydatid disease and eosinophilia there is very great difference of opinion. Weinberg considers that the eosinophilia is not so constant as fixation of the complement, but there are already several cases in the literature where a negative serum reaction has been obtained with an undoubted hydatid cyst. Chauffard and Vincent[17] classify cases from a biological standpoint under three divisions: (1) complete form, when both eosinophilia and serum reaction are present; (2) dissociated form, when there is a serum reaction, but no eosinophilia; and (3) latent form, when the two reactions are both negative. The writers explain this last class by suggesting that the reaction produced by the echinococcus is local, and that the toxic bodies in such cases do not pass through the cyst membrane, which usually is more or less permeable.

Lippmann[20] has already drawn attention to the finding of anti-typhoid agglutinins in the serum and hydatid fluid in a case of typhoid fever.

Dr. Sabrazès, who has had a very large experience of blood-counts in hydatid disease, tells me that he considers that, when the cyst is situated in the liver and when there is no suppuration, eosinophilia is present in a very great number of cases. He has also noticed that the eosinophilia disappears almost immediately after the operation, to reappear later. A similar behaviour has been noticed with the serum reaction.

In one of our cases (No. 12) where a negative reaction was obtained and where there was no eosinophilia before operation, three weeks after an operation had been performed both eosinophilia and a positive reaction were found. Chauffard and Vincent[17] have recently published a case which is somewhat analogous. A man, aged 46 years, was suspected to have a hydatid cyst of the liver. There were 2·5 per cent. of eosinophiles in the blood, and the reaction of fixation was negative on two occasions. On the strength of this result, and after radioscopy, a diagnosis of pleuritic effusion was made and the chest was punctured. Hydatid fluid containing scolices was withdrawn. Soon after the temperature rose, and four days later the eosinophiles were found to be 9·29 per cent., and a positive though feeble reaction was obtained. Eight days later, an operation having been performed in the interval, total fixation took place. Still more recently, March 18th, Weinberg[18] refers to this case, and mentions that he has lately met with two more cases where a positive reaction has been obtained after surgical interference and in which the reaction had been previously negative, but he does not give the percentage of eosinophiles.

Finally, as regards the nature of the reaction, there is considerable difference of opinion as to the nature of the antibodies present. Jianu[19] considers that they are antibodies against the toxin of the echinococcus. Lippmann[20] denies this. He considers that they are antibodies against a foreign albuminous substance produced in the cyst and passing through the wall into the circulation. He does not consider that the fluid is toxic and attributes the urticaria and other severe symptoms which sometimes follow puncture of the cyst and escape of the fluid to a phenomenon of anaphylaxis. Further, we have Rossello's experiments, which have been described above, in which antibodies were obtained both against the fluid and the cyst-membrane. However, in the present state of our knowlege it is difficult to come to any decision, but it seems that the reaction is undoubtedly that of Bordet and Gengou in that there is a specific antigen.

Conclusions.—Fixation of the complement as a means of diagnosis for hydatid disease would appear to be of considerable value, though it may be absent either perhaps on account of the particular method adopted or because the reaction is latent. The reaction, therefore, has precisely the same value as that of any other laboratory test in that a positive result is definite, whereas a negative one is more difficult to interpret. So much difference of opinion exists between various workers that at present one cannot say which technique is the best. The small number of cases which I have been able to collect does not permit me to express any more definite opinion than I have stated. As we have seen above, there is the greatest difference in the methods of preparing the antigen. Each worker has obtained more or less good results with his own method. The one described in this paper was chosen because of its simplicity, and on account of the good results which we have obtained with it for syphilis. Although equally good results may be obtained by the more complicated methods, yet the employment of these is undoubtedly tedious.

In conclusion, I desire to express my great indebtedness to Dr. Sabrazès and to thank him for the kind advice and help which he has given me on many occasions, and especially in connexion with the preparation of this paper.

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THE "HERMIT OF THE LITTLE ST. BERNARD."—The commemoration of this "Good Samaritan of the Alps," commented on in THE LANCET of Feb. 27th, 1909, p. 634, has been supplemented, in addition to the statue, by a full-length portrait, a beautiful work of art from the studio of the Cavaliere Filippelli of Alessandria, which has just been placed in the Hospice, over which the "Hermit" (the Abbé Chanoux) presided for well-nigh half a century. The Hon. Paolo Boselli, secretary of the Order of S. Maurice, to which the Abbé belonged, unveiled the portrait with an eloquent address in presence of a distinguished company of men of science, nature-students, and philanthropic citizens, including Professor Lino Vaccari, the worthy successor of the Abbé on the scientific side of his activity, and the new Rector of the Hospice, the Cavaliere Daniele Camos.

Reviews and Notices of Books.

e Principles of Pathology. By J. GEORGE ADAMI, M.A., M.D., LL.D., F.R.S., Professor of Pathology in McGill University, and Pathologist to the Royal Victoria Hospital, Montreal; late Fellow of Jesus College, Cambridge, England; and ALBERT G. NICHOLLS, M.A., M.D., D.Sc., F.R.S. (Can.), Assistant Professor of Pathology and Lecturer in Clinical Medicine in McGill University; Outpatient Physician to the Montreal General Hospital, Assistant Physician and Pathologist to the Western Hospital. Vol. II.: Systemic Pathology. With 310 engravings and 15 plates. London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 1082. Price 30*s.* net

IN the preparation of this the second volume of his portant work on the Principles of Pathology, Professor G. Adami has taken Professor A. G. Nicholls into llaboration. Although it is less strikingly original in conption and execution than its predecessor, this volume is a ting sequel to it, and is constructed on lines by no means ereotyped in character. The first volume was devoted to a neral discussion of the causes of disease and of the morbid d reactive processes: the present one deals with the subject systemic pathology, that is, with the results of disease it affects the different systems and organs. The authors, course, take for granted a knowledge of the general rinciples of pathology, and are thus enabled to avoid nnecessary repetition in discussing the morbid processes ffecting different organs and systems. A point upon hich they lay emphasis is the importance of disturbance f function from a pathological point of view; and to this, n addition to the usual descriptions of morbid anatomy nd histology, they devote more attention than is customary n works on special pathology. They maintain that this bject, which they term functional pathology, is of rime importance as a connecting link between theory nd practice. This special feature renders the book not nly more useful but more interesting than many works n this subject, which are too often mere explanatory atalogues of morbid conditions.

The first section is devoted to the cardio-vascular ystem, including the blood. Many of the conditions iscussed under this heading, notably those concerned vith the variations in the quality and distribution of he blood, such as anæmia, plethora, thrombosis, embolism, nd hæmorrhage, are in many text-books considered under he heading of general pathology. This Professor Adami and Professor Nicholls maintain is erroneous, since it is more ogical to consider these conditions under the heading of lisorders of the vascular mechanism. The subject of infarction is dealt with in a clear and luminous manner, and the vexed question of the causation of white and red infarcts is discussed in an intelligible fashion. It is maintained that the rate of onset of coagulation necrosis of the tissues determines which of the forms of infarct results after vascular occlusion—the white resulting if this process occurs before the capillary anastomoses have widened sufficiently to induce hæmorrhage. Thrombosis is also described at some length, and clear descriptions of the varieties of thrombi, of their causation and effects are given. The pathology of œdema is critically considered in the light of recent discoveries in regard to the nature and development of the lymphatic system, and the gaps in our knowledge are indicated. The authors give their adhesion to a modified vitalistic theory of lymph formation, and point out where in their opinion the mechanical explanation fails. In connexion with the heart's action a careful review is given of the opposing myogenic and neurogenic theories, and of attempts to reconcile them. In this connexion the difficult subject of arrhythmia is considered, and an admirably succinct *précis* of recent work is given. The conditions comprised under the name of arterio-sclerosis are carefully described, and the valuable information afforded by recent experimental work is also clearly brought out.

The second section deals with the respiratory system, and contains good descriptions of the morbid conditions affecting the constituent structures. Diseases of the alimentary system form the subject of the third section. The digestive functions and their disturbances are discussed in an interesting introductory chapter, but in this the account given of the normal physiology of digestion and absorption is less up-to-date than the rest of the book, since little or no reference is made to the chemical interrelation of the various secretions, or to the actions of secretin, enterokinase, and erepsin; moreover, the views expressed as to the digestion and absorption of proteins are not those now commonly taught. The abnormal conditions are clearly described. Among those specially worth mentioning are the descriptions of appendicitis and of cirrhosis of the liver. A useful classification is given of the various forms of the latter condition, and their nature is clearly differentiated.

The fourth section comprises the special pathology of the nervous system, the eye, and the ear, and gives useful and concise accounts of the morbid conditions affecting those structures. A brief but interesting description is given of the neuron theory of nervous structures, and a discussion of the criticisms to which it has within recent years been subjected. The ductless glands and their affections are discussed in the fifth section. Their functions and perversions of them are considered in some detail, and this section is an interesting one. The urinary system forms the subject of the sixth. In this connexion the classification of the numerous forms of nephritis and the descriptions of their morbid anatomy are worthy of special note. They are clearly described and differentiated from one another. The reproductive system is dealt with in the seventh section, and here the descriptions of tumours of the ovary, the uterus, and the breasts may be mentioned as being full and clear. Lesions of the tegumentary system are described at some length in the eighth section and are illustrated by very clear reproductions of photographs. The two remaining sections deal with the muscular and osseous systems respectively.

The book is well written, the illustrations are good, and the arrangement of the subject matter is well carried out and in such a manner as to facilitate reference. It makes a large and rather heavy volume, but this is mainly due to the good paper and the clear spacing of the type, which serve to render it easy to read, and it is difficult to see how it could have been curtailed. We can cordially commend this as an advanced text-book and a useful work of reference.

Living Anatomy and Pathology: the Diagnosis of Disease in Early Life by the Roentgen Method. By THOMAS MORGAN ROTCH, M.D., Professor of Pediatrics, Harvard University. Philadelphia and London: J. B. Lippincott Company. 1910. Pp. 225, with 264 plates. Price 25*s.* net.

WE have much pleasure in drawing the attention of our readers to this work, which is unique of its kind and of a high standard of excellence. The purpose of the book is to deal as little as possible with the questions of apparatus and technique, and to devote the entire space to the actual clinical teaching of the subject. This is accomplished by means of a very complete series of plates, which are equal to anything we have seen, and each has placed opposite to it an explanatory index indicating its salient features, and immediately adjoining is the text relating to the particular subject under consideration. It is thus a very easy and convenient book to consult and gain what information there is to be had on any particular point.

The book is divided into nine divisions besides an introduction, and the explanatory material will be of great help in understanding technical details. Division I. deals with living normal anatomy, from a premature birth (Plate I.) to a boy of 13 years (Plate XXVII.). In Division II. the author makes an interesting suggestion that the anatomical rather than the chronological age should be considered in determining questions relating to the employment of juveniles. For ascertaining this anatomical age the author takes the stage of ossification and development of the bones of the hand. Plates XXVIII. to XL. show the normal development of the hand from 6 months to 13 years. In Division III. we find the diseases of the newly-born considered, including such abnormal conditions as have occurred in intra-uterine life and are present at birth and in the early days of life. The plates illustrating spina bifida and scoliosis are particularly good. Division IV. deals with diseases of nutrition, and good examples are given of osteomalacia, rickets, and scurvy. The next four sections are devoted to regional diseases, including one on the detection and localisation of foreign bodies. Division IX. is the longest and most important, including in its scope the diseases of bones and joints, and the various infections, such as infectious arthritis, osteomyelitis, syphilis, and tuberculosis.

Among the numerous excellent plates it is very difficult to single out any for special mention, since they are all so uniformly good. It is of interest to compare Plates CVII. and CVIII.; they are of the chest of a girl, aged 7 years. The former is a time exposure of six seconds, the child breathing normally; the latter was taken in one second, with respiration arrested. The superiority of the latter is as convincing an argument in favour of short exposures in radiography as anyone could desire. We cannot help thinking that if the same procedure had been employed in making the plates for Nos. CXXXVII. to CXL., showing the abdominal region, the results would have been more satisfactory; and it is not easy to understand why this has not been done, considering how well our American *confrères* have succeeded with instantaneous radiography for some time past. This, however, is not a serious fault, and we heartily commend this book to all those who are interested in the study of the diseases of early life, whether as radiographers, specialists, or general practitioners.

Klinik der Missbildungen und kongenitalen Erkrankungen des Fötus. (*Malformations and Congenital Affections of the Fœtus.*) Von Professor Dr. R. BIRNBAUM, Oberarzt der Kg. Universitäts-Frauenklinik zu Göttingen. With 49 illustrations and 1 plate. Berlin: Julius Springer. 1909. Pp. 277. Price, paper, M.12; bound, M.13 60.

As Professor Birnbaum truly remarks in his preface, the facts relating to teratology are to be found scattered among many atlases and original papers in various scientific transactions, but there is at present no convenient account of them suitable for the use of the student and the general practitioner, and contained within a moderate compass. For the purpose of supplying this want he has written his manual, which contains a good and succinct account of the different varieties of monsters, illustrated by some very clear photographs taken mainly from the Göttingen collection. The value of the work is enhanced by the addition of some references to the most recent literature on the subject. The malformations and congenital affections of the various organs are considered in order, and a large amount of information is conveyed in a relatively short book.

In discussing the etiology of the different forms of malformation Professor Birnbaum, in common with most writers, lays great stress upon the effect of maldevelopment of the amnion. He apparently agrees with the modern view that almost all forms of malformation owe their origin to this cause. These amniotic defects may be of various kinds; for example, the cavity may be too small, abnormal adhesions or amniotic bands may be present, or the liquor amnii may be deficient in amount or excessive in quantity, and by one or other of these conditions it is possible to put forward a satisfactory explanation of practically all forms of maldevelopment of the fœtus.

By insufficient development of the amniotic cavity may be explained the occurrence of anencephalus or defects in development of cephalic or pelvic poles or of the limbs of the fœtus. No doubt in the curious cases in which at an early period of growth the amnion, or sometimes both the amnion and the chorion rupture, and the fœtus continues its development either outside the amnion still enveloped in the chorion or entirely uncovered by membranes, this occurrence may be the cause of abnormal adhesions with secondary defects. The interesting theories as to the relation of anencephalus to hydramnios are discussed, and the author quotes, apparently with approval, the views put forward by Lebedeff and Küstner—namely, that the hydramniotic fluid is derived from the open canal of the central nervous system, or that the irritation to which the medulla is exposed in these cases leads to over-activity of the kidneys and the excretion of an excessive quantity of urine. A most interesting case published by Th. Landau is quoted in which, combined with a number of other malformations, a five months fœtus presented the extraordinary condition of being born with its decapitated head attached to the placenta near the attachment of the umbilical cord, while the neck was attached to the amnion so that it appeared to be growing from that structure. The body of the fœtus showed a development of the fifth month of intra-uterine life, but the head only that of the second month. Landau thought that an intra-uterine self-decapitation had occurred, no doubt due to an amniotic band, and that the head being separated, its freshly-wounded neck had acquired a secondary attachment to the amnion. When we remember the modern views as to the formation of the amnion in the human fœtus by the appearance of a cavity in the middle of the primitive cell mass, it is easy to see how readily, if such a cavity is not perfectly formed, bands or adhesions may remain and play a very important part in interfering with the perfect growth of the early embryo.

We can recommend this book as containing a good account within a moderate compass of the deformities of interest to the obstetrician, and in view of the fact that no such book is at present available in the English language—we except, of course, the classical work of Ballantyne, which is of quite a different class from the manual under review—it would be very useful if it were translated into English.

Transactions of the American Gynecological Society. Vol. XXXIV. for the year 1909. Philadelphia: W. J. Dornan. 1909. Pp. 940.

THE thirty-fourth volume of the Transactions of the American Gynecological Society is of special interest, since it contains an account of the celebration of the centenary of Ephraim McDowell's first ovariotomy. This was carried out with great success at a meeting of the society held in New York under the presidency of Dr. Riddle Goffe. The meeting was attended by a large number of American gynæcologists, and Professor Pozzi, Professor Herbert Spencer, and Professor Hofmeier represented respectively the gynæcologists of France, Great Britain, and Germany. The President delivered a most eloquent address on McDowell, the father of ovariotomy, and at the banquet held to celebrate the

ccasion very instructive and interesting addresses were iven on McDowell's successors in America, the British ;mpire, France, and Germany by Professor Kelly, Professor ;pencer, Professor Pozzi, and Professor Hofmeier.

The volume contains a number of other papers, many f the greatest value, which were read and discussed at the ieeting. Among these was a paper by Mr. Alban Doran, vho, unfortunately, was not able to be present, "On the Rise ,nd Progress of the Samaritan Free Hospital: a 'Sequel to IcDowell's Triumph.'" A symposium was held on Cæsarean ection, its indications in placenta prævia, and the ustifiability of sterilising in this condition; a number of)apers were read and an interesting discussion took place. Another subject which was discussed was anæsthesia and the arious after-effects which may follow the administration of lifferent anæsthetics. On reading the discussion the English eader will agree with Professor Spencer in the remarks he nade calling attention to the almost entire absence of any- hing corresponding to the large class of skilled anæsthetists vhich exists in this country, a condition of things which eems almost impossible when we remember the exceedingly ;ood surgery which is practised by many of the present-day American operators. Hitherto, in most instances, the anæsthetics have been given by nurses or students, and it is surprising in these circumstances to recall the good results which are obtained.

There are many other valuable and instructive papers in his volume, but none of them can equal in interest those which are concerned with the life and the work of the great American hero, Ephraim McDowell, of whom an interesting engraving is given as a frontispiece.

The Extra Pharmacopœia of Martindale and Westcott. Revised by W. HARRISON MARTINDALE, Ph.D., F.C.S., and W. WYNN WESTCOTT, M.B. Lond., D.P.H., H.M.'s Coroner for North-East London. Fourteenth edition. Pp. 1054. Price 12*s.* net. With Supplement, *Organic Analysis Chart*, by the first Author. Pp. 80. Price 3*s.* 6*d.* net. London: H. K. Lewis. 1910.

TWO years have elapsed since the previous, the thirteenth, edition of "The Extra Pharmacopœia" was issued, and no surprise need be expressed that a new edition has been called for, having regard to the wealth of material that has accrued to therapeutic literature in that comparatively short period. We anticipated that before long, if this remarkably compact book wished to retain its well-deserved reputation of a work which could be safely and profitably referred to on a very wide range of pharmacological subjects, the shape and size of the original editions would have to undergo serious alteration. The previous edition had reached, in fact, bursting point, and room had to be found in the present edition for expansion. This has been done without materially affecting the handiness of the work as a constant source of reference. It is still packed with facts, and we have found it difficult (and we have tried hard) to find any omission made in regard either to recent departures in treatment or to the supply of new remedies. The way in which the book has been brought up to date reflects great credit upon the compilers, who have attacked the task of issuing a new edition with energy and discrimination.

The new chapters contain a full digest of the general literature upon the subject, and embody also the conclusions which the authors have obtained as the result of their own experimental observations. We thus find some sensible remarks upon lactic acid bacilli therapy, the organic arsenic compounds, the electrical introduction of medicaments in the ionised condition into the tissues, radiology, and so forth. Not less ably managed are the chapters on vaccine-therapy, cancer, trypanosomiasis, and tuberculosis, which give all the evidences of recent progress, treated, of course, mainly from the pharmacological standpoint. What makes the book so valuable is, that while it reflects the elaborate watchfulness of the authors upon all topics of medicinal importance, it includes a reference with chapter and verse to the original articles. The excellent section on medical ionisation or iontophoresis, for example, while it is an admirable introduction to the subject, concludes with practical applications and draws upon the original articles which have appeared in the medical journals from time to time in proof of the statements which the authors summarise. An equally good chapter, and one which will be read with considerable interest, is that on radiology, which is a strikingly clear synopsis of all that has been done on this subject up to date. We note further that the section on disinfectants and their standardisation has been extended chiefly through the recent work of THE LANCET Commission upon the subject.

We have alluded to the pains which the authors have taken to present accounts of certain recent developments in medical science, but we bear in mind also that the more strictly pharmaceutical portions of the book retain their accuracy and authoritative character. Altogether we recognise in this volume a difficult task which has been thoroughly well done, and we know of no book dealing with pharmaceutical and allied matters which so successfully defies the finding of important omissions. The "Organic Analysis Chart" is a fitting supplement bearing the same evidence of thorough and conscientious treatment. It contains a scheme for the recognition of organic chemical bodies used in therapeutics, to which is appended a series of corroborative tests. The fact that the tests given have practically been obtained in Mr. Martindale's laboratory adds considerably to their value. A collection of tests of this kind has long been wanted, as hitherto they could only be found by referring to literature of a more or less scattered kind.

Tuberculosis: a Preventable and Curable Disease. By S. ADOLPHUS KNOPF, M.D., Professor of Phthisio-Therapy at the New York Post-Graduate Medical School. New York: Moffat, Yard, and Company. 1909. Pp. 394. Price $2.

THIS work is written mainly for the public, although the medical practitioner might peruse its pages with advantage and gain many hints as to the management of tuberculous patients in their own homes. The author of the book expresses the hope that the information therein given will enable the layman to learn that a sober, proper, and regular mode of living "is all that is necessary to overcome a hereditary predisposition or an acquired tendency to the disease," and also to realise what he is to do, and what not to do, if he wishes never to fall a victim to tuberculosis. The above statement may appear to be not quite sound or at any rate exaggerated, but it is modified by the following expression: "By pointing out the early symptoms that may be easily recognised by a layman, it is hoped to induce the individual having such symptoms to place himself under the care of a physician immediately, while he is still in the most curable stage of the disease, and thus be restored promptly to health and strength."

It is an almost everyday experience in ordinary practice, especially amongst those attending the out-patient rooms of the hospitals, to find patients suffering from pulmonary tuberculosis in such an advanced stage that permanent arrest is scarcely to be hoped for. Further, it is an undoubted fact

that amongst the working-classes the disease is far more prevalent than amongst the more fortunate portion of the population, who are able to dwell in more healthy surroundings. Although the individuals thus most concerned are not likely to read Dr. Knopf's book, yet those who have the care of, or come into contact with, the poorer classes, such as members of boards of guardians, clergymen, district visitors, and so on, might do a vast amount of good work if they were possessed of such knowledge as is set forth in the work now before us. It is written in popular phraseology, so that it can be appreciated by those not versed in scientific terms. The headings of the chapters indicate the nature of the subjects discussed. Chapter I. deals with "What a Tuberculous Patient should know of his Disease." Other chapters bear the headings: "The Duties of Modern Municipal Health Authorities," and "What Employers of Every Kind can do to Diminish Tuberculosis among the Men and Women Working for Them."

The volume gives a good *résumé* of a general knowledge of pulmonary tuberculosis without touching upon theoretical discussions. The information given is sound and reliable, and we can thoroughly recommend it to that class of readers for whom it is intended.

LIBRARY TABLE.

Bulletin No. 60 of the Hygienic Laboratory of the Public Health and Marine Hospital Service of the United States is entitled "A Study of the Anatomy of *Watsonius watsoni* of Man, and of 19 Allied Specimens of Mammalian Trematode Worms of the Superfamily Paramphistomoidea." It embodies the careful and detailed work of the two authors, Professor Charles Wardell Stiles, Ph.D., and Passed Assistant Surgeon Joseph Goldberger (both of them attached to the Division of Zoology in the Hygienic Laboratory), respecting the results of their anatomical researches into the parasite in question, and a comparison with 19 other closely related trematodes, part of which had been sent to the authors for determination. The investigations have led these experts to adopt certain changes in classification and the proposition of several new genera and subgenera. The Bulletin comprises some 264 pages, including an index to zoological names; no fewer than 205 illustrations accompany the text. Watsonius watsoni, according to the Bulletin, represents the type of a new genus. This worm was found in 1904 in Northern Nigeria by Dr. C. F. Watson, in the intestines of a negro who died from starvation and diarrhœa. Six samples of the worm were sent to the London School of Tropical Medicine, and the parasite was classified as Amphistoma watsoni by Dr. H. C. Connyngham, at that time demonstrator at the school, who read a paper on the subject, entitled "A New Trematode of Man," before the Section of Tropical Medicine at the annual meeting of the British Medical Association in 1904. An abstract of this paper was published in THE LANCET of August 13th, 1904. In 1905 Dr. A. E. Shipley, F.R.S., Reader in Zoology in the University of Cambridge, made a careful anatomical study of the worm, cutting it into sections; he gave it the name of Cladorchis watsoni. He subsequently lent his series of sections to Professor Stiles and Assistant Surgeon Goldberger for their assistance in their researches at the Hygienic Laboratory. These investigators' results, however, differ somewhat from those of Dr. Shipley. The authors are of opinion that the former trematode families Paramphistomidæ and Fasciolidæ should be raised to superfamilies, as Paramphistomoidea and Fascioloidea; the present Bulletin deals only with the former. According to the authors the superfamily Paramphistomoidea contains three families—namely, Gastrothylacidæ, Paramphistomidæ, and Gastrodiscidæ. From the anatomical point of view the group in question is very interesting. Careful study of any given species is, however, excessively tedious owing to the thickness of the specimens. The projection method was found t most satisfactory in preparing the drawings to illustrate t topography. Of special interest, the authors point out, the perisuctorial cavity, which may be very large in so species. Dorsal and ventral mesenterium bands traverse t cavity, binding the oral sucker to the body parenchyma. T structure in question is strongly suggestive of a rudimenta body cavity, the absence of which is characteristic of t group of flat worms to which these parasites belong. Tl Bulletin must prove of great interest to all who devc attention to the study of helminthology.

Lectures on Cosmetic Treatment. By Dr. EDMUND SAA FELD of Berlin. Translated by J. F. HALLS DALLY, M.I B.C. Cantab. With an Introduction and Notes by P. ABRAHAM, M.D., B.Sc. Lond. London: Rebman, Limite 1910. Pp. 186. Price 5*s.* net.—This little book consists of series of lectures on cosmetic treatment delivered by t author to medical men. Cosmetics, of course, are rea a branch of dermatology, as was pointed out by anoth Berlin physician, Dr. Max Joseph, in his "Short Han book of Cosmetics," which we reviewed recently. D Saalfeld's book is instructive and plainly written, a practitioners consulted about such distressing, if not seriou conditions as pimples, warts, superfluous hairs, ch blains, freckles, moles, and the like will do well to re it. The remarks upon the use of hair dyes and paints a powders are eminently practical. Dr. Abraham contribut a preface and some useful notes. We are glad to see th the orthodox practitioner is beginning to pay more attentic to cosmetic treatment, for by so doing he will save many patient from drifting into the hands of the "beaut specialist."

The Heart of Marylebone. By "HANDASYDE." London Hutchinson and Co. 1910. Pp. 340. Price 6*s.*—Novels d not often come our way, but if such as do come were all c the class of the book before us we should welcome one ever week. "Handasyde" can write English, she possesses th great twin brethren of writing—namely, humour and pathos- and she can draw character. With all these gifts it is n wonder that the "Heart of Marylebone" is a clever novel Its *milieu* is unusual, for quite two-thirds of the action take place in a nursing home, and "Handasyde" writes about th medical profession with a sense and force which is quit unusual in fiction. We have only one suggestion to make and that is that on another occasion she should not call he medical hero by the name of a well-known medical ma whose practice covers much the ground allotted to th fictional character, charming and skilful though she make him. The other characters in the novel are admirably drawn especially that of Henry Palmerston, and the episode of th spark which causes his wife's explosion of love for him i comedy of the truest sort. An excellent book all round.

The Lion's Whelp. By G. M. IRVINE, B.A., M.B. R.U.I. London: Simpkin, Marshall, Hamilton, Kent, and Co. 1910. Pp. 406.—Dr. John Campbell has written a preface to thi novel in which he draws attention to the main object of th author—namely, to inculcate the adage, "Prevention is bette than cure." Dr. Irvine's hero is an enthusiastic young medical man, "tall and well set-up, with a youthful, military air about him." He has a great objection to giving drugs, and his struggles in practice while endeavouring to carry out his views, together with some love scenes and the machinations of a very stagey villain, make up a story which is needlessly long. Still, much trouble and some invention have gone to the making of the book.

JOURNALS AND MAGAZINES.

The Dublin Journal of Medical Science.—The extent to which surgery is invading the domain of medicine, in the restricted sense, is indicated by the title of a paper by Mr.

B. G. A. Moynihan in the July issue of this journal—"Some Remarks on Dyspepsia." A good case has been made out for regarding certain conditions of gastric disorder, formerly classed as "functional," as due in some instances to organic lesions. The instances here taken—viz., latent duodenal ulcer, appendicular trouble, and gall-stones—can only be relieved by operative measures. Nevertheless, it is to be hoped that all patients who suffer from dyspeptic troubles will not immediately fly for relief to the knife. Mr. J. Spencer Sheill writes on our responsibilities in the prevention of inherited syphilis, and quotes instances in which the infection persisted in spite of prolonged treatment; and Dr. E. Hastings Tweedy contributes a first instalment of the Clinical Reports of the Rotunda Hospital for the year 1908–09.

West London Medical Journal.—In the July number of this magazine is published the Cavendish Lecture for 1910, delivered by Sir Thomas Oliver. It deals with the subject of empyema, and the author incidentally records a case in which repeated tapping of one pleural cavity revealed alternately serous and purulent fluid. Dr. F. G. Crookshank writes on scarlet fever, and notes that the so-called strawberry tongue must not be looked for in the first two or three days of the illness. He finds polyvalent antistreptococcic serum of value in septic cases, and gives salicylates by way of medicinal treatment.

LOCAL GOVERNMENT BOARD FOR SCOTLAND: ANNUAL REPORT FOR 1909.

WE have received from H.M. Stationery Office in Edinburgh a copy of this report, which contains, in addition to the ordinary details of Poor-law and sanitary administration, an interesting account of the Board's action in regard to public health and other matters of medical importance. Upon these brief comments will be interesting.

Functions of the Board.—Apart from certain duties devolving on the Board under statute, the functions of the Scottish Local Government Board are largely of a consultative character, its officers being constantly engaged in advising and giving legal and medical assistance to the local authorities with respect to questions arising out of local administration. The expert advice rendered by the Board appears to be appreciated by the local authorities generally, for the report states that on the attention of these authorities being called to definite failures in statutory duty they have, in the majority of instances, promptly complied with the Board's directions.

Precautions against cholera.—In view of the epidemic prevalence of Asiatic cholera in 1909 at St. Petersburg and other places on the Baltic littoral, as well as at Odessa and Batoum on the Black Sea littoral, the Board provided, by means of weekly circulars, that the medical officers of health of the several Scottish ports should be kept informed of the progress of the epidemic in Russia, and should thus be enabled to take adequate precautions against importation of the disease from that country. Fortunately, however, the port authorities of Scotland had no occasion to put their readiness to the test, for no cases of cholera were imported there during the year, although that scourge had affected Russia in 1909 more severely than even in the preceding year.

Cerebro-spinal fever.—The report contains particulars of 189 cases of cerebro-spinal fever which had been notified to medical officers of health in the year under notice, and of these many were eventually deleted from the registers on account of erroneous diagnosis. Ever since February, 1907, when notification of cerebro-spinal fever was first made compulsory, the disease has steadily become less prevalent in Scotland, although the mortality still continues very high—amounting to 66 per cent. of the reported attacks.

Pulmonary tuberculosis.—Opinion in favour of compulsory notification of pulmonary tuberculosis seems to be still gaining ground in Scotland, 41 local authorities having extended to that disease the provisions of the Infectious Disease Notification Act during the year 1909. Already 44 per cent. of the population of Scotland have adopted the principle of notification for the suppression of this malady, while in several other cases the local authorities are in process of carrying out the statutory preliminaries with that object in view. The Board reports that preventive measures of some kind are commonly adopted against the spread of tuberculous infection. At its suggestion most local authorities have already made arrangements with the registrars to inform the local medical officers of health of the occurrence of deaths from this disease immediately after registration. This ensures prompt disinfection of houses, bedding, &c.; and, indeed, suitable measures of disinfection are carried out, on request, during the lifetime of sufferers from pulmonary tuberculosis. In several places the local authorities provide for the examination of sputum from suspected cases; spit-bottles, personal disinfectants, and paper handkerchiefs are also supplied gratuitously to persons applying for them. In many cases the patients are visited at their own homes by the medical officer of health, the sanitary inspector, or the lady health visitor (where there is one), or by a trained nurse appointed for the purpose, and in every case action is taken or assistance is rendered in co-operation with the medical attendant. The Board does not insist on the provision of hospital accommodation for phthisical patients as a condition of granting powers for compulsory notification, but several authorities voluntarily utilise existing empty wards already provided for the isolation of the common infectious disorders, whilst other authorities provide shelters for the use of patients at their own homes. As a further preventive measure we learn that in Ross and Cromarty the county medical officer of health has issued a leaflet both in English and in Gaelic advising simple precautions for the benefit of consumptive persons and for the protection of their families from infection.

Enteric fever carriers.—In the course of last year the Board was pressed for its decision as to whether a local authority can legally enforce the strict isolation of an enteric carrier. With commendable caution the Board has replied that "it is the duty of a local authority to keep such cases under careful observation, with a view to prevent the spread of infection, but that it has not been found that constant isolation in hospital is essential. What is wanted is that proper precautions should in every case be taken to prevent the spread of the disease."

Notification of Births Act.—The Notification of Births Act, 1907, has been adopted by the great majority of the sanitary authorities in Scotland, and the Board is urging the remaining authorities to avail themselves of the powers of this Act, which has already proved of great service on this side of the Tweed by rendering possible the adoption of timely measures for the preservation of infant life and the reduction of infantile mortality. In certain instances, however, the local authorities in Scotland still hesitate to comply with the advice of the Board, presumably because of the expense.

Defaulters under Vaccination Acts.—The occurrence of only 6 cases of small-pox was reported to the Board during the year, as against 82 in the preceding year, and as many as 2527 in the year 1904. It is unsatisfactory to note that the number of "defaulters" under the Vaccination Acts is increasing somewhat rapidly. As the result of inquiry the Board is of opinion that a considerable portion of this increase is due indirectly to the depression of trade, many of the defaulting parents having migrated to other counties before the returns could be completed. There appears, however, to be a general misunderstanding in Scotland of the terms of the Vaccination Act of 1907.

Mortality statistics: Transfer of deaths.—During the year under notice arrangements were made whereby registrars will in future obtain from parties registering deaths information as to duration of residence of the deceased. This information will greatly facilitate the transfer to the districts to which they belong of deaths of strangers taking place elsewhere than in institutions, and it would be well if similar arrangements were made throughout Great Britain.

Medical inspections for purposes of public health.—The report contains a list of the medical inspections made during last year by direction of the Local Government Board, including, *inter alia*, particulars of 72 special inquiries into local matters of importance to the public health. In view of the very considerable labour and responsibility involved in the work, it is surprising to gather from the report that only one medical inspector is now engaged on the Edinburgh staff.

THE BRITISH MEDICAL ASSOCIATION.

SEVENTY-EIGHTH ANNUAL MEETING IN LONDON.

WE continue this week our report of the proceedings of the Seventy-eighth Annual Meeting of the British Medical Association held in London last week. The meeting was one of the most successful in the annals of the Association, and the work accomplished, by the sections especially, was very great. The tendency towards specialism was most marked in the sections, which numbered 21 this year, as against some nine or ten a few years back. The organisation of the meeting entailed considerable work upon the permanent officials of the Association and upon the large number of medical men who kindly gave their services in honorary capacities. All alike worked hard and their efforts were crowned with success.

The annual dinner was held at the Connaught Rooms, Great Queen-street, on Thursday, July 28th, the President, Mr. H. T. Butlin, in the chair. This annual event, in consequence of the large attendance, assumed an importance and popularity that caused the Connaught Rooms to be full to overflowing, so that covers were laid for guests in the galleries and ante-rooms of the building. Amongst the distinguished company present were, on the right of the President, the Earl of Aberdeen, Lord Justice Fletcher Moulton, Sir Joseph Dimsdale, the Dean of Salisbury, and Surgeon-General Gubbins (Director-General of the Army Medical Service). To the left of the chair were seated Lord Ilkeston, the Bishop of London, the Lord Mayor, Sir James Barr, and Sir W. P. Treloar. Amongst others present were Mr. Andrew Clark, Mr. Gilbert Barling, Mr. Smith Whitaker, Dr. Bárány, Professor Edsall, Dr. Henry Davy, Professor D'Espine, Dr. G. A. Macdonald, Dr. Duncan Bulkley, Dr. Unna, Mrs. Scharlieb, M.D., Dr. L. Wickham, Sir Victor Horsley, LL.D., F.R.S., Professor Kocher, Mr. Guy Elliston, Professor Crile, Professor Gottschalk, Professor Nagel, Professor Döderlein, Dr. F. J. Wethered, Mr. Deputy Painter, Mr. Ralph Slazenger (Sheriff of the City of London), the Worshipful Master of the Society of Apothecaries, the Principal Medical Officer of the Local Government Board, Sir Thomas Crosby, Mr. A. T. Norton, C.B. (Senior Warden of the Society of Apothecaries), Professor Saundby, Professor Lucas-Championnière, Dr. George Ogilvie, Professor Wenckebach, Professor Tait Mackenzie, Dr. Cardenal, Sir James Grant, K.C.M.G., Professor Willems, Sir John Tyler, C.I.E., Dr. Ford Anderson, Professor Fulleborn, Dr. C. H. Lavinder, Mr. C. A. Ballance, Mr. Hempson, Dr. William Collier, Dr. Thomas Sinclair, Mr. Lawford, Dr. Alfred Cox, Sir James Sawyer, the Editor of THE LANCET, and Mr. H. S. Birkett. Mr. Atwood Thorne, who organised the dinner, received the heartiest congratulations on the success of his efforts. In proposing the toast of "The British Medical Association," Lord Aberdeen referred to the fact that the membership was over 22,000 and represented the whole of the British Empire. He congratulated the Association on its encouragement of scientific research, and pointed out that the Association would be called upon in the future for further help to the public, especially in regard to State medicine. Dr. J. A. Macdonald, chairman of the Council of the Association, in responding, gave a hopeful and encouraging account of the successful work of the Association. The toast of "The Guests" was proposed by Dr. Edwin Rayner, who paid the foreign guests the compliment of addressing them in the French language, and assured them, on the part of the Association, of the pleasure experienced at their visit. This toast was first replied to by Lord Justice Fletcher Moulton, who pointed out that medical men now studied causes of diseases as well as the symptoms. Dr. Lucas-Championnière, who also replied, speaking in the English language, described how the presence of foreign guests at the meeting of the Association caused British medicine and surgery to be known all the world over. A pleasant personal note was imparted to the conclusion of the proceedings by an eloquent speech from Sir Thomas Crosby in proposing the health of "The Chairman," who made a charming reply.

About 150 members attending the annual meeting of the Association were present on Wednesday, July 27th, at Caxton Hall, Westminster, at a reception organised by a committee of medical men who are in general sympathy with the proposals of the Minority Report of the Poor-law Commission. Dr. Herbert Manley occupied the chair at the after-meeting, and in his opening remarks stated that he was in full sympathy with the proposals of the Minority Report, and, after referring to the apathy of the profession regarding the inevitable changes in the present Poor-law system, said that he at any rate was quite prepared to trust the State as a paymaster. Mr. Sidney Webb, who was the chief speaker, gave a short but concise account of the proposals of the Minority Report as they affect the public health and the medical profession. Having shown how costly and inefficient was the present dual system and how great an advantage would ensue from the fusion of the public health and Poor-law medical services, he clearly demonstrated that this unification would in no way injure the position and interests of the members of the medical profession. An interesting discussion followed, in which many of those present took part. Professor Benjamin Moore advocated a completely unified system of State medical service. He disavowed Socialistic beliefs in making this statement, but said he considered that the State would benefit more by this system than by the present chaotic methods. Dr. Rowland Fothergill pointed out that the British Medical Association, as such, had at present no scheme for the treatment of the poorer classes, but one had been prepared by a committee and was to be forwarded to the divisions for their consideration. Dr. J. H. Taylor said that he did not agree with the statement that the Majority scheme for medical attendance, and much less that of the British Medical Association, tended more than the Minority scheme to a free medical service for all comers. Dr. Leonard Hill, speaking as a supporter of the Minority scheme, looked forward to the time when laboratory methods would be at the service of all. Mr. E. Claude Taylor, Dr. Rayner, and Mr. F. F. Moore also spoke. In reply, Mr. Sidney Webb said that he saw no possibility of combining the principles of the Majority and Minority Reports. Either we must "deter" or we must "search out"; we could not do both at once to the sick man. But of course there were points on which both reports agreed; for instance, that all the mentally defective and all the vagrants should be taken out of the Poor-law. In conclusion, he urged medical men to read the Minority Report for themselves and make up their minds upon it, so as to really influence public opinion on this important subject.

The social side of the meeting was marked by many pleasurable functions, and in addition to those mentioned in THE LANCET of last week the Master and Wardens of the Society of Apothecaries gave a dinner at their hall on Wednesday, when the toast of "The Association" was given by the Master (Mr. R. B. Wall), and replied to by Sir T. Clifford Allbutt and Dr. Lucas-Championnière. The President, treasurer, and governors of the Royal Hospitals of

Bridewell and Bethlem held a reception the same afternoon at Bethlem Royal Hospital, which was well attended.

On Thursday evening the ladies' dinner was held at the Hotel Cecil, Lady Aberdeen (who is an honorary member of the Association) presiding. Mrs. Butlin assisted in receiving the guests, who numbered 350. The only toast of the evening (other than the loyal toast) was that of "Lady Aberdeen," which was proposed by Mrs. Butlin, who bore testimony to her ladyship's efforts for the prevention of disease. Lady Aberdeen, in reply, said that whilst the world realised that it owed much to the medical profession, it was doubtful whether it recognised how much it owed to the wives and daughters of medical men.

On Friday the Mayor of St. Albans (Dr. E. H. Lipscomb) received a party of guests at St. Albans, and entertained them at lunch at the town hall, after which a visit was paid to the Abbey, and the Mayoress was subsequently "at home." The President of the Dermatological Section (Dr. Phineas Abraham) entertained a number of members at supper at the Savage Club, Adelphi-terrace, on Saturday evening, and on the same afternoon Sir William Treloar provided a special train and took some 150 guests to the Cripples' Home and College at Alton, Hampshire, where they were conducted over the institution by the sisters and were afterwards entertained to luncheon and tea.

On Saturday, July 30th, at the invitation of the Mayor and Corporation of Bath, a party of about 200 members and their friends visited Bath. A special train conveyed the guests to Bath, where they were received at the Guildhall by the Mayor and Mayoress and entertained at luncheon. In the afternoon a reception was given by the local members of the British Medical Association, Dr. Preston King, the Chairman, welcoming the visitors at the entrance to the Concert Room connected with the baths, and tea being served in the Roman Promenade. After luncheon the visitors were conducted round the baths and taken in motor cars round the city. In THE LANCET of Oct. 14th, 1899, we issued a special report on "Bath as a Health Resort," giving a full description of the very excellent baths. Since that time many improvements have been made. One of the most important has been the erection of a drinking fountain in the institution gardens. The patients can now "drink the waters" in the open air and take walking exercise to the musical accompaniment of a good band, whilst a colonnade is provided for wet weather. This is a valuable addition to the course of treatment and enables a "summer season" to be arranged in addition to the winter one. A complete instalment of electric and vapour baths has now been established, and various forms of douche have also been introduced. As a spa Bath is now fully equipped. In addition to the medical requirements, the beautiful surroundings of the city form a picture which will charm the patients in the intervals during which they are not undergoing active treatment.

The annual luncheon of the Continental Anglo-American Medical Society was held at the Café Royal, Regent-street, on Thursday, July 28th, with Dr. St.Clair Thomson, the President, in the chair. The honorary secretary, Dr. Charles G. Jarvis, had worked hard to secure the success of the gathering, and the object of the society to serve as a bond of union between the British and American practitioners established on the continent of Europe and in Northern Africa was most hopefully advanced. Amongst those present were Dr. P. Abraham, Professor Achard, Sir Clifford Allbutt, Sir Thomas Barlow, Dr. T. P. Beddoes, Dr. G. T. Birkett, Mr. J. Bland-Sutton, Dr. Byrom Bramwell, Dr. J. H. Bryan, Dr. W. T. Beeby, Dr. G. S. Brock, Dr. J. L. Bogle, Dr. W. P. Biden, Dr. H. L. Canney, Dr. Lucas-Championnière, Professor A. R. Cushny, Sir James Dewar, Dr. A. W. Dowding, Dr. W. Ewart, Dr. J. Eyre, Professor Fulleborn, Dr. Michael Foster, Dr. M. W. Gairdner, Dr. E. A. Gates, Dr. Goodall, Dr. J. Goodhart, Dr. Hewitt, Dr. D. L. Hubbard, Dr. T. B. Hyslop, Mr. Arbuthnot Lane, Dr. A. Latham, Dr. Luc, Dr. A. P. Luff, Dr. F. C. Madden, Dr. H. C. Miller, Dr. R. P. Mitchell, Sir Malcolm Morris, Mr. P. L. Mummery, Dr. G. Ogilvie, Dr. Philip, Dr. G. Pernet, Dr. N. Raw, Sir James Reid, Dr. A. Ricketts, Dr. T. Robinson, Mr. Mayo Robson, Dr. Risien Russell, Dr. F. M. Sandwith, Professor R. Saundby, Sir James Sawyer, Professor W. H. Thompson, Dr. P. J. Thomson, Professor Alexis Thomson, Mr. H. Tilley, Dr. M. Wall, Dr. A. A. Warden, Dr. P. White, Mr. S. White, Sir William Whitla, Dr. L. Williams, and Dr. T. Zangger. Sir Thomas Barlow, in proposing the health of the society, pointed out how successfully the society maintained the traditions of English medicine on the continent. The disabilities of practitioners abroad must be remedied. He paid a high compliment to the excellence of American medicine and congratulated the society on its membership, consisting of over 100 members in the present year, which happened to be the twenty-first anniversary of the society. The Chairman, in replying to the toast, commented on the important functions fulfilled by the society. Dr. Sandwith in an eloquent speech proposed "The Health of the Guests," which was replied to by Sir James Dewar and by Dr. Lucas-Championnière, who spoke in the English language and complimented those present on the achievements in sanitary science accomplished by English-speaking scientific men.

The annual breakfast of the National Temperance League was held on Thursday, July 28th, at the Imperial Institute, South Kensington, Mr. A. Pearce Gould being in the chair. This league is a non-political, unsectarian organisation founded in 1856 to promote the practice of abstinence from intoxicating beverages, and to disseminate information as to the nature of alcohol and its effects upon individual and national life. Its operations include specialised efforts to influence the public mind by means of meetings, lectures, conferences, and literature. Amongst those present were the Bishop of Kensington, Sir Victor Horsley, Sir Thomas Barlow, Canon Horsley, and Mr. J. T. Rae, the energetic secretary of the league. The Bishop of Kensington declared that temperance reform owed no small debt to the medical profession. Every step medical men had taken in the way of education and hygiene, every new light they had thrown upon foolish habits, had assisted to an immeasurable extent the work some of them had so closely at heart. It was to professional men and not to politicians that the social problems of the day looked for solution. He advocated for England what had been done in America—the publication as a State document of the scientific findings of a conference of medical men, summoned by the State in the interests of truth and for the welfare of the people, for the study of the question of the hereditary effects in childhood and afterwards of any use of alcohol as distinct from the non-use which the National Temperance League recommended. The Chairman, referring to the question of the use of alcohol in medical practice, declared that for over 30 years he had not used alcohol in that way. In his opinion medical men should have the courage of their convictions in regard to ordering alcohol. In regard to the report of the Eugenic Laboratory concerning the effect of alcohol on heredity, he declared that the report did not help in the elucidation of the subject because it consisted for

the most part of useless data. Professor Kocher, in the course of his remarks, hoped that medical men would persuade people to give up the use of alcohol internally and reserve it for external use. Sir Victor Horsley, in addressing himself to a consideration of the report of the Eugenic Laboratory on the effect of alcohol on heredity, declared that it was a most unhappy production, and said that it had been disowned by the chairman of the Eugenic Society. The chairman was supported at the function by many of the leading members of the medical profession, who sympathised with the objects of the league.

As in past years, we have pleasure in recording the courteous assistance given to us by the officials of the Association in many directions, and we tender to them and to our representatives in the sections and elsewhere our best thanks for their efforts on our behalf.

THE SECTIONS.

ANÆSTHETICS.

WEDNESDAY, JULY 27TH.

President, Dr. F. W. HEWITT, M.V.O. (London).

After the PRESIDENT's introductory remarks,

Dr. DUDLEY W. BUXTON (London) presented the final report of the Special Chloroform Committee of the British Medical Association.

Dr. BUXTON then opened a discussion upon the

Dosimetric Administration of Chloroform,

prefacing his remarks with the opinion that the work of the special committee had dealt with one of the most important points in connexion with anæsthetics that had been investigated for some years. A debt of gratitude was due to the Association and its Council for considerable sums of money spent in encouraging and making possible a research which could not otherwise have been undertaken. They should all, too, be grateful to Professor Waller for having brought the question of dosage prominently before the profession, and for his guidance and suggestions in the early stages of the work which alone had enabled the research to reach its present position. Dr. Buxton proceeded to deal only with that part of the report which was concerned with dosimetry. They must, he said, in speaking of a maximum dose, realise that to some extent that dose must be a sliding one. The maximum dose was that which, being reached by giving graduated weak vapours, marked the culminating point at which safe anæsthesia was obtained. No doubt in different subjects this point was reached with very different expenditures of time. It was, however, mainly a time difference, wherein was displayed that difference which they might describe as due to "idiosyncrasy." The maximum dose existed for all subjects; transcending it they got danger, and not reaching it they did not achieve surgical anæsthesia. They must, he said, give up the old view that chloroform affected different individuals in a different manner; the committee could find no evidence of capriciousness in the action of chloroform upon different individuals. As with other drugs, there was some difference in individuals in the amount required before the same effect was produced, but in the vast majority of instances a definite percentage vapour—viz., one not exceeding 2 per cent.—produced anæsthesia within a definite time. The basis of this knowledge had been gained by experiment, and Dr. Buxton believed it to be of much importance that the public should realise the value which in this matter vivisection had in helping to provide for the safety of human subjects. The maximum safe dose which the committee had thus arrived at was the same which Snow and Paul Bert had years ago found to be that required for the production of anæsthesia; with higher doses the condition of narcosis was arrived at. On the other hand, a vapour of 1 per cent. was too weak. 2 per cent. was generally enough, although it might be too much for feeble individuals and for children. The evidence was strong that definite doses produced definite physiological effects, and aberrant cases revealed themselves by an increase in the time taken for the tissues to reach that point of saturation at which anæsthesia was produced. In his own opinion 2 per cent. was always enough even in such cases, extra time being allowed. Alluding to the different methods of providing the dose, Dr. Buxton said that so far as he knew no death had been recorded with the Dubois inhaler. The drawback to the open method was, he said, that it allowed a man to give more than 2 per cent. without knowing that he was doing so. Employing this method an administrator knew his dose only by its result, and he was not justified, said Dr. Buxton, in employing a method which neither told him what he was doing nor how he was doing it.

Professor A. D. WALLER (London) said that for years he had been interested in the administration of chloroform, and particularly from the point of view of procuring a diminution in its death-rate. He hoped that the report just presented would mark the turning-point between what might be called slapdash and more enlightened methods of administration. They were all agreed, he thought, upon the principle that in administering chloroform a percentage of between 1 and 2 must be maintained. For obtaining this constantly supplied vapour of definite percentage the plenum system might advantageously be employed The Vernon Harcourt inhaler had this if no other defect—that the graduation of an instrument-maker was not to be relied upon. Professor Waller declared that the graduation in the instrument was entirely illusory and that he did not trust any instrument-maker's graduation; therefore he preferred the simple arrangement of his balance, where everything was visible and the graduation a simple expression of what all could see. Some such machine which has an absolutely trustworthy percentage should be used educationally. When the student realised what the safe percentages were and what the smell of them was, once this was fixed in his mind, then he could be trusted to use any kind of inhaler. After proper education of this kind the administrator was probably safer, certainly as safe, even with rough-and-ready methods, than with an instrument which led him to rely upon an instrument-maker's graduation. Administration with these low safe percentages must be absolutely continuous, and Professor Waller illustrated by means of a cat that had been exposed for some time to a safe vapour the effects of interrupted administration.

Mr. ALEXANDER WILSON (Manchester) said that no possible exception could be taken to the principles just laid down, but objection could be taken to the methods of applying these principles by means of apparatus. He objected to any attempt to replace knowledge and skill by mechanical means, and he had used a Vernon Harcourt inhaler for three years and a Roth-Drager for five. Mr. Wilson believed that no dosimetric apparatus abolished the fundamental danger of chloroform—its power to paralyse vital centres; nor could they get over its comparative inability to avert shock. The tendency with a Vernon Harcourt inhaler was to keep the patient too lightly anæsthetised. There was, he believed, a kind of death for the prevention of which no dosimetric apparatus availed; the only safeguard was a proper appreciation of the first sign of danger. This was, he said, an exaggeration of the breathing. Shallowing and cessation of breathing were the last things, though it was often taught that they had to be looked for as danger signals.

Dr. HERBERT SCHARLIEB (London) said that they must measure their doses. A man accustomed to measuring his dose would be safer in circumstances where there was no apparatus for accurate measuring than one who was not so accustomed. In his opinion it did not much matter how the measuring was done so long as it was done.

Dr. P. M. CHAPMAN (Hereford) said that he had been chastened by a succession of house surgeons who had not only not used but had never seen dosimetric apparatus. In the course of ten years these gentlemen had their occasional death, but could not be got to take any interest in percentage administration. Dr. Chapman thought that not enough attention had been paid in the report of the special committee to the apparatus known by the name of Dubois. Its one defect, its weight, was alluded to, but no mention was made of its virtues; indeed, he doubted if it had been properly tried at all. One of its virtues was that it could be used during long operations within the mouth in a way for which the Vernon Harcourt was not effective. By means of a tube into one nostril the nasopharynx could with use of a Dubois be flooded with the safe percentage vapour, and

anæsthesia satisfactorily maintained over long periods of time which could not be achieved by the other inhaler. In hospital work the heaviness of the Dubois was an actual advantage, its want of portability being arranged for by means of an attachment for bellows which he would be happy to demonstrate.

Dr. A. G. LEVY (London) said that his experience of percentage administration was gained in the use of an apparatus of his own made upon the same principle as the Vernon-Harcourt. The advantages of any good inhaler were, the facility of limiting vapour strength to a low concentration, facility of increasing and decreasing this strength, and knowledge of the percentage in actual use. Individuals varied very considerably in reaction to vapours of known strength, and he considered a 2 per cent. vapour inefficient in a large proportion of cases. This, he knew, was not the opinion of the committee, but he might point out that Alcock's machine was graduated up to 3 per cent., and it was found often necessary to use its maximum strength. In Dr. Levy's opinion any apparatus capable of producing anæsthesia was also capable of producing death. There were deaths reported during the use of the Vernon Harcourt inhaler. These read like others reported with ordinary methods, and it was a fair assumption that extreme limitation of strength of vapour did not prevent the chance of fatalities. There were, he thought, defects in the Vernon Harcourt inhaler due to shaking of the bottle, to inability to get rid of the effect of differing types of respiration, and to the narrowness of bore of the tube through which breathing took place. In the absence of percentage apparatus Dr. Levy said that the administration would be made more methodical by using on the mask a cover divided by water-tight septa.

Dr. DAVID LAMB (Glasgow) considered the Vernon Harcourt inhaler too complicated for all except those who constantly give anæsthetics.

Mr. F. R. EDDISON (Bedale) expressed his appreciation of Professor Waller's work in connexion with exact dosage.

Professor VERNON HARCOURT explained the physics of his inhaler, and others to speak were Professor STARLING, Dr. J. BROWNLEE (Middlesbrough), Dr. W. MCGREGOR YOUNG (Leeds), and Professor FAUST (Würzburg).

ANATOMY.

WEDNESDAY, JULY 27TH.

President, Professor ARTHUR KEITH (London).

After a few introductory remarks from the PRESIDENT, a long and interesting discussion, in which several representatives of the principal schools in the country joined, took place on the question of

Anatomical Supply.

It was resolved to remit the question to a committee of all the licensed teachers present, to be considered by them at a later meeting.

Professor J. SYMINGTON (Belfast) read a paper on

The Pharyngeal Tonsil,

illustrating his remarks with mounted specimens, life-size photographs, and lantern slides. He had been led to take up this investigation by the little information available as to the usual position and extent of the pharyngeal tonsil in the early years of childhood. He first showed a series of median sections in specimens varying from one to seven years, and then a series of transverse sections in which the tonsil was viewed from below. These showed that the pharyngeal tonsil begins close up to the nasal septum in front and extends back to about midway along the basi-occipital, being limited there by the upper edge of the superior constrictor muscle. He pointed out the discrepancies which exist between his specimens and the descriptions given in some works on applied anatomy, several of which describe the tonsil as extending to a much lower level—e.g., as far as the front of the atlas. His specimens made him inclined to take the view that surgeons in operating on this tonsil when enlarged were apt to scrape down the posterior wall of the pharynx at too low a level. In reviewing some of the effects of enlargement of this tonsil he referred to its effect on respiration, and though the tonsil when enlarged had never, in any of his specimens, come in contact with the upper surface of the soft palate, he had always found the condition associated with the accumulation of a large quantity of mucus blocking the naso-pharynx. The deafness often associated with such cases he accounted for not by any direct pressure of adenoid tissue on the opening of the Eustachian tube—all his specimens showing only a very thin layer of adenoid tissue stretching round from the posterior into the lateral wall of the pharynx—but by a condition of chronic inflammation of the mucous membrane surrounding its orifice.

Professor G. ELLIOT SMITH (Manchester), Professor E. FAWCETT (Bristol), Mr. J. S. FRAZER (King's College), and Dr. P. T. CRYMBLE (Belfast) contributed to a short discussion on Professor Symington's paper, Professor Elliot Smith showing a photograph of a male adult 50 years of age in which the tonsil showed very clearly.

Mr. FRAZER (King's College) read a paper on

The Development of the Naso-pharynx and Eustachian Tube,

illustrating his remarks by reconstruction models and diagrams. In human embryos of the fifth, sixth, seventh, and ninth week he showed that the tympanum and Eustachian tube arise as a broad V-shaped diverticulum from the outer wall of the primitive pharynx, walled in laterally by the first, second, and third branchial arches, and thus involving the outer and upper parts of the first and second pharyngeal pouches. From the lower part of the diverticulum the second pouch was traced inwards and forwards to become continuous with the glosso-epiglottidean sulcus. This diverticulum was shown to remain relatively small while the growth of other parts of the pharynx was proceeding rapidly, and gradually the diverticulum became differentiated into a tubal part—at the level of the first arch and first cleft—and a tympanic part, the latter involving the second and third arches and the second cleft. Later the second cleft was shown to be cut across by the growth backwards of the palatine bar into an upper Eustachian and a lower tonsillar part. In later stages it was shown that the pharynx, at first a flat cleft on the upper surface of the tongue, became gradually extended dorsally by the appearance of the naso-pharynx there. The whole of the naso-pharynx was thus shown to be a dilatation of the *roof* of the primitive pharynx.

Mr. FRAZER also showed, for Mr. JENKINS (King's College), a Reconstruction Model illustrating the Development of the Middle and Internal Ear.

Professor A. CAMPBELL GEDDES (Belfast) gave a lantern demonstration of several Eunochoid Skulls illustrating

The Inter-relation of the Development of the Antrum of Highmore to the Growth of the Molar Teeth.

He pointed out, in passing, that these eunochoid skulls presented no differences as compared with several typical Irish skulls, except in the development of the maxillary region; they appeared normal as far as brain capacity went, but showed marked diminution in nasal height and in the development of all but the alveolar process of the superior maxilla. In one skull the antrum was only poorly developed, and in another it was entirely absent. In spite of this the molar teeth, although not falling into their usual horizontal plane, were nevertheless well developed, and seemed to prove that the moving of these teeth into position is really a process independent of the growth of the antrum, though usually, of course, coinciding with the complete development of that cavity.

Professor GEDDES also showed a series of very interesting abnormalities from dissecting-room subjects: (1) two clavicles showing distinct Epiphyseal Plates at their Acromial Ends; (2) a Third Occipital Condyle in the form of a small facet lying just anterior to the normal right condyle; (3) an Axis Vertebra with an Ossicle projecting from the Tip of the Odontoid Process, which articulated with the above, replacing Luschka's cartilage in the position of the suspensory ligament; (4) Tarsus of a Eunochoid Skeleton showing a well-marked Os Tibiale; (5) a Third Right Rib with a T-shaped Head, its upright limb articulating with the fourth rib below; (6) a Lung showing a well-marked Wrisberg's Lobe with its Branch from the Bronchus lying close below the Vena Azygos Major, separated from the latter only by the Pleural Membrane; and (7) an Abnormal Right Subclavian Artery showing distinct Superior and Inferior Vasa Aberrantia.

Professor WILLIAM WRIGHT and Mr. T. H. C. BENIANS (London Hospital) contributed a paper on

Trigonum Vesicæ,

in which attention was first drawn to a post-trigonal pouch lying behind Mercier's bar joining the two ureteral orifices, the posterior wall of this pouch being formed by the detrusor urinæ. The course and attachments of Bell's muscle (which they found only occasionally present) were then described in detail, and it was pointed out that these fibres, as well as those of the detrusor muscle, converge on the fibro-muscular tissue of the prostate gland, and that in extirpation of the gland the interference with the attachments of the detrusor in particular probably leads to the emptying of the bladder then being dependent on abdominal pressure. The action of Mercier's bar in contributing to the closure of the ureteral orifices was then explained, the fibres of the bar being shown to pull these orifices downwards and inwards, thus increasing the obliquity of the lower ends of the ureters. The authors of the paper suggested a new theory in explanation of the development of the trigonum, in which it was compared with the uterus as produced by the fusion of the Müllerian ducts, the two ureters first coalescing and then being opened up to form the trigonum, Bell's muscle—or a groove found replacing it in some of the lower animals—representing the original posterior wall of each metanephric duct. The implantation of the ureter in the bladder wall was next considered and the theory advanced that they originally opened into the prostatic urethra, the septum between them persisting as the veru montanum.

BACTERIOLOGY.

WEDNESDAY, JULY 27TH.

President, Dr. CHARLES J. MARTIN (London).

The PRESIDENT commenced his short opening address by informing the meeting that the subject chosen for discussion was on

Recently Acquired Knowledge concerning the Bionomics of Pathogenic Organisms and its Bearing on the Spread of Disease.

Dr. Houston had been asked to open the discussion as being the most likely man in London to make out a good case on behalf of the importance of water and such-like agencies in acting as the means of the spread of disease. He said that he felt that Dr. Houston in opening the discussion would not exaggerate the part played by water in this connexion, and lamented the fact that as the man whom they had chosen as likely to make a good fighting exponent appeared to be of the same mind as those chosen to be his opponents in this discussion, there was not likely to be any acute controversy. He said laboratory workers began to feel that the physician and health officer do not realise the great importance of man himself in spreading the disease. He thought that when a case of diphtheria arose it would be more to the purpose to shut the contacts up in a room with burning sulphur than to turn the contacts out of the room and fumigate the latter.

Dr. A. C. HOUSTON (London) in opening the discussion said the subject was not only a very difficult one but involved the consideration of matters open to serious controversy. In the light of recent knowledge opportunity was afforded of reviewing the whole position and of embarking on a new career of progress and discovery. He ventured to think that in the past too much attention had been paid to dead matter and the passive transmitters of disease—viz., soil, water, air, and foods—and too little consideration to the living store-houses of pathogenic bacteria. He cited a few examples of diseases, not all of microbial origin, which have been either stamped out, or at least had their incidence greatly diminished, by attacking the living agencies which fostered their spread. Examples of such diseases were rabies, malaria, and Malta fever, while just recently we are, he said, learning that pellagra is not, as supposed, caused by the consumption of diseased grain but by a species of sand fly. Dr. Houston dealt with his subject-matter under two headings: the dead and merely passive transmitters of disease, and the living store-houses or factories of disease. As regards soil, the most trustworthy evidence nowadays tends to show that pathogenic bacteria not only do not multiply in soil but even undergo a process of gradual extinction therein, and in the absence of fresh pollutions it is difficult to believe that soil can remain indefinitely infective. Referring to air, he said that it was probably agreed that pathogenic bacteria do not multiply in the air, and that the air is not a factory responsible for bridging over the gap between one epidemic and the next. The influence on the spread of disease by leaking drains, provided they do not contaminate drinking water or food, seemed, he said, very problematical. The view held of the extreme improbability of sewer air being an important factor in conveying disease organisms rests on the foundations of fact and common-sense, for sewer air usually not only contains very few microbes but excremental bacteria are almost entirely absent. Sewage contains vast numbers of bacillus coli, and even if it contains specific bacteria these are probably present in infinitely smaller numbers than bacillus coli. If, then, sewer air were charged with bacillus coli the occasional accompanying presence of specific bacteria might be conjectured. But one knows the air is not so charged. The dangerous part that may be played by water in transmitting disease is generally acknowledged, but it is important to bear in mind that pathogenic bacteria not only do not multiply in water, but tend to lose their vitality therein. Dr. Houston said that during 1907 and 1908 he had examined 156 samples of sewage-polluted river water, with the result that of 7329 selected microbes not one could be identified as bacillus typhosus. He said, except for two microbes, one of which could not with certainty be differentiated from Gaertner's bacillus, and the other being almost, if not quite, indistinguishable from bacillus typhosus, he had never been able to isolate from water any microbe which could not readily be differentiated from either the typhoid or Gaertner's bacillus. One great fallacy in connexion with typhoid work is that a large number of "water microbes" are very feeble gas producers, and when grown in liquid sugar medium no gas is visible in the inner inverted tube. Often, however, on tapping the tube smartly a cloud of bubbles rises to the surface. He said in his experience the best way of demonstrating the capacity of such microbes to form traces of gas was to use solid gelatin sugar tubes and incubate for five hours at 37° C., and thereafter for one or two days at 20°–22° C. He did not wish to deny that sewage-polluted river waters ever contained pathogenic bacteria, but to point out that they can only be present infrequently and only in small numbers. He thought solid foods did not play a very large part in the propagation of epidemic disease, but that vegetables grown in sewage-polluted soil and eaten uncooked were potentially dangerous. He had found by comparative experiments in the case of shell-fish that per unit volume an oyster is vastly more impure than the water surrounding it. Coming to liquid foods, he said that they stood in a different category to solid foods in relation to the spread of disease, for actual multiplication may take place in them. In summary at this stage, he said he had tried to suggest that perhaps too much importance had been attached to those agencies which in the main act chiefly as passive transmitters of disease. He thought that the active repositories of infections were to be found in living creatures who were suffering, or had previously suffered, from infectious diseases, or which, though not themselves sufferers, yet stored in their bodies infective germs. He did not suggest that dead matter played no part in fostering contagion, for it was known that anthrax- and tetanus-infected soils remained almost permanently dangerous, but merely advanced the opinion that in the past, generally speaking, too much importance had been attached to dead matter and too little to the living carrier. He said he would like to point out that as typhoid is not the only disease liable to be spread by carriers, the time is ripe for reconsidering the question of how far infectious diseases generally are spread in this manner. It is possible that we may not be spending too much time and money on the purification of impure substances, on the protection of pure materials from contamination, and on the avoidance of dangerous surroundings, but, in his opinion, as a nation we are devoting too little attention to the attempt to discover and render inoperative the living store-houses and factories of disease. Work on these "living lines," he thought, afforded the best hope for progress in preventive medicine.

Professor OTTO LENTZ (Berlin) read a paper on the results of

The Typhoid Campaign in South-West Germany,

with particular reference to carriers. He sketched briefly the organisation and method of work of the typhoid research

stations in South-West Germany. He said these stations have four problems to face—(1) that of assisting clinicians in diagnosing typhoid by examining the blood and excreta of patients; (2) that of ascertaining the sources of infection and rendering them innocuous; (3) of seeking for unhygienic conditions; and (4) after the clinical recovery of the patients, of determining, by repeated examination of their excreta, when they have ceased to eliminate typhoid bacilli. Professor Lentz said the campaign had thrown light on many different important points. Many well-known bacteriological methods for the diagnosis of typhoid had been worked out. The constant control of the clinical picture by bacteriological methods had caused our knowledge of the pathology and clinical symptoms of the disease to undergo many changes. Valuable observations had been made in regard to epidemiology, and individuals were discovered who for weeks running eliminated typhoid bacilli without having any symptom to point to such condition. It had been found that the elimination of typhoid bacilli may not cease with convalescence, but may persist in 4–5 per cent. of all cases for years, presumably till the end of life. These chronic bacilli-carriers, he said, eliminate virulent organisms, and many cases owe their infection to them. But those infected are not so numerous as might at first sight seem probable, for ere long all in the immediate vicinity of the carrier become infected and suffer severely or mildly, and thus around the carrier arises an immune community. Cleanliness, too, on the part of the carriers effectively diminishes the danger they are to others. The typhoid morbidity was reduced from 3489 cases in 1904 to 1226 in 1909. The percentage in the number of villages and towns in the campaign district was reduced from 18·7 in 1904 to 9·8 in 1909. Likewise large epidemics were diminished year by year till in the last two years only two have occurred.

Dr. W. G. SAVAGE (London) then read a paper on Bovine Streptococcus Carriers.

Dr. MACALISTER and Dr. MENZIES (London) communicated a paper on

Dysentery Carriers.

They said epidemics of bacillary dysentery usually conform to a type that suggests the agency of carriers, healthy and otherwise, the former occurring on rare occasions only. It appears that dysentery is not propagated by healthy carriers, but by incomplete convalescents. In preventing an epidemic the first step is to apply careful treatment to all cases during and immediately after the primary attack. In institutions all persons employed in laundries or kitchens should be free from taint.

Dr. F. A. BAINBRIDGE and Dr. R. A. O'BRIEN (London) communicated a paper on

The Natural History of Certain Bacilli belonging to the Food Poisoning Group.

They said from their series of examinations they were led to consider that the Bacillus suipestifer and the Bacillus paratyphosus (β) are distinct organisms. B. suipestifer seems to be widely distributed in food, especially that derived from the pig, and only occasionally occurs in the human intestine, whereas B. paratyphosus occurs in the human alimentary canal, though it may cause a secondary infection of food. Of 270 samples of fæces examined for these organisms all gave negative results, so their occurrence in man must be rather infrequent.

Dr. JOSEPH A. ARKWRIGHT (London) read a paper on

Diphtheria Carriers.

He said that the persistence of the bacillus in the fauces is of about equal duration in all healthy carriers, though there is some reason to suppose that contacts harbour the bacillus for a shorter period than convalescents. Of all cases of diphtheria nearly 50 per cent. are free from the bacillus within two or three days of the disappearance of the exudate from the fauces. In several recorded cases convalescents from diphtheria have been found to harbour non-virulent strains of bacilli. He said that persistent carriers should be carefully investigated by the isolation of the bacillus with a view to ascertaining whether it is culturally a true B. diphtheriæ, and if so its virulence should also be tested.

Professor E. J. MCWEENEY (Dublin) then spoke. He drew attention to the necessity for strengthening the Public Health Law in dealing with carrier cases, and cited an instance where a female had had typhoid fever seven years ago, and since then had infected a considerable number of persons. He referred to the value of "China green" in inhibiting the growth of coli.

Dr. R. M. BUCHANAN (Glasgow) spoke of the difficulty of removing typhoid bacilli from the gall-bladder and of ridding the urine of them. He said the presence of infection in apparently healthy persons was well exemplified in connexion with cerebro-spinal fever, the recent epidemic having shown that 26 per cent. of contacts were carriers and potential sources of infection.

Professor LENTZ and Dr. HOUSTON then replied, the latter stating that the meeting felt that progress in preventive medicine in future lay in attacking the store-houses of disease. A weak point in the carrier question was, he said, the lack of proof that the bacilli found in carriers were capable of causing epidemics.

DERMATOLOGY.

WEDNESDAY, JULY 27TH.

President, Dr. PHINEAS S. ABRAHAM (London).

The section spent some time in examining and discussing the 22 rare and interesting cases which had been sent up from various parts of London and the country. Amongst these were cases of Granuloma Annulare occurring in a boy, Painful Keratosis of the Feet, and Scarring after X Ray Treatment, shown by the PRESIDENT; cases of Epidermolysis Bullosa, by Dr. T. B. BEDDOES (London) and by Dr. G. N. MEACHEN (London); Tinea Ungium and Extensive Dystrophy of the Nails, by Dr. MEACHEN; a Black Pigmentary Nævus of the Arm, Familial Congenital Keratosis Palmarum, and Congenital Nævo-lymphangiectasis of the Neck, by Dr. CECIL REYNOLDS (Newbury); Macular Anæsthetic Leprosy, by Dr. W. GRIFFITH (London); Bullous Erythema, by Dr. A. EDDOWES (London); Bazin's Disease, by Dr. AGNES F. SAVILL (London); and several cases of Onychitis, by Dr. D. WALSH (London). In one of Dr. Walsh's cases of onychitis the patient was a man, aged 53 years, who had a history of syphilis, for which he had undergone treatment during two years. For 20 years the nails had been diseased. They became black and fell off, being replaced by a ridged, horny growth. No fungus had been detected. The opinion of the members present was divided as to whether the condition was a trophoneurosis or a syphilitic manifestation. In another case all the nails were coffee-coloured, with extensive brick-yellow pigmentation of the entire palm of the hand, and patches of pigmentation over the carpo-phalangeal joints; syphilis had recently been present. In a third case an acute septic condition had been induced by manicure instruments, with resulting deformity of the nails.

The PRESIDENT opened the proceedings of the section with a short address in which he welcomed the visitors and expressed his pleasure at the presence of the distinguished dermatologists who were to take part in the discussions. Amongst these were Dr. Bulkeley of New York, Dr. Unna of Hamburg, Dr. Feibes of Aix-la-Chapelle, Dr. Wickham of Paris, and Sir Jonathan Hutchinson of London. Expressions of regret for inability to attend the Association meetings had been received from Professor Neisser of Breslau, Professor Walter G. Smith of Dublin, Dr. Sabouraud of Paris, Dr. Max Joseph of Berlin, and others. Whilst welcoming the pioneer researches in vaccine-therapy, X ray, radium, and freezing methods of treatment of skin diseases, the President pointed out that old and well-tried remedies still succeeded where newer methods failed, and that these older remedies must not be forgotten and laid aside. He considered that many patients' time and money had been wasted in trying to obtain a cure for lupus with treatment by the Finsen rays when older remedies, such as the Volkmann spoon, would have effected an earlier and happier result. He then declared the section open.

Dr. FEIBES (Aix-la-Chapelle) introduced the subject of

Recent Methods in the Diagnosis and Treatment of Syphilis,

and said that modern medicine had made no greater progress than in the diagnosis and treatment of syphilis. By means of experimental investigation on animals, the discovery of the spirochæta pallida, and the serum reaction of the blood, mysteries had been recently elucidated and old principles which had formerly been rules had now been rejected. Experiments on animals had aided us in understanding the nature of the disease, but were not yet of any

diagnostic use. There was no doubt that Schaudinn's spirochæta pallida was present in all cases of syphilis, whether hereditary or acquired. It was found even in tertiary cases, and its scarcity in gummata explained the slight degree of infectivity in these lesions, just as its abundance in earlier lesions explained their high degree of infectivity. Formerly a diagnosis could not be made in those cases of primary sore in which the lesion was indistinct, and the physician waited until there were enlarged glands or a primary rash before he would form an opinion or treat the patient for syphilis. Thus valuable time was lost. At this stage it was of the utmost importance to discover the presence of the spirochæta, because the serum reaction was not conclusive so early. Anyone could detect the presence of the spirochæta pallida who was familiar with the improved methods of examination. The suspected spot should be severely rubbed with a dry piece of cotton wool; the serum was then obtained by squeezing the part with anatomical pincers or by applying a small Bier's sucker. It should then be placed on a microscopic slide and examined by the dark field illumination, and the spirochæta pallida was readily distinguished, with its corkscrew movements, from the coarser spirochæta refringens. This means of detection was much superior to that of the "smear" method. A good method of colouration was that of Giemsa, modified by Schereschewsky. The serum was thinly spread over a clean slide and fixed for half a minute over the vapour of a 1 per cent. solution of osmic acid, then dried in the air at 37°C., and then passed thrice through the flame. A boiling ½ per cent. solution of glycerine, containing one drop of Giemsa's solution to each cubic centimetre, was then poured over the slide. This was left two minutes on the slide, renewed twice, then liberally cleansed under running water. By this method of staining the spirochæta pallida appeared a bluish red colour. Dr. Feibes described also the Burri stain method, which he did not consider so certain. The best method was that of Meirowsky-Cologne. The suspected part was first cleansed with normal saline, then a freshly prepared watery pap of violet of methyl was thoroughly pressed into it with a glass stick; two or three minutes later a Bier's sucker drew off serum, which became a deep violet hue. This was mixed on a slide with a drop of distilled water and examined with the oil immersion lens. The bacilli and red blood corpuscles stained deep blue; the spirochæta stained a pale blue; the refringens appeared much coarser. The corkscrew movement of the spirochæta pallida could be distinctly seen. The Wassermann reaction frequently failed in the early stage of syphilis. When the diagnosis of the primary lesion had been accomplished the question of its excision arose. He recommended it as possibly preventing extension of the disease; the diseased part was cut out completely and the wound burnt with strong tincture of iodine. Formerly the physician had been obliged to wait till the primary roseola appeared, but since Neisser's[1] researches had been published this delay was not permissible. Once the spirochæta had entered the body, strong treatment must be resorted to in order to prevent future symptoms. He had no hesitation in saying that mercurial treatment by means of pills was not thorough enough. The early treatment must be energetic; and in cases where the early symptoms were marked, the mercurialisation should be carried to the limit of physiological tolerability. He had acted in this belief for 20 years, and was glad to see that his view had now become general and was specially recommended by Neisser. Thorough mercurialisation could best be carried out by rubbings (Schmierkur). Complete safety was also ensured by this method, for it could be stopped at once and a soap bath administered if untoward symptoms supervened. With injections of insoluble mercurial preparations, on the other hand, the metal continued to act after its administration had been stopped. Dr. Feibes then described the method of treatment adopted in many thousands of cases at Aix-la-Chapelle. Experienced rubbers massaged the patients; gradually increased amounts of ointment were applied over gradually increased areas of the body. Frequent changes of baths were ordered at the same time, such as sulphur baths, douches, and electric light baths. The heart and urine were frequently examined. When rubbings were unsuitable injections of calomel were of value, though they had the disadvantages of pain and the possibility of abscess formation. Neisser had recommended, together with the grey oil injections, asurol, a salt with 40·3 per cent. of mercury. This dissolved readily in water, did not precipitate albumin, and did not irritate during injection. A new preparation (1907), the atoxylate of mercury, was recommended by Lesser, Lambkin, and others, but Zieler (Würzburg) reported no specially good results from its use. As regarded the arsenical treatment of syphilis, Lesser had tried it with favourable results in large doses, but these quantities had approached a poisonous amount. Moreover, patients who had been treated with atoxyl had showed return of the disease earlier than usual. After the dangerous effects of atoxyl had been reported it was replaced by the arsacetin recommended by Ehrlich. This also had been found to be poisonous and was less efficacious. Dr. Feibes then briefly discussed the other forms of arsenic on trial by various physicians—hectine, in Paris, by Dr. Balzer and Dr. Hallopeau; arylarsonaten, by Lundie and Blaikie; arseno-phenyl-glycin; and dioxydiamidoarsenobenzol (Hata) by Ehrlich, Kromeyer, and others. Sufficient time had not yet elapsed to prove that these were not as poisonous as the former arsenical preparations. Nor had it yet been proved that they could replace mercury in the treatment of syphilis. Large doses of iodide had brought about magnificent results in tertiary affections, and iodipin had acted remarkably well in such cases. He gave subcutaneous injections of iodopin together with mercurial inunctions in some cases. Other preparations of iodine, such as sajodin, jodtropon, and iodglydin were also very useful. As far as general rules for treatment were concerned, he approved of the intermittent method adopted by Neisser and Fournier, whether the Wassermann reaction was negative or positive. Even when this reaction was negative it was not certain that a cure had been obtained permanently; it indicated that only mild treatment was called for. Though a negative reaction were present the physician should not wait till it became positive before recommencing treatment. In four very severe cases he had not been able to get a negative reaction until energetic treatment had been continued for a whole year. The real value of the Wassermann reaction was found in the later stages of the disease, when a permanently negative reaction indicated a cure. Even in that event, however, tabes might ensue. Only time could prove whether a constant positive reaction, in the absence of clinical symptoms, always indicated the presence of disease. There were examples of men who had had syphilis 10, 15, or 20 years before, and who had had healthy children, though the Wassermann reaction had been positive; in such cases there was probably visceral syphilis present. Professor Lesser had discovered gummata in the internal organs, and syphilitic alterations in the aorta, testicle, liver, &c., in patients who had undergone treatment for syphilis and had been free from symptoms for many years. In cases apparently healthy, with a positive Wassermann reaction, syphilitic signs had sometimes appeared later. Energetic anti-syphilitic treatment in such positively reacting cases converted 75 per cent. into negatively reacting cases. Mothers of hereditarily syphilitic infants reacted positive almost without exception. These women were apparently immune to syphilis, but Neisser's work had shown that this apparent immunity was due to the fact that they really were affected with the disease. These mothers could suckle a syphilitic infant without apparent infection, but the positive reaction of their blood proved that they had the disease; and Buschke had found the spirochæta in the lymphatic glands of one such woman. These considerations led to the practical conclusion that in the *late* stages and in the *latent* stages of syphilis in cases in which a positive Wassermann reaction was present, it was necessary to proceed with anti syphilitic treatment in order to prevent the possibility of future troubles, such as tabes, general paralysis, and vascular diseases. Treatment should be pushed until the positive reaction had been converted into a negative one.

Mr. J. ERNEST LANE (London) said that he did not employ only one method of treatment of syphilis. The nature of the attack and the constitution of the individual had to be taken into consideration in each case. He did not agree with Dr. Feibes in his wholesale condemnation of the pill treatment, which was satisfactory, he considered, in most cases. It was a form of treatment which was safe, useful, and able to be carried out by the patient himself. No patient could carry out the inunction treatment by himself—a professional

[1] THE LANCET, August 8th, 1908, p. 391.

bber was required. The modern tendency in the treatment syphilis was for more prolonged treatment, and no patient ould submit to many and prolonged courses of inunction. e would be considered old-fashioned in his advocation of e pill method, but he had had knowledge of the other rms of treatment also, and he had come to the conclusion at mercury given by the mouth was quite satisfactory. He ıd heard that it was responsible for the late manifestaons, such as tabes, but he did not agree with this. Such ould be found after an insufficient time of treatment by any rm of mercurial administration. One great authority had id that two years was a long enough period for treatment. e advocated a minimum of five years, and would prefer to eat most patients for seven years. The less troublesome the ode of treatment the more likely was it that a patient ould carry it out; this was a consideration in favour of the ill form of treatment. Calomel injections had drawbacks ıch as pain, abscess, stomatitis, and pulmonary embolism, ut these rarely occurred. After experience of 3000 injections f calomel he had seen very few untoward incidents; ccasionally a chocolate-coloured abscess had occurred. he disadvantages of the inunction method were that atients disliked it; it was unequal in its action; sometimes produced dermatitis and stomatitis; and it entailed an mount of publicity which prevented its being carried out or a sufficient length of time. As regarded the arylarsonates, e had employed Burroughs and Wellcome's preparations of oamin and orsudan in courses of ten injections on alternate ays, and he had had at last a case of a man over 50 who had ecome suddenly blind after his tenth injection. Cases of lindness had been reported abroad after injections of atoxyl or sleeping sickness. As sleeping-sickness was a fatal isease it did not matter whether atoxyl was tried or not; ut in syphilis he did not think he was justified in allowing atients to run the risk of blindness. With regard to Ehrlich's preparation he had heard that a considerable proportion of relapses had been reported.

Dr. R. B. WILD (Manchester) said he agreed that old methods of treatment should not yet be abandoned for the ıew remedies. The question to be considered was whether he remedy prevented the appearance of tertiary lesions. The new remedies might cure the early manifestations, but ıntil time had elapsed they could not speak with any certainty as to the effect of these recent arsenical preparaions in preventing the late manifestations of syphilis. No matter how mercury was given, by mouth, or skin, or muscle, it reached the blood in the same form, as a soluble albumen, and for a time was stored in the liver. He believed the mercury reached the liver and the blood as soon when given by the mouth as by injection, provided that the digestion was in order. He had examined cases treated at Aix-la-Chapelle and found the mercury was still being excreted in the urine some months after leaving off the inunctions. Although symptoms often disappeared after a course of intramuscular injections, yet the treatment was often not carried out long enough to prevent the outbreak of serious visceral and other manifestations in later years. As regarded the arylarsonates, he had seen signs of general neuritis supervening after the treatment. Arsacetin he found left the body in the form of atoxyl, which could be detected in the urine. Thus arsacetin was probably not less toxic than atoxyl, though it was claimed to be so. A positive Wassermann reaction might not be an indication for further anti-syphilitic treatment, any more than was the presence of the agglutination test after typhoid fever an indication for putting to bed again. This test was still very complex and difficult, and too much reliance could not be placed on it as an indication for treatment in later years.

Dr. GEORGE PERNET (London) limited his remarks to the treatment of syphilis. He agreed with Mr. Lane as to the necessity of individual treatment of the disease. The teaching and treatment of syphilis were backward in this country. He did not regard the pill method of treatment as satisfactory. Sufficient time had elapsed to prove that many tertiary manifestations of syphilis were present after pill treatment, and possibly in these cases the treatment had been carried out far too short a time. When a case came to him after having been neglected for a time he recommended intramuscular injection as the most rapid method of getting the constitution under the influence of mercury. In serious cases, such as threatening cerebral thrombosis, the pill method was too slow; before the mercury reached the circulation the patient might have developed hemiplegia. The intramuscular method gave results little short of marvellous in serious cases. He had found it was best to use a needle 5 centimetres long; this should be introduced deeply first, then the syringe could be fitted on, and by pumping up one discovered whether a blood vessel was punctured; if so, the needle was reinserted in another situation. He then filled the syringe with the insoluble preparation of mercury, either calomel or grey oil. The French syringe was preferable to the German one, he considered. The insoluble mercurial preparations were better than the soluble preparations, because they were not excreted so rapidly by the urine from the system. Mercury should be given for at least four years, and it must be given, along with potassium iodide, in the tertiary or later stages of syphilis. He had had some experience with the arsenical preparations, especially hectine, which was being employed in Paris, but he did not consider it could ever replace mercury in the treatment of syphilis; it could only be employed as an accessory.

A paper on

The Serum Diagnosis of Syphilis

was read by Mr. J. E. R. MCDONAGH (London). He briefly outlined the theory and technique of Wassermann's reaction, and expressed his opinion as to the inferiority and unreliability of the modifications of that reaction when compared with the original. He considered Wassermann's reaction was the greatest advance in modern medical science. He discussed the practical applications of the Wassermann test: (1) in the primary stage of syphilis preference should be given to finding the specific organism by means of the dark ground illumination methods, because the Wassermann reaction was obtained only in 40 per cent. of early cases; (2) the value of the reaction in diagnosis in the secondary stage of syphilis and the influence treatment had upon it; (3) the value of the reaction in differential diagnosis in the later manifestations of syphilis, and in confirming the syphilitic origin of certain nervous diseases; (4) the value of the reaction in ascertaining whether a woman who aborted was syphilitic or not, and whether the children of a syphilitic mother had contracted the disease or not; (5) the importance of treating a syphilitic (though apparently healthy) woman and also her husband; (6) the influence of treatment upon the reaction in congenital syphilis; and (7) the value of the reaction in life insurance examinations.

Dr. G. STOPFORD TAYLOR (Liverpool) said that he had given up atoxyl in the treatment of syphilis because he had found it valueless in comparison with mercury. He treated invariably now with grey oil, and if the symptoms did not soon disappear he employed inunctions. Each course consisted of from 10 to 12 injections of 7 centigrammes of grey oil. He gave three courses during the first year, and at least two in the second year. One had to remember that in some cases symptoms of syphilis disappeared spontaneously. The value of injections was that the patient was kept under observation, whereas when the pill treatment was given the patient often ceased to take them as soon as his first syphilitic symptoms vanished. He agreed with Dr. Pernet that in England syphilis was not recognised or treated as thoroughly as it was in other countries.

Dr. J. GOODWIN TOMKINSON (Glasgow) preferred the soluble salts of mercury because the effects could be controlled. If toxic symptoms supervened, with the cessation of the injections the symptoms ceased; whereas with the insoluble preparations the symptoms continued for a time after ceasing the injections.

Dr. GRIFFITH spoke of the risk of the intramuscular injections. It was the only method of mercurial treatment which could cause death. Sufficient time had not elapsed to prove that tertiary symptoms did not ensue. In the majority of cases the pill method of treatment was satisfactory.

Dr. EDDOWES said that he had used mercurial ointment over the local manifestations of early syphilis, as well as the pill treatment internally. For obstinate tertiary lesions he had often found injection of mercury in the neighbourhood did little good, and when mercurial ointment failed he had found the application of mercurial plaster of great benefit.

Dr. A. DOUGLAS HEATH (Birmingham) advised the use of inunctions. The ordinary blue ointment often caused severe dermatitis, but when employed with an equal quantity of ung. aq. rosæ (B.P.) this effect was avoided. He had used this method for 15 years, and had instructed his patients to

use it themselves, without any professional rubber. There were no risks in the inunction method.

The PRESIDENT having thanked the speakers, Dr. FEIBES, in replying to the discussion, said that he did not consider the pill treatment efficient in the early stages of syphilis. The intermittent treatment was the most efficacious; Neisser and Fournier were both of that opinion.

DISEASES OF CHILDREN.

WEDNESDAY, JULY 27TH.

President, Dr. ARCHIBALD E. GARROD (London).

The PRESIDENT, in opening the proceedings, said that though diseases in children were treated as a specialty there was no limitation to a particular region of the body as in other specialties, but the whole of general medicine was included. The necessity for special treatment of children was recognised by the Association and also by the State in the enlarged and enlarging work involved in their care.

Dr. J. A. COUTTS (London) opened a discussion on

The Diagnosis and Treatment of Non-Tuberculous Joint Diseases in Children,

and pointed out that: 1. Rheumatism was by far the most frequent cause of joint trouble in children. He referred to the importance of rheumatic arthritis in spite of its slight severity in childhood, and to some recent views as to treatment and the frequency of acute cardiac dilatation. 2. The arthropathies associated with anterior poliomyelitis and their pathological connexion with Charcot's disease. 3. Syphilitic joint affections in early infancy and later childhood. 4. Pneumococcal joint affections. These might occur as an acute disorder in a general pneumococcal infection, or as a subacute one where some remote localised pneumococcal lesion, often an empyema, acted as a focus. A similar rule applied to other pneumococcal affections, such as pericarditis and peritonitis. 5. Gonococcal arthritis might occur in the youngest infants with ophthalmia. In older children it was more frequent, and occurred at a younger age in girls than in boys. 6. Joint affections in hæmophilia and purpura, the latter successfully treated with polyvalent antistreptococcic serum; rheumatoid arthritis and Still's disease; joint affections with the acute specific fevers.

Mr. E. M. CORNER said that from a surgical point of view the discussion of the inflammation of joints of non-tuberculous origin offered great opportunities for excursions into the more or less enchanting and romantic regions of hæmophilia and kindred conditions. Tempting though that prospect might be, it offered a very unpractical review of the subject, a surgeon seeing few cases of such affections. The most frequent cases of inflammation of joints to be seen in the surgical wards of a children's hospital were undoubtedly those due to tuberculous disease. Next in frequency would be cases which were mistaken for tuberculous disease. These latter were members of a large class of infective diseases of joint, the infection not being due to the tubercle bacillus. The more subacute or chronic the infection, the greater similitude to the clinical pictures in the text-books ascribed to tuberculous disease. In the more acute forms they approached the clinical condition ascribed to septic arthritis. Of these infective, but non-tuberculous, diseases of joints several varieties would be brought forward illustrating this, the most frequent class of non-tuberculous arthritis seen in the practice of the surgical diseases of children. Such examples would include cases due to streptococcus infection, staphylococcus infection, pneumococcic infection, uncertain infections, infections of joints with the colon bacillus, the typhoid bacillus, the influenza bacillus, after specific fevers, gonorrhœa, injury, surgical operations, &c. In the disease of children such conditions had a distinct peculiarity as contrasted with the corresponding conditions of adults. In children the joint disease was not infrequently secondary to a blood stream infection of the bone in the neigbourhood of the joint, the acute joint disease being secondary to the acute bone disease. Diagnosis was briefly discussed. The treatment must consist of rest, followed by massage or operative measures, both being aided by medicinal and vaccine treatments.

Mr. J. KEOGH MURPHY (London), speaking of his experience at the Paddington Green Hospital for Children, said that there was recently an epidemic in which seven or eight cases of pneumococcic arthritis were admitted. They were mostly suppurative and there were in addition to true joint affections periarticular inflammations, especially about the shoulder, due to infections of bursæ. The prognosis was favourable after early operation.

Mr. H. TYRRELL GRAY (London) in cases of acute pneumococcic polyarthritis recommended evacuating pus and then washing out the joint cavities with 1 in 2000 solution of perchloride of mercury, and closing them immediately. Effusion sometimes followed and could be remedied by aspiration. Immediate recovery was attended by free movement in all directions except extension, which was limited for a time.

Dr. J. MCCAW (Belfast) said it could not be too strongly insisted upon that all slight joint pains and so-called growing pains should be regarded as rheumatic and precautions taken accordingly, especially in regard to the frequently associated heart affections.

Mr. R. C. ELMSLIE (London) discussed the bacteriological side of the question, which, though incompletely elucidated, was the crux of the diagnosis and treatment.

Dr. W. ESSEX WYNTER (London) drew attention to the difficulty in diagnosis of monarticular rheumatism affecting the hip in children which closely simulated morbus coxæ in early stages, and also the close similarity between the form of arthritis associated with anterior poliomyelitis and that of rheumatism in which such muscular debility sometimes existed as to be called paralysis by the laity. He cited recent cases in illustration, and in connexion with pneumococcic arthritis drew attention to the value of hypodermic injections of camphorated oil, gr. xv. in ℥i., repeated night and morning.

Dr. M. PARRY-JONES (Derby) said the frequent association of endo- and peri-carditis in comparatively slight joint affections called for early attention and treatment.

The PRESIDENT said he was glad to see that this difficult subject was discussed from the new standpoint of bacteriology.

Mr. H. J. GAUVAIN (Alton) read a paper on

The Conservative Treatment of Tuberculous Cripples,

in which he specially insisted on: 1. The advantages of the conservative treatment compared with those of the treatment usually employed where radical methods preponderate. 2. The principles underlying the conservative treatment of tuberculous cripples—(*a*) general: implying open air, hygiene, dieting, and all means by which the patient's resistance to disease can be strengthened and improved; and (*b*) local: the value of absolute immobilisation in the treatment of bones and joints affected with tuberculous disease—the methods by which this immobilisation could be secured were illustrated in the case of spinal caries. 3. The conservative treatment of tuberculous abscesses as the most common and serious complication of tuberculous bone and joint disease. 4. The education and training of tuberculous cripples while under treatment.

Mr. W. B. PARSONS (London) contributed a paper on

Spinal Caries and Hip Disease,

in which he stated that in exceptional cases active disease of the lower region of the spine in children might set up spasm of the muscles about the hip, so that it might be difficult to decide whether the irritation was in the hip or in the spine, or in both. By considering the nervous supply of the structures about the hip-joint and the cutaneous distribution of the same nerves, and recognising the physiological harmony which subsisted, it was often possible to form an accurate diagnosis in these otherwise puzzling cases. Reference was made to a case in which spinal caries was mistakenly treated as hip-joint disease for a period of many months, and in which recurrent attacks of pain and spasm in the hip, after the recognition of the spinal disease, led to the belief that the hip-joint was also involved, whereas it was entirely free from disease. Attention was called to the beneficial effects which followed immobilisation of the spine whenever these attacks occurred.

GYNÆCOLOGY AND OBSTETRICS.

WEDNESDAY, JULY 27TH.

President, Dr. MARY A. SCHARLIEB (London).

The PRESIDENT having welcomed the delegates,

Dr. G. E. HERMAN (London) opened a discussion on

Dysmenorrhœa: its Causes and Treatment,

and said there was but one disease to which the term "dysmenorrhœa" ought to be applied. It consisted in terribly severe spasms of uterine colic during menstruation. There

were many kinds of painful disease in the pelvis and elsewhere which became more painful before and during menstruation, but such disease was not dysmenorrhœa. Obstructed menstruation with retention of menstrual fluid produced pain, but nothing like as severe pain as dysmenorrhœa. Membranous dysmenorrhœa was a manifestation of psychasthenia or neurasthenia; healthy women passed membranes without pain. No peculiarity in the shape or size of the uterus or its position had ever been shown to be specially associated with dysmenorrhœa. Dysmenorrhœa was a disease *sui generis*, often associated with absence of sexual feeling and sterility. Its characteristic was a want of dilatation or relaxation of the cervix uteri with violent painful contractions of the body. Nothing was known as to its cause. It was a disease of adolescence. It was occasionally set up late in life by fibroids. The treatment consisted in (*a*) relieving the pain, and (*b*) preventing its arrival. (*a*) The pain could always be annulled by sufficient morphia, but the morphia habit was a worse disease than dysmenorrhœa. The coal tar group of analgesics were the best for relieving the pain. For the prevention of dysmenorrhœal pain the best drug he knew of was guaiacum. It would not cure every case, but in many it would either prevent the pain from coming on or so reduce its severity as to make it bearable. Sometimes the abolition of the pain was permanent; sometimes the drug had to be taken every month. The natural cure of the disease was by pregnancy and the dilatation of the cervix that preceded delivery. In the sterile the disease was to be cured by dilating the cervix. This was best done by metallic bougies. It need not be carried beyond No. 14 English catheter scale, and often up to No. 10 was enough. Dilatation of the cervix would in most cases cure. If it did not the disease could be cured by oöphorectomy. The younger the patient the more reluctantly should this remedy be advised. It was necessary also to be certain of the diagnosis, for if the patient's pain were not dysmenorrhœa oöphorectomy would not cure it.

Dr. C. WEBB (London) thought that dysmenorrhœa was due to a spasm of the uterine muscle. He had found guaiacum in 10-grain doses of very great benefit in eight cases of young unmarried women. He had also found that the pain was relieved by abdominal compresses of alcohol made with hot flannels soaked in pure alcohol and covered with mackintosh. He looked upon all these methods of treatment, however, as palliative. If dysmenorrhœa was really a spasm then any remedy which prevented spasm was worthy of trial. Static electricity would reduce congestion and prevent spasm, and Dr. Webb had found that on applying static electricity by means of an electrode inserted into the rectum three times a week for about three months that he had been able to cure 12 young unmarried women after all drugs had failed. He thought this method was easy of application and less likely to shock the modesty of these patients than other methods of treatment.

Dr. R. J. JOHNSTONE (Belfast) could not agree with Dr. Herman that there was only one variety of dysmenorrhœa. There was dysmenorrhœa due to an anatomical basis where there was a certain amount of obstruction from malformation of the uterus and where the passage of clots would cause pain. The proper method of treatment for dysmenorrhœa was to tear the sphincter of the cervix. By this he meant that he did not consider simple dilatation sufficient. As a fact, he had never known Dudley's operation (in which the muscle fibres are cut with a scalpel) fail. He considered that most cases of dysmenorrhœa occurring late in life were due to an erosion of the cervix which should be excised together with a portion of the cervix subjacent.

Dr. I. PARSONS (London) thought Dr. Herman's definition much too narrow. Dysmenorrhœa should be defined as pain at the periods only, and he divided it into occasional and persistent. The occasional or neuralgic variety occurred in people who ate too much and whose fathers had had the gout; in people who did too much socially; and in anæmic women. Persistent dysmenorrhœa owns a definite cause which can be always ascertained. The majority of cases are due to anteflexion and the best treatment was to dilate the cervix, being particularly careful to see that the endometrium was not split, otherwise the pain would be worse than before, and afterwards to insert a glass intra-uterine stem pessary.

Dr. F. EDGE (Birmingham) thought that dysmenorrhœa was due to the bad feeding of girls from 9 to 17 years of age, and that there would not be so much dysmenorrhœa if girls had their stomachs full three times a day. Though agreeing as he did with Dr. Herman that the pain was due to defective uterine muscle he did not see how one could hope to get that muscle into the proper condition unless the patient was properly fed. He had also noticed that girls who had the worst form of spasmodic dysmenorrhœa had the longest legs. This might be due to some internal secretion.

Dr. W. BLAIR BELL (Liverpool) was a sceptic about the dysmenorrhœa being due to one cause only. He saw no scientific grounds for such a limitation, and thought that dysmenorrhœa was either due to physiological disorders, structural defects, or gross lesions of the genital organs. He had found that guaiacum only acted in certain cases. He was certain that there was a form of dysmenorrhœa due to obstruction, for whilst the canal might be large enough to allow liquid blood to pass it was not large enough to allow a clot passage which gave rise to severe pain. He regarded the removal of ovaries for dysmenorrhœa as a barbarous method of treatment and had known such measures bring on insanity.

Dr. MURDOCH CAMERON (Glasgow) said he was too old to change his doxy at the instigation of Dr. Herman or anyone else. He was certain that the most common cause of dysmenorrhœa was due to anteflexion and it could be cured by dilatation and the use of intra-uterine stem pessaries. His experience had not been similar to that of Dr. Edge, since he found that those who had too much to eat had more trouble from dysmenorrhœa than those who had too little.

Dr. FRANCES IVENS (Liverpool) said that she had noticed that dysmenorrhœa associated with acute anteflexion often yielded to purgatives, and, if not, she found that dilatation was very often sufficient.

The PRESIDENT said that everyone was deeply indebted to Dr. Herman for introducing the discussion. She could not agree entirely with all that he said, as she did not think that spasmodic dysmenorrhœa was the only form, although undoubtedly it was one of the principal. She was certain that there was a membranous dysmenorrhœa and saw no reason why the membrane when rolled into a small pellet by the contraction of the uterus to the size of a six weeks' ovum should not cause as much pain when being expelled as such an ovum would. She had found great relief follow the administration of valerianate of zinc and belladonna for four months continuously. She was very much against healthy ovaries being removed for dysmenorrhœa, and she appealed to all her colleagues to preserve any woman from such a fate. If the patient was so bad as to necessitate such a serious operation then the uterus should be removed and the ovaries left.

Dr. HERMAN, in reply, said that he still thought that spasmodic dysmenorrhœa was the only real form of dysmenorrhœa, and a distinction should be drawn between dysmenorrhœa and menstrual pain. Every menstrual pain was not dysmenorrhœa. He regarded anteflexion as the natural shape of the uterus, and did not think it had anything at all to do with the pain. With regard to membranous dysmenorrhœa, healthy women passed membranes when in hospital without any pain, although when out of hospital they stated they had had pain. The pain in these cases was simply neurasthenic.

Professor D. DÖDERLEIN (Munich) read a paper on

The Causes and the Prevention of Puerperal Fever.

He said out of the great number of causes of infection in parturition two stand out pre-eminently—one due to the bacteria of the female genitalia and the other due to infection through the examiner. Pathological research assures us that infection from the genitalia is very rare. The vaginal bacillus first described by Döderlein is absolutely a defence against the growth of pathological germs owing to its production of lactic acid. He recommends that this natural protection shall not be destroyed by the administration of vaginal douches in normal cases. In his clinics at Tübingen and Munich he has made many experiments which show that vaginal disinfection in labour is more of a danger than a protection. For the prevention of infection by the examining hand Döderlein advises that internal examination shall be made seldom, and always under the protection of indiarubber gloves. To facilitate the employment of the gloves he

has had made thin rubber examining gloves having two fingers only. They are enclosed in a three-fold germ-proof package. These special gloves have the advantage that they are very easily put on and that they are only intended to be used once. The universal use of such a protection would reduce the sickness and death due to puerperal fever to the absolute minimum.

The discussion on Professor Döderlein's paper turned principally on the use of gloves in midwifery practice.

Dr. HERMAN was not in favour of using gloves, and thought that, even if there was an advantage, their expense prohibited their use in poor practice.

Dr. MUNRO KERR, Dr. BLAIR BELL, Dr. T. WILSON (Birmingham), and the PRESIDENT all declared themselves strongly in favour of using gloves.

Dr. C. E. PURSLOW (Birmingham) had used rubber gloves for operative midwifery and had found no difficulty, except in cases in which the removal of adherent placenta was called for. He thought that British obstetricians were all agreed that preliminary douching and swabbing of the vagina in labour was not advisable, but there did not appear to be agreement as to the necessity of a similar proceeding in cases of Cæsarean section, and personally, he thought it better not to interfere with the vagina in these cases unless there had been previous attempts at delivery. He thought that the text-books intended for midwives did not lay sufficient stress on the extreme importance of keeping their hands as far as possible free from infectious contacts, and that many of them (the midwives) thought that contact with all forms of organic and inorganic matter was equally dangerous.

Dr. MUNRO KERR (Glasgow) read a paper on

Additional Cases of Rupture of the Uterus.

He referred to three additional cases which, added to 14 previously recorded, made a series of 17 cases. He first of all referred to the treatment by plugging and considered this to be the best treatment in the slighter forms of incomplete rupture. For all cases of complete and severe cases of incomplete rupture he advocated abdominal section; with this treatment he first of all referred to his results from supravaginal amputation, which showed a mortality of 66 per cent. He then referred to his last five cases treated by panhysterectomy which showed a mortality of 40 per cent. Finally, he discussed his last two cases treated by panhysterectomy and drainage; both of the cases recovered. From his experience of 11 cases treated by hysterectomy he was of opinion that the best results were to be obtained by panhysterectomy and drainage.

Dr. JAMES YOUNG (Edinburgh) read a paper on

The Structure of the Stroma of the Uterine Mucous Membrane and its Bearing on the Menstrual Changes.

He remarked that in the literature there is a wide divergence of opinion regarding the true interpretation of the structure of the stroma of the endometrium. By most writers it is looked upon as consisting of an embryonic connective tissue composed, like the primitive mesenchyme, of a large number of freely branching and anastomosing cells. By other investigators it is considered as a spread-out lymphatic surface. In this paper proof is adduced in favour of the idea that throughout the entire mucosa the stroma consists of a soft mobile protoplasm with no attempt at differentiation. This applies to the main mass of the stroma and also to the blood-vessels. These consist, from intima outwards, merely of this soft, easily displaceable stroma. In the resting state of the mucosa the media is formed by a packing together of the stroma elements round the vessel lumen in concentric layers. During the premenstrual and menstrual stages, however, the peculiar structural conformation permits of an easy and immediate tearing asunder and displacement of the protoplasm forming the vessel wall. During menstruation the hæmorrhagic leakage from the vessels is preceded by, and can occur only after, an œdematous opening out of the vessel wall and stroma. Dr. Young argued that the œdematous escape and the hæmorrhage are not due, as is usually stated, to a congestive process. The fluid and blood corpuscles do not escape mechanically in response to an increased intravascular pressure. The stroma protoplasm during the change exhibits evidence of a widespread and active fluid *imbibition*. The fluid accumulates in the stroma spaces under a tension in excess of that present in the blood-vessel lumen. The structure of the stroma is eminently adapted for the occurrence of these changes to the greatest possible advantage.

Dr. JOHN CAMPBELL (Belfast) in a paper on

Air Embolism Occurring During Labour

said that this is probably more frequent than is generally supposed. Modern text-books give but little attention to it. Symptoms are usually described as similar to those of pulmonary embolism from clot. This may be so in cases suddenly fatal, but is not so in cases which recover. The difference is quite remarkable. This is to be expected because the blood clot forms a permanent block in that part of the circulation into which it is driven, while air has a greater tendency to get broken up or to escape through the lung tissues. Causes assigned are numerous, but practically the only important cause is the delivery of the patient under anæsthesia in the left semiprone position and failure to turn on to her back as soon as the child's head is born. Retention of the placenta within the uterus is a necessary factor in causation. The placenta lying in the cervix imprisons the air in the uterine cavity and leads each uterine contraction to be followed by the forcing of more or less air into the uterine sinuses and thence to the heart and lungs. Treatment consists in prevention by completing delivery of the child with the patient on her back and by performing all obstetrical operations with the patient on her back. When the accident has occurred the placenta should be immediately removed by hand. Attempts at expression are useless and dangerous. They only force more air into the circulation and have little or no effect on the placenta. The air in the uterus is more likely to enter the sinuses than to transmit the force to the placenta. Saline infusion and strychnine hypodermically should be administered. Dr. Campbell reported two illustrative cases, one more severe than the other; both recovered.

LARYNGOLOGY.

WEDNESDAY, JULY 27TH.

President, Mr. HERBERT TILLEY (London).

The PRESIDENT, in a short retrospect of the past 50 years, paid a high tribute to Sir Felix Semon, who had nurtured laryngology, the delicate offspring of otology, until the child was as flourishing a science as its parent. He emphasised the strides which were being made as the result of specialisation and separation of laryngology from other surgical work at the general hospitals, and alluded to the progress which had been made in our knowledge of the accessory sinuses, aided largely by transillumination and radiography. He thought future advances would lie chiefly in the realm of vaccine therapy. That science, with the wider one of immunity, was the field in which the younger men could toil.

The PRESIDENT then introduced Professor Dr. von Eiken, who was warmly received.

Professor Dr. VON EIKEN read a paper on

The Technique of Direct Examination of the Œsophagus and Lower Air-passages.

He preferred illumination by an outer lamp; an inner lamp might break into a bronchus and its light was dimmed by mucus. In passing the beaked tube the beak should be held in the sagittal plane, then when between the cords it might be rotated. Lower down the tracheal bifurcation was the landmark. In all cases the position of the patient's head was important: for a short examination the sitting posture sufficed in the absence of excessive salivation; for longer manipulations a general anæsthetic was given prior to placing the patient in the left lateral position. In no case could he advocate the dorsal decubitus with the head overhanging the end of the table. He next epitomised some of the dangers and difficulties, such as injury of the larynx and subsequent stenosis, the obstacle caused by teeth in adults, and the difficulty of obtaining a clear view of the anterior commissure. It was useful to obtain the coöperation of the patient, who might give a signal if feeling undue pain or distress. As an anæsthetic he preferred chloroform to ether, and found cocaine and adrenalin, administered from an intra-bronchial spray, most useful. Besides the local difficulties and dangers above mentioned, others arose out of remote or general pathological conditions, of which the most obvious was aortic aneurysm.

Others were arterio-sclerosis, cachexia, and cold abscesses of the cervical vertebræ; X rays showed these abscesses when large. If, during an examination, dyspnœa supervened, artificial respiration, oxygen, or hypodermic injections of camphor might be used. Professor Dr. von Eiken next enumerated certain special cases, after which he gave a very interesting explanation of instruments which he had brought with him, and which exhibited the latest and most ingenious refinements of laryngological apparatus. Such were: the double-vision prism, by using which two observers could inspect a larynx simultaneously by the direct method; Killian's angular spatula, by using which, without any tube, the anterior commissure was visible; dilators for the bronchi and cardia of the stomach; and various forms of forceps for catching foreign bodies.

Dr. D. R. PATERSON (Cardiff) advocated the use of a head-lamp rather than the inner lamp. In passing a tube down the œsophagus it was unwise to rely on the sense of touch and a pilot; vision was essential. He emphasised the cardinal rule—keep to the middle line. A pilot was a useful adjunct until past the narrowing at the level of the cricoid cartilage, after which all was plain sailing. The speaker eulogised Killian's suction-pump for the removal of excessive secretion, and crocodile forceps for extracting foreign bodies. His method included the use of a double tube, the inner tube being beaked; the outer one, which was straight, projected just beyond the beak of the inner, and was removed as soon as the cricoid narrowing was safely passed.

Dr. WILLIAM HILL (London) read a paper advocating the use of funnel-shaped tubes, with the narrow end downwards, and a lateral slit: the tube is elliptical, not circular, in cross-section. He quoted cases and gave other ample evidence to support his view. The chief advantages claimed were: (1) the large upper end gives more room for the light and the use of forceps; and (2) the slit enables the tube to be easily and rapidly withdrawn, for instance, from a bougie carrying at its distal end a radium cartridge.

In the discussion which ensued, Dr. STCLAIR THOMSON (London), in endorsing the general thanks to the delegates, said that since Professor Killian was the Messiah of bronchoscopy, surely Professor Dr. von Eiken was the Apostle to the Gentiles. He (Dr. Thomson) was consoled to hear that Professor Dr. von Eiken advocated the indirect method for some manipulations, such as galvano-cautery of the larynx, and that *every* person who came to their houses was not necessarily to have a barrel pushed down his throat! For cautery of the anterior commissure he had found Dr. Cyril Horsford's epiglottic needle useful.

Mr. ERNEST WAGGETT (London) endorsed Professor Dr. von Eiken's remarks as to the value of hand-signals from patients when distress or pain is felt.

Mr. W. STUART-LOW (London) recommended the use of warm cocaine solution, in that a weaker solution would produce a given degree of anæsthesia.

Dr. W. PARMEWAN (Liverpool) eulogised Professor Dr. von Eiken's impartiality. The latter had mentioned that there were disadvantages as well as advantages in the direct method, and he (Dr. Parmewan) thought that Professor Dr. von Eiken's paper was on that account additionally instructive.

Dr. BROWN KELLY (Glasgow) discussed the differential diagnosis of cardio-spasm. He had seen a similar appearance produced by a growth in the stomach pushing upwards the mucous membrane of the gullet.

Dr. ANDREW WYLIE (London) recommended that when possible 10 grains of sodium bromide should be given three times daily for three days before the examination to diminish spasm and secretion.

Others who contributed to the discussion were: Dr. R. H. SCANES SPICER (London), Dr. N. C. HARING (Manchester), Dr. IRWIN MOORE (London), Dr. J. H. BRYAN (Washington), Dr. J. KIRKLAND (Edinburgh), Dr. J. WALKER DOWNIE (Glasgow), Dr. J. DONELAN (London), and Dr. L. HEMINGTON PEGLER (London).

Professor Dr. VON EIKEN, in replying, said that he was glad to hear so many new points. The indirect method should always be tried first for treatment as well as diagnosis. Sodium bromide was most useful when time allowed. He endorsed the value of warm solutions of cocaine and approved of Dr. William Hill's split conical steel tubes. He thought it possible that bronchoscopy might throw new light on the etiology and pathology of asthma and allied diseases, and quoted the case of a child who had inspired a foreign body into one bronchus. He found the mucous membrane of the *free* bronchus swollen and œdematous, and the child developed asthma, which was cured by intra-bronchial injections of adrenalin.

Dr. PATERSON, in replying, discussed the use of the split tubes, and urged the paramount importance of working quickly.

The PRESIDENT mentioned that ether, applied on a swab, at once dispersed bubbles of mucus.

Dr. HILL denied the existence of cardio-spasm under a general anæsthetic.

Dr. J. FRASER (Edinburgh) read a paper on

A Case of Atresia Choanæ of Congenital Origin.

After touching on the numerical rarity of such cases, he gave an account of the one which had come under his notice. The patient was a female, aged 20 years, the seventh child of a family of nine. There was a marked tuberculous family history. On admission she complained of deafness and pain in the *left* ear, but admitted that she had never breathed through the *right* nostril. She denied that she was a mouth-breather. The septum nasi was found to be deviated to the right, and on this side the turbinate bones were œdematous. Under cocaine bony occlusion of the right choana could be seen from the front. The patient's left tympanum was irrigated through an intra-tympanic catheter. Unfortunately, she eventually died from septic meningitis. At the necropsy the ante-mortem diagnosis was confirmed. The right choana was blocked by a yellowish-grey plate of bone. The right sphenoidal sinus was very small. Dr. Fraser then discussed the effect of mouth-breathing on the hard palate, and expressed the opinion that this type of breathing markedly affects the convexity of the palatal arch.

Dr. DAN MCKENZIE (London) and Dr. BROWN KELLY described similar cases.

The PRESIDENT and Mr. STUART-LOW also took part in this discussion, at the end of which

The PRESIDENT rose to thank the visitors very cordially for their valuable contributions to the discussions of the section, and so brought the day's proceedings to a close.

ODONTOLOGY.

WEDNESDAY, JULY 27TH.

President, Mr. J. HOWARD MUMMERY (London).

The proceedings were opened with a discussion on the Prevention of Dental Caries under the following headings: (1) The Effect of Various Foodstuffs, by Dr. J. SIM WALLACE (London); (2) the Care of the Mouth during General Disorders, by Dr. HECTOR W. G. MACKENZIE (London); and (3) the Influence of Climate, &c., by Mr. A. S. UNDERWOOD.

The PRESIDENT, in a few brief words, reviewed the development in the treatment of diseases of the mouth during recent years, and contrasted the methods and possibilities of modern dental surgery with the practice of 30 years ago.

The Effects of Various Foodstuffs in Preventing Dental Caries.

Dr. SIM WALLACE said that the effect of the foodstuffs in preventing dental caries was twofold. First, the predisposing causes of caries might to a large extent be prevented. The two chief predisposing causes which might be most effectually prevented by foodstuffs were (*a*) the irregularities in position of the teeth, and (*b*) recession of the gums in later life. When food which stimulated efficient mastication was habitually consumed, the muscles of mastication, including the tongue, became well developed and the jaws grew sufficiently large to accommodate all the teeth without irregularity or crowding. Further, such foods tended to keep the mouth and alimentary canal in a hygienic condition, and thus largely prevented the ill-health and emaciation which so generally resulted from chronic interference with normal digestion and assimilation. This was an important factor in preventing irregularities, because ill-health associated with emaciation prevented the normal development of the jaws and thus gave rise to crowding of the teeth. Recession of the gums was also prevented by the habitual use of food which demanded efficient mastication, for the teeth were kept

free from tartar and other irritants which lodged about the necks of the teeth and injured the gums. The amount of nutrition, including the proportion of lime salts in the water, need not be considered, as it was never lack of nutrition of any kind *per se* which induced or predisposed to dental caries, though the unhygienic state of the mouth and alimentary canal resulting in constitutional disease might give rise to developmental defects in the enamel and thus predispose to caries. Secondly, the immediate or exciting cause of caries might be prevented by foods which cleansed the mouth and left the teeth free from adhering carbohydrates. To secure this end without requiring to restrict the kinds of foods eaten, it was necessary to have the meal arranged in such a way that the last foodstuff eaten would be of a detergent nature.

Dr. HARRY CAMPBELL (London) thought that the condition of the teeth of the inhabitants of this country was a national disgrace. He considered the discussion one of the most important of the whole meeting. He then went on to say that dental disease was an acquired disease, and not hereditary. He had seen disease appear in natives and anthropoid apes when placed upon a civilised diet. People in these islands sucked their food, and therefore caries and pyorrhœa followed, and were known as long-tooth people on the continent from the prevalence of pyorrhœa alvolaris. Finally he enumerated the methods of prevention which could be adopted in the ordinary diet.

Mr. F. J. BENNETT (London) said that he thought Dr. Sim Wallace had over-estimated the action of soft foods upon the dental arch: the wearing away of the cusps of the molars by attrition tended to increase the size of the arch. Hindoos live on soft rice; therefore the other general questions of salivary secretion and the reaction of the saliva must be concerned in the determination of caries. He considered the simplicity of a person's diet an important factor, and he mentioned the effect of apple juice, and demonstrated the effect on a tooth of the action of orange juice continued for three days.

Dr. J. WHEATLEY (county medical officer of health of Shropshire) agreed with Dr. Sim Wallace on certain points. Hard food was necessary to the development of the jaws and for the prevention of caries. He then discussed how best to bring the methods of prevention before the public. In the elementary schools of Shropshire he rarely found, as county medical officer, a child with sound teeth, not counting those bad teeth due to special and accidental causes. He thought there should be simple rules laid down in the annual report, such as the advantages and disadvantages of soft and hard food, concerning sweets eaten with the food, and not last thing at night. He considered that simple lectures might with advantage be given to nurses and midwives in the county, but what was most needed was some definite authority. He further pointed out that it was impossible to reform the nation's diet immediately, but thought that much was to be hoped if the attempt was made, and cited the good results which had followed attention to infant diet. Dental disease was, of course, evidence that something was seriously wrong with the child's diet. Dr. Wheatley suggested that the subject of the prevention of dental caries should be discussed with the Preventive Medicine Section at the next meeting of the Association.

Dr. HECTOR MACKENZIE then opened the second part of the discussion with a paper on

The Care of the Mouth during General Disorders.

He considered that all medical students should have the study of dental disease included in the subjects for their final examination. He could not quote any statistics as to dental disease in connexion with general illness, and if he were able to there would be no advantage gained, for knowing as they did the causes of dental caries they could easily estimate the association. Further, dental caries was a preventable disease which never arose without neglect of oral hygiene. Bacteria, he said, played an important part, but they were only rendered possible by the stagnation of food occurring during childhood. In chronic illnesses, as a rule, the patient did not know how to keep the mouth clean and was frequently never instructed, while in serious illness where the patient had no power to attend to oral hygiene food of the softest form was usually given which coated the tongue and teeth, and the duty of cleansing the mouth devolved on the nurse. A mild antiseptic was indicated under such circumstances, perhaps the best being a weak solution of carbolic acid. When unable to use the lotion himself the patient should have his mouth syringed by the nurse, the head being turned on one side. Dr. Mackenzie, in conclusion, said that he did not think the form of food mattered so much as did the habits of the patient; that it was not so much that soft food was bad as that the mouth was never cleansed sufficiently.

Dr. CAMPBELL was inclined to disagree with Dr. Hector Mackenzie as to the action of soft foods, but he concurred in the necessity for proper mouth cleansing in all cases of serious illness where soft foods were a necessity.

Dr. SIM WALLACE disagreed entirely with Dr. Hector Mackenzie and thought he had entirely missed the point. He thought physicians ordered an unnecessary amount of soft food and rarely considered the mouth and teeth in prescribing any given diet.

Dr. WHEATLEY and Mr. W. A. MAGGS (London) also contributed to the discussion.

In replying to the discussion on his paper, Dr. MACKENZIE regretted that Dr. Sim Wallace should think that he had missed the point. But really it was impossible to give anything but soft food in acute disease; in chronic disease there were often no teeth with which to chew. He admitted that the tooth-brush was perhaps not a perfect method of cleansing the teeth, but yet it was the best method if followed by rinsing thoroughly with water or an antiseptic lotion. If caries was a general acidosis due to altered secretion general destruction of all the enamel would be found, and not, as was usually found, local disease between the teeth.

Mr. ARTHUR UNDERWOOD (London) contributed the third paper to the discussion entitled

The Influence of Climate on Dental Caries.

He gave the results of the examination of a series of skulls of various races and periods to determine the factors favouring the occurrence of dental caries, especially with regard to the effect of climate and varying degrees of civilisation. As caries was due either to a weakness of the defensive tissue or to an increase of some invading element, he thought it would be interesting to survey a series of skulls from different parts of the world, which might give some instructive information. The specimens were obtained from three zones, the torrid, the temperate, and the frigid. In those from the hot belt of the world a condition practically amounting to immunity was found. Immunity was always associated with evidence of extreme use of teeth, the exception being among one particular class of Kaffirs. Where a little decay appeared it was generally situated in the back teeth; there was generally present some amount of tartar. Cleanliness was common and usual in the hot countries, after every meal it being usual to wash the mouth, and in almost all places rinsing and the use of some form of tooth-brush were practised. The skulls from the arctic regions were not so free from dental disease, but caries was extremely rare. The habits of people were the reverse of those of the inhabitants of the torrid zone, for there was no cleansing of the teeth, no washing, &c. Apparently the immunity of the inhabitants was not due to the nature of the place entirely, and cleanliness and uncleanliness were not sufficient to account for the regional immunity. He then compared the civilised and uncivilised races. In the uncivilised races there was much attrition. He had examined the skulls of a number of English, Welsh, and Scotch subjects and had found that 150 years ago much less caries existed than at the present time. In the high civilisations of past ages, such as that of the Egyptians, it was not unusual to find caries, the skull of the Egyptians being very similar to the English skull of 150 years ago. He considered the diminution in immunity to caries to be associated with the modern conditions of civilisation. He next referred to the statistics of Magitôt, showing a map illustrating how bad teeth exempted men from military service in certain regions. Magitôt found that exemption was given, not always for caries alone, but for missing incisors also. This condition of the mouth among persons living near the coast was generally better than it was among those dwelling inland. Magitôt thought that racial considerations had something to do with immunity, the large blonde type being especially liable, whilst in general the dark races had comparatively good teeth, and he gave the following figures: 60 in 500,000 were exempted in one department where the dark type predominated; and 460 in 400,000 where the blonde type was most numerous. Mr. Underwood did

not think that food had anything to do with the occurrence of the disease. In conclusion, he stated that weakening of the tooth structure largely took place before the diet had passed beyond the milk and artificial food stage; that maternal neglect was to be associated with the high amount of disease, as was also the wholesale preservation of the physically unfit; that mode of life, avoidance of maternity, improper food, and the form of diet now became governing factors, but had no influence whatever when a person was leading the simple life, and therefore he advocated a return to the simple life.

Mr. BENNETT, in referring to the above paper, queried whether the condition of the mouth could be argued from a test-tube experiment. He was inclined to regard the deposit of tartar as a normal physiological process and not a pathological one. He quite agreed with Mr. Underwood as to the advantage of the simple life.

Mr. W. H. DOLAMORE (London) referred to Rose's work not being published in an accessible form. Rose had spoken of a village where the water-supply was hard and the teeth of the inhabitants good; some years afterwards the teeth were much worse, and he had then discovered that the water-supply had varied, probably causing predisposition to caries.

Dr. HARRY CAMPBELL asked why wild animals were not affected if soft water was a cause of caries.

Mr. MAGGS stated that he was much interested in the facts brought forward by Mr. Underwood. He thought that edge-to-edge bite was common in the lower races of man, and that there was always attrition in such edge-to-edge bite, and that attrition of the teeth was not therefore only caused by hard food but by natural anatomical formation. He found that in the West of England caries was often due to cider and that the poorest people suffered most.

Dr. WHEATLEY said that in Shropshire the water was mostly hard; that there was no difference to be seen between the users of hard and soft water respectively, or shallow wells and others. The water in London was hard, while that of Manchester was soft, and yet there was very little difference in the incidence of dental caries in the two cities.

Dr. HARRY CAMPBELL agreed that soft foods should be actually masticated, and then they would not cause dental caries. Pyorrhœa might occur in people who chewed, but it was not so common in those whose diet consisted chiefly of hard food.

Mr. MAGGS considered that perverted secretion of the mouth, especially in acute rheumatism, was the predisposing cause. Further, he thought that the educational courses of medical students were already overloaded, hence the absence of dental questions from examinations.

Mr. HAWKINS (Birmingham) drew attention to the fact that Jews as a rule had good teeth, and queried whether inter-marriage might not possibly have some influence on disease of the mouth and teeth.

Professor G. ELLIOT SMITH (Manchester) contribnted a short note to the discussion which was read by the Secretary in Professor Elliot Smith's absence. He had recently examined the skulls of 15,000 Egyptians of periods about 3400 B.C.–2700 B C. down to the eighteenth dynasty; caries was practically non-existent, although very marked attrition was to be seen. A number of skulls of persons probably belonging to the higher classes and belonging to the period of the building of the Pyramids were also examined, and out of 600 examined only 12 were free from carious teeth. There appeared to be a sudden development of dental caries about this time which had progressed until now, the teeth of the modern Egyptians being little better than those of Western Europe.

Dr. D. J. A. CHOWRY-MUTHU (Wells) had noticed that as long as a man lived the simple life in India and worshipped his gods his teeth remained good, but no sooner did he adopt western civilisation and its complex life, no washing, and a mixed diet, and tried to be like an Englishman and did not wash his teeth, he immediately suffered from caries, more especially if he ate English food. In India one hundred years ago dental disease was scarce, but it was now becoming very common with the encroachment of western civilisation, and perhaps the overthrow of the calm of the eastern mind by western civilisation had something to do with disease of the mouth.

Mr. UNDERWOOD, in replying to the numerous points raised, stated that excessive attrition appeared to have been more rife among the older races than among recent races, the greatest amount of attrition appearing in the lake dwellers. He thought that possibly inter-marriage might have something to do with decay of the teeth. He also quoted Magitôt, who said that transplantation of persons from one to another country might predispose to disease, the indigenous inhabitants apparently suffering least.

PATHOLOGY.

WEDNESDAY, JULY 27TH.

President, Mr. S. G. SHATTOCK (London).

The PRESIDENT, in his opening remarks, said that the words "the annual meeting of the British Medical Association" implied a multiplicity of interests, of which the most prominent was the interest to the practitioner. The work was directed on topics which were serviceable to him rather than on the more abstruse problems and theories of medicine. The present annual meeting was fortunate in having an authoritative exposition from Dr. Mott upon a subject of such vast importance as the effects produced by an excessive use of alcohol upon the highest and most valuable of tissues, the nervous system. There was, however, another side to the question—namely, the part which fell to the practitioner; some pathological or clinico-pathological conditions were particularly well adapted to his observation since he was in a position which enabled him to obtain an intimate and long-extended knowledge of the medical histories of particular families. Not the least important of the many functions of the Journal of the Association was the ready means it afforded practitioners of recording observations which the specialist might gather. He might be encouraged to contribute more extensively to meetings in the future on such subjects as the following: 1. The ultimate result of double castration and double öophorectomy in adults on the external sexual characters, a subject of considerable biological interest. 2. The proclivity of bones to fracture in certain families. It had always seemed to him that the differences in hardness might be due to slight deviations in the proportion of earthy salts, as in the case of carbon in connexion with the tenacity of steel—chemical malformations, as Garrod would have called them. 3. The history of alcohol in persons having reached the age of 85 or upwards, and the initial investigation of their mental power—50 such cases would, if collected, be a valuable contribution to the subject. 4. The occurrence of uterine and tubal tuberculosis derived from tuberculous emissions of the male. 5. The series of striking evidences of auto-intoxication by cancer cells. He pointed out that it was possible to infect mice with carcinomatous tissue which had been kept in ice or liquid air. He had performed experiments with Mr. L. S. Dudgeon and had found that cancer cells did not survive the process of drying—experiments which reduced considerably the probability of infection by sputum and discharges, in which particular the infection differed from others such as tuberculosis. He had tested the possible conveyance of the infection by spraying with unkilled cells suspended in salt solution. Were cancer contracted by inhalation, cancer of the lung would be common. Its extreme rarity was evidence against this mode of transference. The proclivity of the larynx to such infections could be explained on grounds other than air transference. 6. The Mendelian aspect of evolution. The construction of medical pedigrees would be of real value. Problems which concern the heredity of such diseases as gout, cystinuria, tuberculosis, cancer, insanity, could only be eluciated by critically collected histories obtained from the families. He then called on Dr. Mott to read his paper on

The Effect of Alcohol on the Nervous System.

Dr. F. W. MOTT (London) said that he preferred giving a demonstration to reading a paper; he had so much to say that he would rather show lantern slides. He first mentioned the phenomenon of individual response to alcohol, adding that this phenomenon extended over years. As a physician of a hospital (Charing Cross) situated in the centre of the liquor traffic, he had had the opportunity of seeing many cases of alcoholism, and he had been able to collect post-mortem evidence which he would show later on. The effects on the nervous system were not often seen; alcoholics were potentially insane; hence the number of cases in asylums. He quoted Dr. R. W. Branthwaite on inebriate reformatories. He then showed some photographs of men

and women on the screen and drew attention to their expression. He laid stress on one fact with respect to alcohol as a factor in causing insanity—statistics showed that the number of cases at times was larger than at others, as if produced by periodical waves of drunkenness. He wished to point out that the personal equation of the medical officer should be taken into account, and that the statistics, depending to a great extent on the interest the latter chose to take in the subject, were for practical purposes useless. He went on to say that he had been struck by the infrequency of cirrhosis with ascites in association with degeneration of the mind; in cases of alcoholic dementia, if alcohol were mainly responsible for 20 per cent. of the cases, one would have expected more cases of cirrhosis; on the other hand, alcohol could be taken for periods extending over years without causing insanity. He had also been impressed by the fact that the children of alcoholics were not as a rule mentally inferior; in some cases they were of a very superior mental development. He mentioned the case of one woman who had been convicted 400 times for drunkenness, who developed cirrhosis and showed post mortem a typically hob-nailed liver. While she had been in the hospital she had shown no signs of dementia. He then referred to the importance of medical pedigrees touched upon by the President, and pointed out that alcohol and imbecility combined in the parents led to insanity in the descendants. This he illustrated by means of diagrams on the screen. He drew attention to the fact that in maritime, mining, and industrial centres there were a large amount of crime, a large amount of drink, but a comparatively small amount of insanity. In rural districts, on the other hand, the reverse was the case. This he explained by the fact that individuals of a higher degree of intellectual development were the people who migrated to industrial centres, whilst the poorer stock were left behind. Such a state of affairs could be found in Ireland. Alcohol was responsible for 60 to 80 per cent. of crimes of violence and for the majority of divorce cases. The degenerate and mentally defective were particularly liable to become insane. Alcohol usually brings about the death of a bad stock, though in some cases it leads to fertility. It induces sterility because it is generally associated with venereal diseases. He then passed on to the enumeration of the symptoms that were usually found in asylums. The mental symptoms consisted of loss of memory for recent events, lack of retention (a very remarkable symptom), confusional hallucinations similar to those of delirium tremens, and a very striking occupation delusion—for instance, a cabdriver would drive a cab, and women usually could hear a baby crying. In the latter case it was usual to have a concomitant microbial disease, and the history generally mentioned a recent pregnancy or miscarriage. He emphasised the fact that neuritis could affect every nerve in the body. Some lantern slides were then shown illustrating (1) the characteristic wrist-drop; (2) the degeneration of nerve fibres; (3) the destruction of nerve fibres; (4) the various stages of degeneration in the anterior horn cells, such as the displacement of the nucleus to the periphery, the perinuclear chromatolysis, the disappearance of Nissl's granules, vacuolation, and destruction—it was a question, he pointed out, whether the changes in the nerve cells were primarily or else secondarily due to the affection of the nerves; (5) changes in the sensory cells; (6) neuritis of the vagus; (7) hæmorrhages into the cortex cerebri, probably due to fatty degeneration of the middle coat of the vessel; and (8) the destruction of tangential, association, and supra-radial fibres.

Dr. W. H. WILLCOX (London) read a paper on

The Therapeutic Use of Alcohol Vapour mixed with Oxygen,

by himself and Professor B. J COLLINGWOOD (Dublin). It was pointed out that the passing of a current of oxygen through absolute alcohol caused the oxygen to absorb a definite amount of alcohol vapour. This mixture had been found to be a very valuable cardiac stimulant. It was first used in experiments on animals suffering from the poisoning of an overdose of chloroform, when most definite beneficial effects on the heart were observed, and in many cases of cardiac failure where oxygen alone failed the mixture of oxygen and alcohol vapour restored the heart to its normal action. The mixture of oxygen and alcohol vapour was used clinically in 1907 by Dr. Willcox in several cases of pneumonia with cardiac failure, and marked benefit to the heart resulted. The apparatus necessary for the administration was shown and described. All that was necessary was a wash-bottle with an inlet and exit tube. The inlet tube should dip about half an inch or so below the surface of the contained alcohol. The results of a large number of chemical experiments showed that it was best to use absolute alcohol in the wash-bottle, through which the oxygen was bubbled, since with rectified spirits, brandy or whisky, much smaller amounts of alcohol vapour were carried over by the oxygen. With absolute alcohol at the ordinary temperature of the air the oxygen, which was bubbled through it would contain from 4 to 5 per cent. of alcohol vapour (from 1 to 2 grains of alcohol per litre). It was necessary for the oxygen to be delivered in a rapid stream, and when administered in this way after from three to five minutes the full therapeutic effect was obtained, and the effect lasted for several minutes. In cases of severe cardiac failure the mixture of oxygen and alcohol vapour should be given for five minutes every half hour. It was pointed out that the alcohol vapour was absorbed by the lungs and carried direct to the heart, on which it produced its direct action. There was no risk of damage to the liver, kidneys, or nervous system, such as might be the case when alcohol was taken by the mouth, since only extremely minute amounts were absorbed when alcohol vapour was given with oxygen, and the direct effect on the heart was obtained without any action on other organs. The administration was pleasant and invigorating to the patient. After from three to five minutes in cases where the pulse was rapid and feeble and the blood pressure low, it was found that the pulse became slower by 10 to 20 beats per minute and it was fuller and stronger in wave and volume. The blood pressure was observed to rise in many cases from 5 to 30 millimetres of mercury, as measured by the Riva-Rocci sphygmomanometer. Cases on which the remedy had been used with great benefit were: pneumonia, with cardiac failure; cases of heart failure following surgical operation; angina pectoris; asthma, with cardiac failure; septicæmia; typhoid fever; myocardial degeneration; dilatation of the heart; valvular disease of the heart; collapse after epidemic diarrhœa; cardiac failure after chloroform anæsthesia, &c. In many cases it was observed that the mixture of oxygen and alcohol vapour by its stimulating effect on the heart had appeared to tide the patient over a dangerous period of illness, and so save life.

The PRESIDENT then invited a discussion on Dr. Willcox's paper.

Dr. A. E. BOYCOTT (London) said that the amount of alcohol absorbed by the patient must depend on the rapidity of flow of the gases, and that consequently the figures set down expressed inadequately the amount of alcohol taken.

Dr. MOTT asked if Dr. Willcox had noticed any alteration in the depth of respiration after the inhalation of the vapour, and whether he thought that the alcohol was acting on the nerves at all.

Sir CLIFFORD ALLBUTT (Cambridge) asked if the cyanosis disappeared, and also if there had been any experiments with alcohol vapour alone.

Dr. J. MACKIE WHYTE (Dundee) said that Binz had shown by repeated experiments that the respiratory system was stimulated by alcohol. The explanation of this phenomenon offered by his critics was that it was an effort on the part of the body to neutralise the bad effects of the alcohol, more especially with respect to the interference with the proper oxygen supply of the blood. Possibly the addition of oxygen prevented this bad effect. Could Dr. Willcox say in what way precisely the stimulant showed itself? Was it on the heart mainly or on the blood-vessels?—a peripheral vaso-motor paralysis?

Dr. WILLCOX agreed with Dr. Boycott that the figures set down were not high enough; he had not paid particular attention to variations in the depth of respiration. The cyanosis cleared up probably because of the presence of the oxygen. In answer to Dr. Mackie Whyte's remarks, he said that some experiments of Dixon seemed to prove that the action on the heart was more marked.

The PRESIDENT next opened the discussion on Dr. Mott's paper, and called on Sir Clifford Allbutt.

Sir CLIFFORD ALLBUTT expressed his high esteem of Dr. Mott's paper, and said that the abundant literature which had been written on the subject was more of rhetorical than of scientific value, and that the sooner a scientific order and method were introduced the better. The whole question was extremely complicated. He had found that alcoholics who suffered from nervous symptoms very rarely showed affections of the abdominal viscera; on the other hand, patients

who were in hospital for visceral diseases usually retained their intelligence unimpaired. It was always difficult to get behind the alcoholic bent of individuals. Alcoholics were, according to him, divided into two classes: the spasmodic drinker and the regular boozer. He mentioned two cases of the former class with which he had been in contact, and laid stress on the specificity of desire which assailed the patients, and also on the fact that they never had any remorse for their deeds. He compared them to epileptic criminals.

The PRESIDENT asked Sir Clifford Allbutt whether the patients he mentioned would have had that desire for alcohol if they had never tasted it before.

Dr. E. S. PASMORE (Croydon) said that Dr. Mott's slides, to his mind, raised practical points with respect to the treatment. In the section of the brain, for instance, there was evidence of definite mischief. In those cases, it seemed to him, treatment such as keeping the patient under control for six months would be of no avail. All chronic alcoholics, while showing no visceral affections, had their minds affected, although this might not be observable; accordingly they should not be trusted. He mentioned the case of a woman who after a year's confinement was discharged and got quite drunk, although she was apparently perfectly sane in the asylum. He also quoted another case of a woman who died immediately after recovery from a fit of drunkenness.

Dr. C. MCVICAR (Dundee) said that it was interesting to note that the syndrome of mental symptoms in alcohol poisoning was similar to that of senile degeneration—viz., a disorientation as to time and place. The degenerate patients were admitted, not so much because of the alcohol, but because of the mental degeneracy, and readmissions were associated with the taking of very small quantities of alcohol. He further stated that the recovery of cases of multiple neuritis with paralysis of the limbs, in association with marked mental changes, is remarkable if the patients are kept under observation for one and a half to two years. The cases of alcoholism showing periodicity are usually impulsive and may be very intellectual.

Dr. MOTT, in replying, said that he was much obliged for the remarks and that Sir Clifford Allbutt's experience accorded very much with his own. It was the poor depressed man who takes alcohol instead of food who suffers so badly and becomes insane. The convivial drunkards, on the other hand, have a high degree of intelligence; they are chronic boozers for years, then they develop ascites and die; *they*, however, are able to go on with their work. With respect to Dr. Pasmore's statements about the degeneration of the association fibres, he said that it was extremely difficult to collect such cases. These were probably cases of toxic insanity associated with microbial disease. It was a toxic psychosis more than anything else. He therefore agreed with Dr. McVicar in keeping these patients under observation. Just as the limbs recover, so does the mind. He was also of opinion that massage of limbs and joints should be undertaken early, and that the feet should be protected from the weight of the bedclothes by a cradle. He was very much interested in Dr. McVicar's remarks on the similarity between alcohol poisoning and old age. He said that he agreed with Sullivan, who believes that alcohol is a poison, but that the insanity is due to an inborn tendency to it. He was glad to hear Sir Clifford Allbutt's remarks on the uselessness of rhetoric in such questions, and strongly applauded the suggestion of the collection of medical pedigrees.

The PRESIDENT next called on Dr. Achard (Paris) to read his communication on

A Method of Differentiating Living from Dead Leucocytes by Staining with Neutral Red.

Dr. ACHARD stated that living leucocytes in his method remained unstained, or else contain red stained intraprotoplasmic vacuoles and granules; dead leucocytes, on the other hand, show a reddish brown staining of their nucleus, but no intraprotoplasmic colouration. The technique was as follows. Two solutions were used: (1) a physiological salt solution with 6 per cent. sodium citrate added to it; and (2) a physiological salt solution with 1-1000 solution of neutral red. Ten drops of each were mixed in a test-tube and one drop of blood and one to four drops of centrifugalised deposit of an exudate containing white cells added. The mixture is incubated at 37° C. for 20 minutes. The liquid is then examined in the hæmocytometer cell and the living and dead leucocytes numbered separately. He went on to say that in the circulating blood there were no dead leucocytes, even in the gravest conditions. If occasionally a few dead leucocytes were seen, fresh preparations should be made again and examined for no longer than five minutes in order to avoid accidental injuries to the leucocytes; then they generally show no nuclear staining. In various exudates the dead leucocytes are not scarce, especially in cases of long-standing suppuration. In abscesses the number of dead leucocytes decreases after incision. In acute meningitis it appears that the variations in the number of the dead leucocytes are valuable for prognosis; their disappearance is a good sign, and an increase an unfavourable sign. He stated that Weill and Policard of Lyons recently controlled his observations, and obtained similar results. Of course, the test gave an account only of local processes—i.e., influenced the local prognosis. But in acute meningitis the relationship of local to general prognosis is evident. On the other hand, the red staining of the nucleus could only be observed in recently dead and not yet disaggregated cells. Therefore in long-standing suppuration, in tubercular empyema, amongst a great deal of indistinct leucocytic remains, only a few stained nuclei could be found. In conclusion, he said he thought the method could be applied to pathological and clinical investigations.

The PRESIDENT then asked if only the polymorphonuclear leucocytes showed the reaction.

Dr. ACHARD replied that it was applicable to all leucocytes, more especially the polymorphonuclears.

The PRESIDENT then announced that there would be a combined meeting of the Pathology and Bacteriology sections on Thursday at 10 A.M., when Professor Wassermann would open the discussion on the Complement Deviation Method of Diagnosis.

PHARMACOLOGY AND THERAPEUTICS.

WEDNESDAY, JULY 27TH.

President, Professor A. R. CUSHNY (London).

Dr. O. F. F. GRÜNBAUM (London) opened a discussion upon

Treatment with Lactic Acid Organisms.

He said that in appraising the value of lactic acid therapy we must, as it were, act as jurymen and endeavour to clear from our minds the many misleading statements found in the advertisements in the press He would like to direct the discussion into three channels: 1. The theory of the action of lactic-acid-forming bacilli. Dr. Grünbaum emphasised the advantage which the bacilli had over antiseptic drugs and over lactic acid given by the mouth—that the bacilli formed the lactic acid at the place where it was wanted. Antiseptics given by the mouth were for the most part absorbed in the stomach. 2. The method of administration. It was wise to choose the Bacillus bulgaricus rather than any of the group of lactic-acid-forming streptococci, and that for two reasons. Microscopic examination would then permit us to distinguish between the organism inoculated and any other streptococcal contaminations. Moreover, the B. bulgaricus was the more active, although the resulting soured milk was perhaps less palatable. It was his custom to order for the first four days a special diet rich in carbohydrates and to prescribe full doses of extract of malt. It was wise to warn the patient that some flatulence might result at first. The preparation when administered should have just reached the stage of being curdled. In this condition it contained numerous active bacilli, but did not possess a too objectionable acidity. At first one-third of a pint of milk should be taken thrice daily for four or five days. Afterwards a quarter of a pint twice daily would suffice. No ill results had followed this treatment. 3. The cases likely to benefit from the treatment. (*a*) Conditions in which micro-organisms pathogenic to the mucous membrane could not flourish in an acid medium. Mucous colitis cases frequently improved remarkably. As a rule gastric cases showed little benefit. (*b*) Cases in which toxins produced by putrefactive micro organisms were absorbed with too much ease. He could cite several cases of uræmia which had improved temporarily under treatment. He was also under the impression that cases of diabetes mellitus showed benefit.

Certain Cases of Malade Imaginaire.

Professor R. TANNER HEWLETT (London) devoted his paper

mainly to the bacteriology of soured milk. Soured milk was an article of diet extensively used in the Near East, in Egypt, South Africa, and India. From all these natural sour milks bacilli had been isolated having as common characters: (1) relatively large size, considerable amount of pleomorphism, absence of motility, absence of spore formation, and reacting positively to Gram's stain; (2) growing best at a comparatively high temperature, 40° to 42° C.; (3) growing only in milk or in culture media prepared from milk or whey, or in certain special media, and not in ordinary culture media; and (4) producing a relatively high percentage of lactic acid in milk. The different bacilli isolated from different natural sour milks were probably not distinct species, but only varieties of one species identical with the Bacillus bulgaricus. Kuntze regarded these organisms as being primarily of intestinal origin and allied to bacilli of the intestinal tract. The lactic-acid-producing streptococci formed less lactic acid than the B. bulgaricus, and therefore could not take its place. Probably they aided its growth by producing an acid medium, though they did not add to the total quantity of lactic acid formed. In conjunction with the B. bulgaricus they formed a better curd, better mixed and more uniform than when the B. bulgaricus alone was inoculated. The Streptococcus lacticus grew indifferently at blood heat. The Streptococcus lebenis or some similar strain should be employed so that it might flourish with the B. bulgaricus at 40° C. If the inoculation from soured milk to fresh milk were carried on from day to day the streptococci tended to outgrow the B. bulgaricus. Milk before inoculation should be sterilised by boiling for half an hour at least. Whey was an excellent medium for the growth of the B bulgaricus and might be substituted where the fattening and nutritive properties of the milk were not desired. He doubted if the presence of yeasts was harmful. They occurred in all natural soured milks. From experiments carried out by himself and his assistant, Mr. Welch, it would seem that the ingestion of soured milk for a month produced little or no change in the numbers of lactose fermenters and of B. Welchii in the fæces. The B. bulgaricus undoubtedly passed into the intestine and could be demonstrated in the fæces. Professor Hewlett further detailed experiments carried out with a view to estimating the merits of certain preparations placed upon the market (*a*) as regards their content of B. bulgaricus, and (*b*) as regards their capacity for producing a proper soured milk.

Dr. ALEXANDER BRYCE (Birmingham) entitled his paper

The Limitations of Curdled Milk Therapy.

He described soured milk as a complete food unusually easy of digestion. As Metchnikoff had pointed out, 38 per cent. of its casein and 68 per cent. of its phosphates had been rendered soluble by the fermentation process. Moreover, it acted as a powerful diuretic, occasionally as a convenient laxative, and it was claimed as a nerve tonic. He could corroborate two statements which had been made with regard to sour milk: that soured milk was apt to aggravate hyperchlorhydria and acid dyspepsia, and that it was apt to cause constipation. Both of these he regarded as weighty objections to the treatment. Perhaps the most serious indictment was the undoubted fact that the treatment might induce or initiate rheumatism. Moreover, it was not at all unusual for severe colic and occasionally diarrhœa to arise during the course of lactic acid therapy, and although such untoward symptoms might be anticipated at the beginning in many cases they did not always subside. Milk *per se* was a most valuable nutrient, and the new system was an excellent artifice for enabling recalcitrant patients who objected to ordinary milk to obtain the unquestionable advantages of the continued use of milk.

Professor VAUGHAN HARLEY (London) spoke of the influence of soured milk upon metabolism. Increase of the bacteria present normally in the bowel could lead to two pathological conditions—either increased intestinal fermentation, where the breaking down of the carbohydrates caused an increased production of gas and various organic acids, or the bacteria might cause increased intestinal putrefaction by acting on the proteids contained in the intestine. In the former case the addition of lactic acid organisms would be worse than useless; in the latter they might by their multiplication stop the increased intestinal putrefaction. In marked cases of intestinal putrefaction there was found an increase in the urine both of the ethereal sulphates and of indican. Aromatic sulphates, however, might only be very slightly increased when there was markedly increased putrefaction, while a considerable degree of indicanuria was normally present in persons who eat large amounts of meat. The examination of the fæces therefore was a more sensitive indication of increased bacterial putrefaction. Stools under these circumstances were alkaline when passed and became more alkaline on standing. This is due to the excess of ammonia derived from the splitting up of the proteid. This increased putrefaction was demonstrated when Schmidt's fermentation test is employed. In increased intestinal fermentation there was a marked accumulation of gas in the tubes kept in an incubator for 24 hours, while in increased putrefaction no gas was formed. In three cases under his care he had carried out careful experiments, and had come to the following conclusions: 1. The influence of soured milk on increased intestinal putrefaction. The quantity of the aromatic sulphates was seen to be decreased, although not markedly so. In none of the cases were the aromatic sulphates very large to commence with. The increased indican also tended to disappear under treatment. In all the cases the stools became much less offensive in odour when a small quantity of soured milk had been added to the diet. The results of Schmidt's fermentation test further indicated a decrease in intestinal putrefaction, and the alkaline stools tended to become either neutral or faintly acid. The chemical analysis gave evidence that there was a decrease in intestinal putrefaction. 2 The influence on the absorption of food. The quantity of nitrogen in the stools was certainly increased by the addition of soured milk to the diet, and this increase in the amount of nitrogen present caused the apparent decrease in the absorption of nitrogen by the bowel. The nitrogen in the stools did not represent only the excess of nitrogen in the food but was the nitrogen contained in the various secretions eliminated into the bowel, together with that supplied by mucus, epithelial cells, and the bodies of bacteria. There was probably no real decrease in the absorption of nitrogen. In two cases the fat in the stools was slightly increased; in one there was an apparent decrease. These analytical results did not point to any greater absorption of food when soured milk was added to the diet.

Professor SAHLI (Berne), speaking in German, referred to the exaggerated claims which had been made for the treatment. He had good results in certain cases from employing lactic acid therapy in conditions of anacidosis, as in pernicious anæmia, in typhoid fever, and in diabetes. He did not regard the presence of the celebrated Bacillus bulgaricus as essential. He thought that the benefits were in all probability due to the lactic acid present, and he had had experiments carried out in which lactic acid was given with good result. The question of dosage was thus simplified.

Dr. ROBERT HUTCHISON (London) said that the treatment had been exalted into a sort of craze, and he expressed himself as sceptical of its scientific basis. The results claimed could be gained by other and simpler methods. He preferred calomel, a well-established drug, as an intestinal antiseptic. In pernicious anæmia he would prefer to prescribe hydrochloric acid.

Dr. F. T. BOND (Gloucester) desired to advance the claims of whey as a medium for lactic acid treatment because the complicating influence of the casein was eliminated. It could be pushed to much greater lengths without the fear of creating digestive disturbances. He spoke from personal experience of the increased capacity for work which had resulted in his own case, due, he believed, to a tonic action on the heart.

Professor J. B BRADBURY (Cambridge) gave details of three cases in which lactic acid organisms had done good, especially in a patient suffering from bradycardia and irregular pulse. Under treatment the pulse-rate rose from an average of 34 to 60 or 70.

Mr. C. REVIS (London) and Dr. J. JOHNSTON (Bolton) also spoke in favour of the treatment.

Dr. A. F. HERTZ (London) had met with severe cases of diarrhœa produced by soured milk. He regarded lactic acid as a stimulus to the intestinal wall. Many of his patients claimed that their constipation had yielded to the treatment. He emphasised the importance of a bacteriological control examination of the fæces. He had treated by this means cases of acute infection of the colon, and Dr. J. W. H. Eyre

had demonstrated for him the disappearance of the offending pathogenic organisms from the fæces.

PHYSIOLOGY.

WEDNESDAY, JULY 27TH.

President, Professor WILLIAM H. THOMPSON (Dublin).

In his opening address the PRESIDENT, after a few preliminary remarks, said that it was 15 years since the British Medical Association met last in London. He felt that Dr. David Ferrier's address, as President of his section, upon the Relations of Physiology and Medicine, might well be repeated to-day. He quoted Pawlow's words regarding the mastery of medicine over things biological. "Medicine has in large measure fulfilled what was expected of her ..... this unexpected result has only been made possible by the coöperation of two conditions. These are, that man from the earliest times has constantly and passionately striven to maintain life and health; and, secondly, that in the search for health numerous individuals—indeed, I might say all mankind—have taken part." Huxley expressed much the same thought in his statement that medicine had "laid the foundation-stone of a new morality." He said that these two eminent men had given us a true conception of the evolution of scientific medicine. He referred to the progress that had been made in the widespread awakening to the importance of conforming to the laws of biology. Much, however, remained to be done, and this country was backward in its recognition of the need for progress. Education for the appreciation of the real value of new truths was of primary importance. The science of physiology was comparatively young, and the field of education had been occupied with older subjects. The fact remained that we were much behind many other countries, and there appeared to him to be only one reliable way to make good these deficiencies—namely, through the medium of school education. Some knowledge of biology, moreover, should form part of the education not only of the teachers but of that of every boy and girl in our elementary schools. Speaking of the prejudice that would have to be encountered and overcome in introducing widespread physiological teaching of the laws of health and chief functions of the body in schools, the President pointed out that the present is a very favourable time for making an advance. Never was a more intelligent interest taken by the public in hygienic matters. In Ireland excellent work had been done by the Women's National Health Association, a similar movement, the National Association for the Prevention of Consumption, having spread over England and Scotland. Such movements could not, however, replace school teaching, but should supplement it. Turning to the programme of proceedings, he remarked that both the subjects for discussion were very appropriate from the point of view of his remarks. Nothing could be more important than accurate information regarding the food requirements of man, nor than a knowledge of the factors which made for an efficient circulation. Without anticipating either of these discussions, he pointed out how few well-educated people realised that the main function of food was to supply energy to the human machine just as coal supplied it to the steam engine. Also how few realised that the energy value of food could be as accurately measured as a yard of cloth. One other point he wished to touch on—our standards of food value. The absolute standard, the calorie, is used to check the tot of the balance-sheet on the debit and credit sides. But this gives no information concerning the distribution of the different items which make up the totals. He was convinced that we wanted three other standards as evidence of what might be called nutritive effects. We needed a protein standard, a fat standard, and a carbohydrate standard. The sooner these were decided on the better, and possibly that section might in the near future see its way to take the matter up with a view of arriving at some agreement on it.

The PRESIDENT then called upon Lieutenant-Colonel Melville, R.A.M.C., to read his paper on

The Food Requirements of Man for Sustenance and Work.

Lieutenant-Colonel C. H. MELVILLE, R.A.M.C., in his opening remarks emphasised the point that sanitation should deal with the preservation of health, not merely the prevention of disease, and subsequently proceeded to discuss his experiments on 20 infantry soldiers taken during 12 days' marching exercise. The ages of the men varied from 20 to 28, their average weight being 64 kilogrammes. For the first six days 190 grammes of protein were given with 510 grammes of carbohydrate and 58 grammes of fat. During the second six days the fat was increased to 110 grammes, the protein was diminished to 145 grammes, and the carbohydrate given amounted to 450 grammes. The energy value equalled 3140 calories (net), 10 per cent. being deducted, the deficit amounting to about 890 calories, the standard unit taken being 80 calories per mile. An initial rise in weight with increase in girth of the calf and abdominal muscles occurred. This was followed within three days by a steady falling off in weight. He attributed the rise in weight partly to retention of protein, partly to retention of water *plus* increase in fat and carbohydrate diet in excess of the barrack rations. The secondary daily loss was about equal to the estimated deficit of energy supplied in the food during that period—a view supported by Benedict's experiments. The speaker dwelt on the fact that in practice it was found that men leading an arduous life needed and craved for an abundant protein diet. He considered 190 grammes of protein a good maximum, while he would not go below 145 grammes. He also emphasised the necessity for variety in proteins as being essential to good nutrition. On this diet, which was recognised to be insufficient, the men showed a rapid wasting of their fat, and came in looking far from fit. He discussed the best form of portable food, having found from experience that sugar and jam formed a very good energy-yielding and portable food, and instanced the fact that the Japanese in Manchuria subsisted largely on raw sugar under conditions where, owing to the great cold, they required food of a very high calorific value. A great difference would be observed in the habits of different classes—e.g., officers and men—in the power of utilising starchy foods. The problem that required solving was: How should the proportion of fats and sugars be divided to supply a deficit of 1400 calories, given a demand for 5000 calories of energy, of which 2600 are given as biscuit and beef.

Dr. ROBERT HUTCHISON (London) thought that Colonel Melville was to be congratulated on the accuracy and care with which the experiments had been carried out, work much needed in this country where research of this nature had been somewhat rarely undertaken. He agreed with Colonel Melville's views as to the causes of the initial increase in weight, and regarded the subsequent daily loss as being quite natural. He also agreed as to the necessity for a high protein diet for those leading very active lives, instancing the 270 grammes of protein fed to college football teams. He considered that Chittenden and his school had gone too far in recommending a low protein diet. Regarding the relative proportion of carbohydrates and fats which should be given it seemed a matter largely of habit, the difficulty being to find a ration which suited everybody, and he hesitated to lay down any definite rules beyond saying that more people could digest excess of carbohydrate than excess of fat.

Lieutenant-Colonel A. M. DAVIES (late R.A.M.C.), who followed, thought it regrettable that so much insistence had been attached, particularly in America, to calorific value as opposed to the essential constituent value of the foods as such. He pointed out that fats were more expensive and not so easily digested as carbohydrate. The stomach objected to a fixed diet and he agreed with the previous speaker as to its being largely a matter of habit as to which food was most easily assimilated.

Dr. E. P. CATHCART (Glasgow) laid stress on the discussion of the quality, not the quantity, of the protein being the most important factor, referring to the experiments of Kauffmann and those of Wilcocks and Hopkins in this country on gelatin as a food. It was very extraordinary that protein should be craved for during hard work, since the work caused no appreciable increase in protein breakdown. Carbohydrates must play a very important part, he was convinced, in the synthesis of protein tissue. They acted as protein-sparers, while fats did not, although he cited some data of experiments which seemed to show the possibility of fats acting as protein-sparers under certain conditions. While sympathising with the advocates of a high protein dietary, he personally was a strong advocate of a high carbohydrate diet.

Professor J. S. HALDANE (Oxford) had rather hoped for more hostile criticism from the advocates for economy in nutrition. Personally he was in agreement with Colonel

Melville and relied on Atwater's standards (120 grammes of protein) which were based on normal individuals' appetites. Chittenden (50 grammes of protein) doubted the standards laid down by Atwater and considered that reliance should be placed on experiments. He instanced the experiments on soldiers given a low protein diet who were made to do gymnastic exercise and found they kept in good condition and nitrogen equilibrium. Professor Haldane thought that these men were hardly leading normal lives and that the increase in their gymnastic skill might be attributed to "knack"; in reality they led a sedentary existence. He thought, however, that further evidence was required; it was not satisfactory to take athletes as an example; still, no one had yet proved that Chittenden was wrong, and there seemed no *a priori* reason why men should not do with this small amount of protein. He thought, however, that Chittenden erred when he cut down the calorie value of a diet. He dwelt on the serious effects of insufficient rations for long periods, instancing those concentration camps in South Africa which, not being at first under medical supervison, provided only the "free ration" of the paid soldier (1 pound bread, ¾ pound meat, equivalent only to 2100 calories). The mortality went up remarkably, although the sanitation was excellent. He defended Atwater's theory that natural appetite should be taken as a guide and hoped that the question of carbohydrates and fats would be cleared up by future investigations.

Dr. ALEXANDER HAIG (London) gave as his experience as a physician that a patient could not do well on less than 95 grammes of protein. He agreed that Chittenden's results could not be relied on. He regarded nuts and fruit as the ideal and natural food for man, the combination of the two foods giving the theoretical proportion required of proteins, fats, and carbohydrates.

Professor G. A. BUCKMASTER (London) considered that the rise in weight observed by Colonel Melville in his experiments need not necessarily be due to the retention of protein, and expressed himself as unconvinced that this was the fact, for the increase in girth of the chest, abdomen, and calf of the leg which was noticed in the subjects of the experiments might well be due to other causes. In his opinion, except in the state of convalescence, the power of the organism to store and retain protein was exceedingly small—in fact negligible—compared with the ease with which carbohydrate and fat could be stored. Investigations into the fluids of the body, blood, and lymph have shown that the protein content of these is constant. Therefore the increase must be intracellular, and this would have to be established as a temporary condition during the first day or two of the experiment, since subsequently this initial increase in weight is lost. Professor Buckmaster was inclined to attribute the increase to retention of water. With reference to the fat or carbohydrate addition to the protein requirement for work, provided the individual could utilise the latter, it was preferable to increase this rather than the fat. In coming to this view he considered that the ingestion of much fat was a peculiarity of human nutrition, for no adult animal, carnivorous or herbivorous, takes anything like the fat in its diet which choice dictates for man.

Dr. JOSEPH SMYTH (Naas) was astonished that Chittenden's views did not find more adherents. He cited Atwater's own evidence before the Vagrancy Commission that certain labourers worked more efficiently on a low protein dietary. He thought Colonel Melville's experiments were too short and that it was not fair to compare them with Chittenden's which lasted over many months. Chittenden's experiments on athletic students at Yale University who had been accustomed to a high protein diet had been ignored.

Dr. M S. PEMBREY (London) thought that Chittenden's experiments had been much over-estimated. None of his followers had adhered to their low diet. Reduction of protein food reduced the staying-power of the individual. He considered that ordinary normal animals do not overeat themselves, and that natural instinct was by far the safest guide.

Professor MACALLUM (Toronto) said that the subject of nutrition was so kaleidoscopic that it was very difficult to do it any justice in a short discussion. With regard to the normal instincts of man he instanced the case of the so-called "gold coast" students of Harvard or Yale. These wealthy students consume an enormous amount of protein, their diet being equivalent to an energy value of 8000 or 9000 calories. Was the instinctive tendency here to be regarded as a healthy one? After one or two further examples of excessive protein feeding he proceeded to state that he agreed almost *in toto* with Dr. Haldane. He relied on Chittenden as a sane and careful experimenter, and thought that protein could be reduced, but agreed with Dr. Haldane that it was a mistake to lower the calorie value to the extent that Chittenden thought good.

Sir JAMES GRANT (Canada) dwelt upon the importance of the whole subject of nutrition with regard to the bodily fitness of the individual. He said how necessary it was that children should be well fed to enable their bodies to resist disease, more especially tuberculosis, which was so prone to attack an organism weakened by insufficient food.

Lieutenant-Colonel MELVILLE, in reply, said that he had had no intention of comparing his experiments with those of Professor Chittenden, but he considered Chittenden's theories good only when applied to people leading sedentary lives. He then gave as an instance a race of men who had carried out Professor Chittenden's theories for over a thousand years—the Bengalis of India:—Data: Nitrogen intake, 0·1–0·2 gramme per bodyweight, equivalent to Chittenden's figures; height, same as that of a European; chest measurement, 25 per cent. less; weight, 25 per cent. lighter; blood, 25 per cent. less hæmoglobin; and blood pressure, 25 per cent lower. At the age of 16–20 years no weight is put on, and in the matter of resistance (to disease, &c.) the Bengali is five years a worse man than the Englishman, although the latter is living in a climate not his own. Kidney disease is twice as prevalent, although scarlet fever is very rare. After further remarks on the storage of protein, to which Professor Buckmaster had referred, and on the practical necessity of an abundant diet for hard workers, Lieutenant-Colonel Melville said he considered the evidence afforded by the Bengali seemed to him most conclusive.

PSYCHOLOGICAL MEDICINE AND NEUROLOGY.

WEDNESDAY, JULY 27TH.

President, Dr. THEOPHILUS B. HYSLOP (London).

The PRESIDENT opened with a paper on

The Relationship of Psychology to Neurology,

and said that the recent experimental and statistical study of mental phenomena had enabled psychology to rank as one of the exact sciences. The total exclusion of metaphysics from these sciences was an impossibility. The physicist accepted mere hypotheses, such as those of the existence of ether, conservation and correlation of energy, gravitation, denying at the same time any hypothetical entity, such as the soul or spirit on which the psychologist would base his science. A common-sense dualism would appear to be the legitimate position. No matter how perfect the concomitance or parallelism might be, the main problems of life and mind remained unsolved. He enunciated two rival theories with regard to the evolution of mind, the one evolved from, and the other independent of, energy. At present there was no physical basis for the alleged occurrences of thought transference; but as modern research showed that electric disturbances like those made use of in wireless telegraphy could be propagated, like light, without tangible connexions, so biological science and psychical research made us aware that in the animal kingdom, and possibly in man also, communications at a distance could be established without the aid of any known medium. The recognition that the nervous system was not a generator but rather the instrument for the transmission of force was the best conception of the possible relationship between mind and matter. Philosophical psychology demanded that physical science should either agree to its claims for the existence of a soul or give up its greatest dogma—the indestructibility of energy.

Dr. G. H. SAVAGE (London) opened a discussion on

Marriage and Insanity.

He considered that the subject was one at present beyond practical legislation in this country and that the medical profession should advise the laity. The public and the majority of medical men would at once reply to the question as to the insane ever being allowed to marry in the negative, but he contended that a dogmatic statement such as this was unscientific. Such a declaration inferred that all insanity was alike and of equal value. He stated his belief

that certain persons who had suffered from a degree of mental disorder which might be classed as insanity, might yet recover and marry with no real increase of risk to their partners or their children. For instance, a good many adolescent cases with melancholic symptoms, many with marked hypochondriacal ideas, had recovered, and after the interval of some years had married and remained well. Also adolescent maniacal cases had recovered completely, married, and remained sane. Apart from these, he had records of several women who had attacks of insanity before the menopause, had married when past childbearing, and continued well; but few would recommend such unions. He had seen a few delusional cases, probably of toxic origin, in which recovery had taken place and in which satisfactory married life had followed, but he hesitated in advising marriage in delusional cases. He thought that in all these cases the question of family neurosis must be considered. The cases in which with recovery the patient had been free from dread of recurrence were more favourable than those whose dread might act as auto-suggestion. Marriage should be hindered or prevented in those cases where there had been a history of periodical recurrences. There was a very grave risk in those cases who at puberty or adolescence had had periods of depression and buoyancy. He had seen many unsatisfactory results from such marriages, and thought that the suppression of the facts as to such attacks should be a ground for declaration of nullity. Direct heredity as the chief cause of insanity had been so firmly established in the public mind that the question as to marriage of persons with insane relations was constantly brought before him. It would be impossible to prevent the marriage of all related to the insane, and if it could be done the race would not be benefited. He would never allow marriage in cases where there were fully organised delusions or hallucinations. He doubted whether any epileptic should be allowed to marry; certainly epilepsy with mental symptoms should contra-indicate marriage. He had, however, seen several instances of women subject to *petit mal*, who had married and borne healthy children. There could be no doubt that with any form of mental disorder epilepsy should be a bar to marriage. He strongly disapproved of marriage in cases of moral perversion. Many lives had been ruined through marrying drunkards with the notion of reforming them. Again, in cases of sexual perversion and impotence marriage would be dangerous or worse. Closely allied to these cases he had to consider general paralysis of the insane. The cases with early acute symptoms presented many difficulties. The patient might apparently recover before a definite diagnosis of general paralysis of the insane could be given. He had known disaster follow rapidly after marriage in such cases. He had always felt grave risk in not preventing marriage in any case in which there had been clear evidence of constitutional nerve trouble depending on syphilis. Marriage should never be recommended as a means of cure. In so-called hysterical cases the prospect even of relief was small, the risk of permanent alienation was great. He wished to speak strongly against marriage as a relief for so-called neurasthenia or hypochondriasis. In all sexual disorders marriage was dangerous. The points for discussion were: Should anyone who had been certified as of unsound mind be allowed to marry? If that were so, which cases or which forms of insanity might be considered as not barring healthy unions and healthy offspring? Should not the recurrence of any form of insanity be a bar? Should evidence of syphilitic affection of the central nervous system bar marriage? Should marriage ever be recommended in cases of mental disorder? Should insanity be a plea for divorce?

Dr. G. E. SHUTTLEWORTH (East Sheen) followed, giving his experience from the study of offspring the result of imprudent parents. He considered that persons recovered from accidental insanity might possibly be permitted to marry, but not when they came from a neuropathic stock. He referred to consanguineous unions and thought no harm arose from cousin marriages if the family history on both sides was good. He pointed out the tendency of neurotic persons to mate together, which should be discouraged.

Dr. ROBERT JONES (Woodford) stated that epilepsy was more transmissible than any other morbid tendency. He considered that so-called recoveries from delusional insanity and paranoia should be a bar to marriage. He cited instances of the potency of a healthy environment in correcting the inheritance of an insane strain. He thought that too much importance was placed in the mental condition of the parents to the neglect of ancestral histories.

Dr. J. S. RISIEN RUSSELL (London) upheld the view that epileptics should not be encouraged to marry, but he had lately varied his opinion in the face of the fact that sometimes epileptics recovered under treatment for years. So also he thought that syphilitic disease of the nervous system, if also recovered from, should not prevent marriage after a reasonable time had elapsed. Cases of impotence, if due to excesses, frequently improved under treatment, and marriage might be permitted, but not if due to syphilis, from the possibility of supervening tabes or general paralysis.

Dr. T. DRAPES (Enniscorthy) urged for a differentiation in epilepsy and especially whether due to trauma or not. The physician's duty was to instruct the public, but legislative restrictions short of sterilisation would be useless and lead to illegitimacy and worse progeny.

Dr. A. S. BARNES (Birmingham) spoke of disorders due to shock and profound environmental influences, which cases should not be regarded on recovery as transmitting morbid tendencies.

Mr. A. R DOUGLAS (Lancaster) referred to the degenerate stock as seen on visiting days at a large imbecile asylum, and suggested that local authorities should have some control in the prevention of the marriages of the feeble-minded.

The PRESIDENT and others also spoke, and Dr. SAVAGE replied.

Dr. LEONARD D. H. BAUGH (Gartloch) read a paper on

Paranoidal Symptoms at the Female Climacteric.

Systematising of delusions was, he said, a symptom often present in insanity, and was frequently intensified at the climacteric. In the cases definitely associated with the menopause there was marked blending of systematised delusions and depression. Paranoidal symptoms should not be confused with systematisation found in some melancholics with persecutory ideas, or in so-called degenerate paranoiacs, or other delusional states. Paranoidal symptoms were determined in that at periods of stress potentialities hitherto latent became evident, and that certain epochs tended to colour the mental outlook. The systematisation differed from true systematised delusional insanity in that the slow evolution so typical of the true was not present, instead they showed the sudden onset and the rapid expansion of delusions. The depression present, although real, was not typically melancholic; it lacked the mental pain and the concentration of ideas of melancholia. No matter how depressed, they never showed self-accusation; they were always the wronged, and bitterly resented the injustices heaped upon them. Five only out of 750 females of all ages admitted to the asylum presented this paranoidal grouping of symptoms. These cases must be distinguished from examples of degenerate paranoia tinged with depression at or about the climacteric. Investigations into the histories of these paranoidal cases suggested that they belonged to the ideo obsessive constitution. They had always been indecisive, anxious, impressionable, introspective, and reticent. They from time to time had been obsessed by ideas and showed pedantism and dogmatism. None had ever overstepped the borderland until approaching the climacteric. Four of the five suffered from functional menstrual disorders during the pre-climacteric. They systematised their delusions around the reproductive system. In all a neuropathic family history was elicited. In one only was there mental worry apart from menstruation. In another there had been transitory recent illness. Although none were stout, all had maintained fair health. With regard to the delusions of persecution, systematised from the past, building on trivial incidents recalled. None had shown signs of evolving notions of grandeur, neither were there symptoms of dementia. Three were married, two came safely through the stresses of parturition and lactation, the third was childless. The depression shown throughout had been fitful, both as to the duration and intensity. The prognosis with regard to recovery was hopeless and their chances of returning unrecovered to family life were very poor, as the nature of their delusions and their determination to be vindicated precluded their liberation from institutional care.

Dr. R. H. STEEN (Dartford) and the PRESIDENT both made some observations on the use of the term "paranoia" and "paranoidal," and Dr. BAUGH briefly replied.

RADIOLOGY AND MEDICAL ELECTRICITY.

WEDNESDAY, JULY 27TH.

President, Dr. J. MACKENZIE DAVIDSON (London).

The PRESIDENT, in his opening address showed how the science of radiography had so far developed that it was more or less futile for other than properly qualified and trained medical men, possessing an adequate equipment, to take up this work with any prospect of being able to do any justice to the subject. Passing on to the question of radium he pointed out how the rumour to the effect that this substance was a cure for cancer and other forms of malignant disease had seriously hampered research. Not only had many unfortunate people been put to much anxiety, expense, and disappointment, but also it had had the effect of raising the price of radium to such an extent that what could be obtained at one time for 8*s.* was now about £20. This was a most serious matter, and one that the therapeutic value of radium did not justify. While cases of carcinoma were at times improved, it could not be too strongly urged upon the profession and the public that radium was not a cure for cases of inoperable cancer. Though the use of radium was limited, in those cases where it was of use its action was very decisive.

A very interesting and suggestive address then followed by Professor Sir J. J. THOMSON, F R S. After dealing with the different types of rays given off from an X ray tube and the depth to which each would penetrate the human skin he announced a discovery and one that was quite recent and not as yet generally known. It had been found that if the rays from an X ray tube were allowed to fall upon a metal surface a secondary radiation took place, the character of which depended on the composition of the metal surface. For instance, if the metal were of iron the radiations corresponded to those of a very soft tube; while if the surface were of silver the rays were "harder" and more penetrating. The hardness of the secondary radiation increased with the atomic weight of the metal employed. He thought that this principle might be employed to produce radiations of any desired intensity for therapeutic purposes, and in the meantime he pointed out the necessity for exercising care in the choice of materials for making X ray protective screens.

The section gave a unanimous vote of thanks to Professor Sir J. J. Thomson for his most interesting and valuable address.

Dr. H. LEWIS JONES (London) then read a paper on

The Treatment of Mooren's Ulcer of the Cornea by Zinc Ionisation,

in the course of which he reported four cases successfully relieved by this method. The procedure was carried out by means of a zinc rod or a loop of zinc wire covered with a fine web of cotton wool, moistened with a 1 per cent. solution of zinc sulphate, and applied to the ulcer as a positive pole. The eye was previously cocainised. A current of 1 milliampère for three or four minutes usually sufficed, and healing of the ulcer took place within a week from the time of the application. The method offered marked advantages over the older methods of treatment. The applications needed careful attention and appeared to cause uncomfortable sensations, but not actual pain. A single treatment usually sufficed.

Professor LEDUC (Nantes) mentioned that the chief cause of pain in ionic treatment was the rapid rise of current intensity, and by obviating this the pain was inappreciable.

Dr. DOMINICI (Paris) and Dr. A. A. WARDEN (Paris) read a paper on

Radium Treatment,

which was illustrated with some excellent diagrams and photographs of patients, and, what was more to the point, the actual patients themselves had come over from Paris to be shown at this meeting. The cases which had been much benefited by radium treatment were sarcoma of the upper jaw, lymphadenoma of the parotid, epithelioma of the palate, and a malignant tumour of the testicle complicated with metastatic growths in the abdomen and pelvis.

Mr. R. J. GODLEE (London) took part in the discussion.

Mr. C. THURSTAN HOLLAND (Liverpool) showed the model of a

Screen for Examining Patients in the Standing or Sitting Position,

which afforded almost complete protection to the operator and those looking on, and at the same time no more of the patient was exposed to the X rays than the part under examination. The actual screen itself was about 6½ feet square; the size of the maximum opening was about 18 by 24 inches, and this could be reduced to any convenient dimensions by means of shutters, which were worked from the safe side of the screen without any necessity for coming within the active field of the tube. The design was simple and free from complication, and the original was made in the hospital by the carpenter on the premises at a very moderate cost. It had very many advantages, especially for hospital service.

Dr. E. REGINALD MORTON (London) read a paper describing

Some Bony Changes observed in a Case of Chronic X Ray Dermatitis

The curious features of this case were the absence of any changes in the skin of the finger, while rarefactive changes were going on in the phalanx. Also, that though these rarefactive changes steadily progressed from the distal to the proximal end, at a certain stage reconstruction set in, also travelling from the distal end, and at times both processes were going on simultaneously. Finally, the destructive process got the upper hand and the phalanx had to be amputated. Microscopic appearances pointed to the presence of squamous epithelioma, but it was difficult to think that reconstructive changes could follow such a process, so that a definite opinion as to the nature of the actual process going on was out of the question for the present.

Mr. J. HALL-EDWARDS (Birmingham) had noticed similar changes in his own hand, but there were no signs of its being malignant disease.

Dr. W. F. SOMERVILLE (Glasgow), in a paper on

The Relief of Pain and Discomfort by means of High Frequency Currents,

urged that at the section meetings more frequent reference should be made to the various and older methods of electrical treatment. The whole time should not be taken up with discussing X ray diagnosis and treatment and apparatus. He referred to the various conditions where pain or discomfort was experienced, and where relief was obtainable by the use of high-frequency currents, instancing neuralgia of different nerves, especially of the sciatic, intercostal, trifacial, great occipital, lingual, and musculo-spiral. All these neuralgias had been relieved, if not entirely cured, by the application, generally and locally, of high-frequency currents. The pain following fracture readily disappeared under high-frequency massage. He had found these currents invaluable in cases of extreme insomnia, and when applied locally they caused enlarged cervical glands to subside. By a special method of local application, constipation, atony of the bowel, mucous colitis, hæmorrhoids, and fissure of the anus were all relieved, while functional conditions, such as incontinence of urine in children, chorea, and spasmodic wry-neck, were frequently overcome through the use of high-frequency currents. He referred also to papers already published by him showing that under the influence of high-frequency treatment there was a rise of the surface temperature of the body, thus relieving the heart's action and encouraging peripheral circulation. Further, by experiments, it had been proved that these currents had a special effect on urinary excretion, encouraging the elimination of waste products from the kidneys and bringing about a normal ratio between uric acid and urea excretion. Muscular rheumatism and the pain of rheumatic and arthritic joints were also relieved, and various skin diseases were cured. The tonic effect of high-frequency currents on neurasthetic and ordinary over-worked business and professional men and women was emphasized, and even in cases of central nervous affections it was found that many of the accompanying superficial symptoms were mitigated in their severity. He was emphatic in his statement that high-frequency treatment was by no means a thing of the past. On the contrary, when employed by expert medical men who had mastered the details of application, this method was found to be highly efficacious and beneficial in the relief of pain and discomfort.

STATE MEDICINE.

WEDNESDAY, JULY 27TH.

President, The Rt. Hon. Lord ILKESTON (London).

After the PRESIDENT'S opening remarks, reported in THE LANCET of last week,

Mrs. SIDNEY WEBB, in inaugurating a discussion upon

The Relation of Poor-law Reform to Public Health and the Medical Profession,

said that the subject was a disquieting one, involving as it did suggestions of change that might be unwelcome to many medical practitioners. The question which the British Medical Association had to decide was how to guide those changes so as to promote the best interests alike of the profession and of the community as a whole. It was, however, satisfactory to notice that the defects signalised in the Poor-law Medical Service did not arise from any shortcomings on the part of the 4000 Poor-law medical officers, and that both Majority and Minority reports spoke of their services in appreciative terms. The principal deficiencies in the Poor-law Medical Service as revealed by the Commission were that it failed in practice to ensure the provision of any medical assistance at all for a large number of cases among the poor, which did as a matter of fact go without treatment by any medical man at all, public or private, to the serious detriment of the public health; that even where the Poor-law medical officers got to work on the patients they failed in the vast majority of instances to reach them at the incipient stage of their illnesses, and, indeed, often failed to reach them at any but an advanced stage, when cure had become impossible: the scandalously inadequate remuneration usually afforded to Poor-law medical duties; the unsatisfactory conditions of the service, especially with respect to burdening the medical officer with the cost of drugs; the failure in all but a few unions to make any decent provision for nursing, appropriate nourishment, and convalescence; the strange lack of connexion between domiciliary and institutional treatment; and the inadequacy of the general mixed workhouse as a hospital. The position was found by the Commissioners to be complicated by an unsuspected amount of duplication of services and overlapping of work by rival rate-supported medical agencies. In town after town it was discovered that the old idea of the sphere of a public health service—namely, that it should confine itself to measures of general prevention, and did not treat the individual patient—was no longer correct. The recent developments of the public health service were rapidly encroaching on the domain of the private practitioner as well as on that of the Poor-law medical officer and the Poor-law infirmary, and bringing about a hopeless confusion of principle as to what was the public and what the personal responsibility for sickness. Three courses were open to them to effect a remedy for the existing conditions. The most tempting to the ordinary medical man was to maintain the *status quo*, decorated with a few obvious reforms, and to hope that all would go well. That way lay destruction for the poor private practitioner. The re-invigorated Poor-law and the growing public health service, with the friendly societies and a Government insurance scheme in the background, would between them eat him up. The second course, which was that of the majority of the Poor-law Commission, would be no more favourable to the general practitioner than the first. The whole aspect of "deterence" as regards medical relief would be given up. The sick pauper would no longer be required to go to the parish medical officer, but he would have a free choice of a medical man in his need. The stern barrier of the relieving officer as an intermediary between the medical officer and the applicant for medical aid was to be removed. Treatment was to be freely and immediately granted to every applicant who was sick, and inquiry with a view to the exaction of payment where means allowed was to follow, not to precede, the treatment. The main objection to both of these courses was that they failed to meet the financial difficulty. What the community would insist upon was that if it was to go on paying five or six million pounds annually it should get in return not merely "medical relief" but, much more, prevention, and also that the waste of duplication should be stopped. The third course, that advocated in the Minority Report, aimed at meeting these requirements, whilst at the same time it protected the private practitioner from any loss whatsoever of his remunerative practice. It was proposed that in each county or county borough all those medical practitioners who were paid from public funds, whether as full-timers or part-timers, and all those institutions for the sick which were maintained from public funds should form a single medical service, not two or more rival services. The existing Poor-law Medical Service, with its Poor-law infirmaries, would be merged in the Public Health Service with its isolation hospitals, without interfering with the emoluments or position of any existing officer. The whole would be under the supervision of the health committee of the local county or borough council, strengthened by the addition of expert professional members and under the direction of a central department or Minister of Health, giving grants-in-aid and concerned exclusively with health administration.

Dr. J. FORD ANDERSON (London) addressed himself to the question from the point of view of the general practitioner who undertook only domiciliary treatment. He was convinced that if the principles of the Minority Report were applied it would lead, as far as medical practice was concerned, to superficiality of treatment, deterioration of character, and enslavement of the profession. He did not think that any of the young medical men it was proposed to appoint under the scheme would be able to carry on a case from beginning to end; medical practice would thus become merely mechanical. He maintained that medical officers of health dealt with generalities and with communities, and that it was as inappropriate to appoint them to superintend the clinicians as it would be for the clinicians to supervise the work of the medical officers of health. The proposals of the Minority would create an enormous amount of patronage at the hands of local authorities, while private practitioners would be denuded of patients, their *raison d'être* would cease to exist, and they would be reduced to poverty just as private teachers had been with the introduction of education by the State. He advocated a Public Medical Service under medical control on the lines of that suggested provisionally by the British Medical Association.

Dr. H COOPER PATTIN (medical officer of health of Norwich) considered that the question to be decided was how best to correlate the Public Health and Poor-law medical services. As the public health authority was obviously the body which should carry out the work, the medical officer of health was necessarily the proper person to be the administering officer. Referring to the suggested difficulties in recovering the cost of medical attendance, he stated that in Norwich no such difficulties had arisen, where the education authority recovered from the parents of children 80 per cent. of expenses to which they had been put.

Dr. J. F. J. SYKES (St. Pancras) said that there always had been and there always would be more or less destitution, and there must be some authority to deal with it whatever other functions that authority performed or whatever name it might bear. As from about one-third to one-half of destitution was attributed to ill-health or disease, medical treatment was largely concerned in the treatment of those who were destitute or on the verge of destitution. It had been proposed to amalgamate the Poor-law Medical Service, which provided curative treatment for disease, with the Public Health Service, which applied measures for the prevention of ill-health. The motive spirit of the former was deterence, and of the latter encouragement, so that if amalgamation took place one or other would have to predominate. If encouragement predominated there would be a danger of the extension of the free treatment of disease to many strata of the population above the destitute and the poor, and when the public purse felt the strain of the expense, attempts would be made as hitherto to throw the burden upon the medical profession. It behoved them therefore to be wary of the proposal. Dr. Sykes considered that of all the schemes which were in the field at the present moment for the medical treatment of the destitute and the poor, that of a Public Medical Service as proposed by the British Medical Association would be the most likely to be successful. It was unofficial, and enabled the whole of the medical profession to treat with a lay official body on equal terms. It covered all forms of the treatment of disease, and would embrace the medical diagnosis and treatment required by Poor-law dispensaries, school clinics, friendly societies,

philanthropic bodies, and insurance against sickness and invalidity. The scheme covered home treatment, and out-patient treatment at a dispensary or consulting room, but required for its completion institutional treatment. If matters remained as they were no difficulties would arise, and if Poor-law guardians were abolished their institutions would be transferred to some other public body or bodies under official management, so that whatever happened the Public Medical Service, each branch in its own locality, might go on its way with an easy mind, and with a knowledge of its increased power of giving and obtaining fair treatment and of maintaining the honour, dignity, and duties of the medical profession.

Dr. R. A. LYSTER (Winchester), in referring to the provision of provident dispensaries as advocated in the Majority Report, said that it was only by means of very great labour, particularly on the part of the British Medical Association, that it had been possible to begin to emerge from the difficulties which had been created by such provident institutions, and he viewed any suggestion of an increase in their number with a considerable amount of alarm. He thought, on the other hand, that no one could fail to be struck by the excellent and logical arguments brought forward by the Minority in favour of an amalgamation of the Public Health and Poor-law Medical Services. He was convinced that there would have to be some sweeping changes and that the public would not let matters rest where they are. He suggested that as a temporary provision an effort should be made to effect a combination of the preventive and curative services as they now existed quite apart from the consideration of treatment of the poor and the relief of destitution.

Dr. J. H. KEAY (Greenwich) could not agree with the condemnation of the Poor-law medical service contained in the Minority Report. For three-quarters of a century the Poor-law had done splendid work and the country could not possibly have got on without it. It is not a perfect service any more than the public health service was perfect. He deprecated any subordination of the medical practitioner to the medical officer of health, who was often a mere fledgling. He feared that if medical officers of health pushed their methods to extremes they would come to be regarded as sanitary policemen. He bore warm and eloquent testimony to the great work which Mrs. Webb had done as a member of the Poor-law Commission, but he considered that the greatest thing to be feared in the new era was the tyranny of intellectuals over other people's lives: they were so well intentioned but often so cruel. He advocated some such scheme of public medical service as that of the British Medical Association combined with compulsory insurance.

Mr. WILLIAM HOLDER (Hull), speaking as a Poor-law medical officer, said that since the issue of the report of the Royal Commission he had observed a very different attitude of boards of guardians towards their medical officers. He urged the importance of a correlation of action between the medical officer of health and the Poor-law medical officer, but thought there was some danger in placing the control of the experienced clinician in the hands of the inexperienced sanitarian. He considered that a medical officer of health should first of all obtain experience as a Poor-law medical officer. Referring to the question of the recovery of fees as advocated in the Minority Report, he considered that such a course would be not only impossible but impracticable.

Mr. F. E. FREMANTLE (medical officer of health of Hertfordshire) said that just as through treatment we had arrived at a system of prevention, so we should begin as preventers by studying treatment. The public health service was being gradually, and should be definitely, organised as proposed by Mr. Goschen in his Public Health Bill of 1871, in so far as their public duties were concerned, in four grades—namely, the medical officers of the Local Government Board, the county medical officer of health, the district medical officer of health, and the Poor-law district medical officer. The analogy of the Territorial service was apt. A new officer in that force might have to serve under those who in their civil capacity were his inferiors, and even the medical practitioner of high standing, if he was to continue in private practice, must in so far as he might act as a Poor-law medical officer, serve in the subordinate ranks of the public service, subordinate only as regards organisation. He considered that the Poor-law medical officer should be an integral part of the public health service, which should be organised in a definite and effective manner.

Dr. J. HERBERT MANLEY (West Bromwich) strongly deprecated any attempt to sow dissension between the preventive and curative branches of the profession. The difficulties attending coördination between municipal and Poor-law bodies were very great and could, in his opinion, only be effected by a complete Poor-law reform. He appealed to the meeting to regard the Minority proposals as those for an efficient State medical service and not to be led away by personal considerations and points of detail. He pointed out that the Minority scheme gave a free hand to the local administering authority to say who should be the administering officer and that he would not of necessity be the medical officer of health.

Dr. E. ROWLAND FOTHERGILL (London) thought that at the present juncture the question seemed to be what was to be done with that large body of persons who were not able to meet the cost of medical attendance. He considered that they should be encouraged to take advantage of the invalidity insurance scheme. Such a scheme would allow of the coöperation of the Government, friendly societies, masters' associations, trade unions, and of the British Medical Association. He advocated the continuance of the Poor-law service, but with whole-time medical officers, though he thought that possibly if the invalidity insurance scheme were developed on proper lines the necessity for a Poor-law service might cease to exist.

Dr. A. H. BYGOTT (Barking) deplored the departure of the family medical attendant, and said that as a school medical officer he had found that only 5 per cent. of the children found defective on medical inspection were taken to a medical man for treatment. He was told by the parents that this was due to their utter inability to make provision out of their earnings for such treatment. With regard to the freedom of choice of a medical man under any scheme he thought there should be no departure from the adage, "He who chooses pays."

Mrs. WEBB replied to some of the criticisms.

TROPICAL MEDICINE.

WEDNESDAY, JULY 27TH.

President, Dr. F. M. SANDWITH (London).

After the PRESIDENT'S opening remarks, reported in THE LANCET of last week,

Colonel Sir DAVID BRUCE, F.R.S., opened a discussion on

Human Trypanosomiasis

by referring to a series of propositions which he put before the Section of Tropical Medicine at the annual meeting of the Association in 1904. Most of these propositions still hold good at the present day. For instance, trypanosomes found in the blood of natives on the West Coast of Africa and in Uganda are identical; the so-called trypanosome fever of West Africa is the first stage of sleeping sickness; neither the native nor the European is immune to this disease; the prognosis is extremely unfavourable in all cases. As regards the proposition that there was no evidence to show that any of the lower animals take any important part in the spread of sleeping sickness, it is possible that this will need to be modified in the future, for it is now known that after the removal of the native population from the shores of Victoria Nyanza the tsetse-flies are found to be still infected, though two years have elapsed. The infected flies may live more than two years, or it may be that new flies have been infected from natives who have surreptitiously visited the lake shores, or some wild animals or birds in the locality may be acting as reservoirs of the virus, and thus keep up the infectivity of the flies. It has been found an easy matter to infect cattle with T. gambiense, to infect flies from them, and to pass on the disease through the flies to healthy animals. It has been proved that the antelope is just as capable as the ox of being infected with sleeping sickness. In only one case was an ox found naturally infected, and also one wild monkey. Experiments by injection of the blood of several hippopotami, antelopes, crocodiles, and birds shot in the infected area have up to the present time proved negative. Further experiments are required before this question can be determined. Sir David Bruce, however, expressed the opinion that it is more than probable that the wild game on the lake

shore will be found to act as a reservoir of the sleeping sickness virus, in which case the fly area may remain infective indefinitely, and the return of the deported population will have to be delayed for a longer period than was anticipated. Other methods for "stamping out" the disease may need to be tried—e.g., the gradual bringing of the lake shore under cultivation—civilisation and cultivation being incompatible with wild game, tsetse-flies, and sleeping sickness. It has been for a long time held that this disease is conveyed from the sick to the healthy by means of a biting fly, the Glossina palpalis. This proposition has been firmly established on sound evidence, but just lately there has been a disposition to believe that other species, such as G. morsitans and G. pallidipes, may be capable of spreading the infection. In the valley of Luangwa, North Rhodesia, where there are said to be no G. palpalis but only G. morsitans and G. fusca, sleeping sickness has developed. This, however, needs more careful investigation before it can be altogether accepted. If, however, it be true, the difficulties of eradicating the disease will be greatly increased. There is as yet no evidence to show that other biting flies, such as stomoxys, tabanus, &c., carry the infection under natural conditions. It was formerly asserted that Trypanosoma gambiense passed through no metamorphosis in the G. palpalis, but since 1904 a good deal of evidence has been accumulated, first by Professor Kleine and then by the Sleeping Sickness Commission. It is now known that the T. gambiense multiplies in the gut of about 1 in 20 flies (G. palpalis) which have been fed on an infected animal, that the flies become infected on an average 34 days after their first feed on the infected animal, and that when the flies become infected they may remain infective as long as 75 days. Sir David Bruce maintains there is still no evidence up to the present of any sexual cycle or metamorphosis taking place in the fly. All that can be said is that after a certain time a development takes place in a small percentage of the flies which renders them infective and that they retain this infectivity for a time. The discovery of a sexual cycle of development in the tsetse-flies still remains a desideratum. The measures put forward in 1904 for combating the disease were to prevent movement of the natives into infected areas, the evacuation of such areas, the destruction of the breeding-places of the flies, and of the fly itself as far as possible. The measures dealing with the natives are not difficult to carry out, as the natives of Uganda are docile and obedient to their chiefs. Not much has been done in destroying breeding-places, but at such places as Entebbe it has been carried out with success. With a few modifications the propositions set out by Sir David Bruce in 1904 hold good at the present day. In speaking of the possibility of cure of sleeping sickness, mention was made of some Europeans cases in which, so far, death had not supervened. One of these was diagnosed 10 years ago and is still living; a second nine years ago is also alive and apparently in good health. Of 49 Europeans who contracted the disease and whose cases have been collected during the last two years, 9 are still alive, 28 are dead, and as to 12 information is not forthcoming. It is remarkable that the patient who has survived 10 years was treated with Fowler's solution of arsenic and not by atoxyl, that drug not having been then discovered.

In the discussion which followed, Dr. ANDREW BALFOUR (Khartoum) raised some interesting points. He suggested that T. gambiense when passed through different animals might have its morphology altered and in this way pass under another name, and he asked if T. gambiense passed through an antelope was the same as that from a human case. He suggested that we may find the parasites breaking up into granules in the blood. He suggested that serum treatment of human cases might secure better results than drugs.

Dr. A. R. COOK (Uganda) admitted the almost certainty of death in those persons attacked by the disease. But he mentioned an instance where two natives came to him suffering from sleeping sickness; one of them refused and the other accepted treatment, the former dying after an interval, while the latter is still alive four years after being first treated. He urged the use of Maldonado's method for killing the tsetse-flies.

Dr. G. C. LOW (London) referred to some of the Sleeping Sickness Commission reports which had been presented to the Royal Society but not alluded to by Sir David Bruce. Referring to the sleeping sickness cases from Rhodesia supposed to have been conveyed by G. morsitans, he suggested the possibility of their being due to a different form of trypanosoma from that found in Uganda. He referred to the question whether man could be infected by T. brucei, the belief being that man is the only animal that is immune to this form of trypanosomiasis. He suggested that T. dimorphon might be more closely connected with other trypanosomes, such as T. gambiense and T. brucei, than is at present believed, and that trypanosomes may undergo a change of morphology in different animals.

Dr. W. T. PROUT, C.M.G. (Liverpool), spoke of the slow progress which often seemed to follow brilliant discoveries in medicine. He gave his experience of sleeping sickness while serving in West Africa. At one time it was rare in his district, but now is increasing, probably as a result of the increased communication with other parts of the country. There were few G. palpalis at Freetown when he was there, and he thought that, as in yellow fever, an epidemic of sleeping sickness might not arise until there was a certain "saturation" of the atmosphere by a high proportion of the insect transmitter.

Dr. L. W. SAMBON (London) supported the view that the sleeping sickness parasite did undergo a sexual cycle in the tsetse-fly. He also supported the opinion that the infection in the fly could be transmitted hereditarily.

After a few remarks by Dr. L. D. PARSONS (Gibraltar) and by the PRESIDENT, Sir DAVID BRUCE replied, and the discussion closed.

Some Features of Tuberculosis in India

was the subject of a paper by Lieutenant-Colonel J. R. ROBERTS (Indore) which was read by one of the secretaries in the absence of the author. The difficulties of diagnosis of tuberculosis in India in certain circumstances were set out. Colonel Roberts distinguished three classes of cases presenting difficulties—viz., (1) an acute febrile form (acute tuberculous fever); (2) an irregular fever with enlarged cervical glands commonly met with in children; and (3) a form associated with debility and dyspepsia, a type especially difficult to diagnose in its earlier stages.

Mr. J. CANTLIE gave an address on

The Operative Treatment of Liver Abscess,

and illustrated his points with drawings on the blackboard. He explained the difficulties and dangers of the liver abscess cases and described the steps to be taken in operating. He drew attention to the great difficulty in cases where the abscess pointed and burst into the left lung. Mr. Cantlie also spoke on the treatment of sprue.

In the discussion which followed Dr. ROW (Bombay) and Dr. A. DUNCAN (London) took part.

The next paper was by Dr. RAGHAVENDRA ROW (Bombay) on

Further Observations on Leishmania Tropica of Oriental Sore.

He gave details of a number of experiments on monkeys, and compared his own results with those of M. Nicolle of Tunis. He believes the parasite found in Tunis differs from that present in India. His researches are still proceeding and will be further reported upon.

The PRESIDENT, and Professor FÜLLEBORN (Hamburg) took part in the discussion of Dr. Row's paper.

THE ANNUAL EXHIBITION.

(*Continued from p. 357.*)

II.—DRUGS.

THE trend of modern therapeutics may be judged, to some extent, from the kind of medicaments which pharmacists and drug manufacturers bring annually before the notice of the medical profession. Some years ago the visitor expected to find much the same drugs as he had been in the habit of using, only they were offered in an improved form for administration. Nowadays the exhibition is full of illustrations of novel departures in treatment. Serum-therapy is perhaps the best example, and it is surprising to find the number of firms who have taken up the preparation of sera, vaccines, and so forth. Again, the control which is exercised over the purity and uniformity of drugs is remarkable, and now not only are they sold under chemical guarantee but often under physiological guarantee also.

The exhibit which was first encountered by the visitors was that of Messrs. Burroughs, Wellcome, and Co., of Snow

Hill Buildings, London, E.C., who had a stall on each side of the main staircase at the top of staircases running right and left out of it. Here were exhibited the firm's well-known fine pharmaceutical products, and in addition a large selection of sera, tuberculins, and vaccines. The special organic preparations of arsenic soamin and orsudan were also shown. The decoration on the stall was completed by an admirable series of medicine outfits, hypodermic cases, first-aid cases, and so on. There was an interesting group of fine chemicals and pharmaceutical preparations on the stall of Messrs. E. Merck, of 16, Jewry-street, London, E.C., including the stable compounds of iodine and bromine with sesame oil, known respectively as iodipin and bromipin; they are said to be without the unpleasant effects given by the ordinary iodides and bromides. The exhibit included also magnesium perhydrol, an intestinal antiseptic and disinfectant containing 25 per cent. of peroxide of magnesium. A similar preparation is ziuc perhydrol for external use. Messrs. Parke, Davis, and Co., of 50, Beak-street, London, W., exhibited a number of preparations typical of modern therapy; there were several preparations containing adrenalin as the active basis, the constringent and blood-pressure-raising principle of the suprarenal gland. There were also tuberculin discs for the ophthalmic diagnosis of tuberculosis, and tuberculin ointment for the cutaneous diagnosis of that disease. Then there were the series of bacterial vaccines prepared in the laboratories of St. Mary's Hospital under the supervision of Sir A. E. Wright. Finally, aseptic ergot is worth mentioning as an example of a physiologically standardised preparation of this drug for hypodermic or oral administration.

Messrs. Fairchild Bros. and Foster, of 64 and 65, Holborn Viaduct, London, E.C., exhibited digestive products, which took the form of peptonising compounds, pancreatic extracts, and so forth. There were besides some lecithin preparations, an elixir and a "glycerole." Panopepton is a concentrated and soluble food containing all classes of food materials, and is, moreover, a pleasant liquid to take. An attractively arranged stall was that of Messrs. Gale and Co., of 15, Bouverie-street, Fleet-street, London, E.C. Amongst the novelties deserving mention was a series of palatable elixirs and some special calcium salts; there were also some concentrated tinctures and preparations for the hygiene of the mouth which have been reported on favourably in our analytical columns. An interesting series of chemical preparations was shown by Messrs. Von Heyden of Radiebul, near Dresden. There were, for example, specimens of tannismut, a compound of bismuth and tannin which serves as an effectual intestinal astringent, being particularly useful in infantile summer diarrhœa; collargol, a colloidal form of silver described as a non-poisonous and non-irritant local antiseptic for use in surgery, neurology, and ophthalmology; it is said to be valuable also in acute articular rheumatism. Other preparations included xeroform, a non-poisonous and odourless powder for the treatment of wounds, gastrosan for checking fermentation in the alimentary tract, and acetyl-salicylic acid preparations. An elegant assortment of pharmaceutical preparations was shown by Messrs. C. J. Hewlett and Sons, of 42, Charlotte-street, London, E.C. Amongst these should be mentioned their pepsine and bismuth mixture, now a classic preparation, their extract of ergot physiologically standardised, and their concentrated liquors. It may be added that two surgical instruments were also shown by this firm—a new anæsthetic inhaler, suggested by Mr. Herbert Tanner, and a perineal crutch by the same gentleman. The inhaler, known as the "anæsthedone," appears to have the merit of simplicity, and undoubtedly offers certain advantages. It is claimed that no anæsthetic is wasted, that there is no impediment of free respiration, and that the patient is not troublod by his own exhalations, while no rubber bag is used. The "simplex crutch" is a compact, portable, and cheap appliance for effecting the so-called lithotomy position.

An interesting product, described as a pure uncoagulated wheat protein, was exhibited by Messrs. Meuley and James of Menley House, Farringdon-road, London, E.C. Apart from its value as a food in disease, glidine, as it is called, combines with certain toxic drugs such as iodine, bromine, mercury, arsenic, and iron which enables the administration of these drugs to be made without the disagreeable symptoms which appear when the pure elements are administered. Iodoglidine and bromoglidine, for example, do not give the effects known as iodism and bromism respectively. There were many novel preparations known as Huxley's Pharmaceutical and Pasteur Vaccines Company biological products on the stall of the Anglo-American Pharmaceutical Company, Limited, of Chichester Chambers, 83 and 84, Chancery-lane, London, E.C. There were, for example, a non-saccharine glycerol of glycerophosphates, a preparation of glycerophosphates with formates, hæmoglobin, red bone marrow, and so on. The biological side of this exhibit included tablets containing sour milk culture and specimens of anti-diphtheritic dragées, each containing a quarter of a centigramme of diphtheritic serum. Ichthyol preparations were well illustrated in the exhibit of the Ichthyol Gesellschaft of Hamburg. This curious organic sulphur preparation has undoubtedly been used with advantage in cases of rheumatism, in skin diseases, and in inflammatory affections generally. It has recently been employed as an adjunct to the treatment of pulmonary tuberculosis. Messrs. H. & T. Kirby and Co., of 14, Newman-street, London, W., exhibited a novelty in the shape of colalin, which is stated to be the amorphous active principle of bile. It is described as a true cholagogue which is indicated when a better performance of the liver function is required. The exhibit included the preparation purgen, which is a mild and often valuable aperient well known to chemists in the past as phenolphthalein. The advantages of novocaine were brought to the notice of the visitors by the Saccharin Coöperation, Limited, of 10, Arthur-street West, London, E.C. It is described as a non-irritant local anæsthetic seven times less toxic than cocaine, but producing anæsthesia in equal degree. At the same exhibit pergenol was shown, a substance of interesting composition, which, when dissolved in water, produces a neutral solution of hydrogen peroxide and boric acid. The applications of pergenol in surgery and in treatment are manifest, and in particular it is of service in throat affections and, it is stated, in inflammation of the middle ear.

Pure anæsthetics, chloroform, ether, and mixtures of the two with alcohol, were exhibited by Messrs. Reynolds and Branson, Limited, of 13, Briggate, Leeds, who also presented to view an elegant series of pharmaceutical preparations, amongst which may be mentioned elixirs, the calcium salts of glycerophosphates and formates, heroin, and terpine hydrate, while the firm prepare also physiologically tested solutions of digitalis, ergot, Indian hemp, squill, and strophanthus. Synthetics were the feature of the stall of Messrs. Zimmer and Co., Limited, of Frankfort-on-the-Main, who were represented by Messrs. Widenmann, Broicher, and Co., of 33, Lime-street, London, E.C. Here were compounds of quinine with salicylic acid and with lithia, and a product known as euquinine and described as tasteless quinine, being the ethyl carbonate of that substance. Lastly, there was shown a compound of menthol and valeric acid known as valedol, a sedative and preventive, it is stated, of sea sickness. A very exhaustive series of pharmaceutical preparations was admirably grouped by Mr. William Martindale, of 10, New Cavendish-street, London, W. Amongst the novelties may be mentioned agar-agar for treating constipation, cinnamic aldehyde capsules, glycetracta or glycerine extracts of drugs, a series of radio-active substances, lactic acid preparations, and moss dressings. A series of calcium salts attracted attention at the stall of Messrs. Oppenheimer, Son and Co., of 179, Queen Victoria-street, London, E.C. The salts included a lactate, iodide and permanganate, and they were presented hermetically sealed in palatinoids. The exhibit also included a well-designed oxygen generator, sea-water plasma for subcutaneous injections, and pulverettes or powder pills consisting of a fragile shell enclosing the medicament in powder form. The well-known antiseptic disinfectant and deodorant chinosol was exhibited in various forms on the stall of Messrs. B. Kuhn and Co., of 16, Rood-lane, London, E.C. There were also Finkler's preparations of papaine, the vegetable digestive ferment obtained from the juice of the melon tree, and useful as a digestive agent and also for the removal of false membranes in diphtheria and croup. Three interesting preparations were shown by the Hoffmann La Roche Chemical Works, Limited, 7 and 8, Idol-lane, London, E.C.. They were digalen, a sterile solution of the most active principles of the fresh leaves of digitalis purpurea, isolated in its original amorphous form by Cloetta; thiocol, a soluble, odourless, tasteless powder, and

a marked bactericide used internally and described as super-creosote; and secacorum, a sterile solution of the hæmostatic and contractile principles of ergot for use in gynæcological practice.

The special product of the Angier Chemical Company, Limited, of 32, Snow-hill, London, E.C., known as Angier's emulsion, was exhibited on the stall of this company. As our own examination has shown, it is a very complete emulsion of petroleum, pure glycerine, and the hypophosphites of lime and soda. Although petroleum is not assimilated by the human body, it appears to act, when it is in a specially refined state, as an excellent vehicle, besides which it has a soothing effect upon the intestinal tract. Messrs. Hertz and Co. of 9, Mincing-lane, London, E.C., exhibited their chloride of ammonia inhaler, the simplicity and efficiency of which we have already remarked. Besides, there were some asthma cigarettes, in which a mild Dubec tobacco is impregnated with lignosulfite, a substance which readily yields sulphurous acid. Another product worthy of remark at this stall was a highly refined soap exquisitely perfumed, and known as "haliflor." There was a series of interesting drugs at the stall of Messrs. Knoll and Co., of 8, Harp-lane, London, E.C. Most of these have received at some time or other attention in our analytical department. There were, for example, anthrasol, a purified colourless tar; arseno-triferrin, an organic compound of iron containing arsenic and phosphorus; styptol, a neutral cotarnine phthalate, a uterine hæmostatic which is said to be administered without undesirable symptoms following. The Society of Chemical Industry in Basle, which has its London agency at 8, Harp-lane, E.C., exhibited specimens of phytin, described as a natural vegetable phosphorus salt obtained from seeds of plants and credited with properties of value in the treatment of neurasthenia and of disorders of nutrition. At the same stall the Roborat Company, of the same address, exhibited an efficient mercurial ointment called mercurial mitin. It is said that it can be rubbed into the skin completely without leaving a stain. The exhibit included a series of clinical testing apparatus designed by Dr. Weiss. A number of useful preparations was shown in the exhibit of Messrs. Corbyn, Stacey, and Co., Limited, of 673, Commercial-road, London, E. There were, for instance, an iodised oil for administering iodine externally, which does not stain or harden the epidermis; anthrobroma, a food containing all classes of reparative materials; elixir lecithin, and antiseptoform, which is convenient for disinfecting purposes by means of gaseous formaldehyde.

The stall of Messrs. Thomas Christy and Co., of 12, Old Swan-lane, Upper Thames-street, London, E.C., was well stocked with interesting novelties. There was, for example, the compound glyco-thymoline, used for all conditions of inflamed mucous membranes; iron milk, a pyrophosphate of iron said to be easily assimilated and free from the drawbacks of ordinary iron salts. Further preparations included ergoapiol, anti-diabetic yeast, furunculine, and lysoform. A very well-arranged stall was that of Messrs. Cooper, Son, and Co., Limited, of 80, Gloucester-road, South Kensington, London, W., who made a feature of anesthol, a preparation combining the properties of methyl salicylate and menthol. They showed also specimens of therapeutic yeast, pure aerated distilled water, and a cream of magnesia called lactesia. The excellence of the milk of magnesia prepared by the Charles H. Phillips Chemical Company, of 14, Henrietta-street, Covent Garden, London, W.C., is well known. This firm exhibited also at their stall a phosphomuriate of quinine compound which is said to be tolerated with good results and to possess decided tonic properties. There were many therapeutic preparations of interest at the stall of Messrs. A. and M. Zimmermann, of 3, Lloyd's-avenue, London, E.C., which included urotropine, a urinary antiseptic; argentamin, a silver substitute giving decided advantages over argentum nitricum; and hormonal, described as an efficient agent in the treatment of chronic constipation. There were also some organo-therapeutic preparations, testicular extract, ovarian extract, and so forth, and some digestive ferments. The Bayer Company, Limited, of 19, St. Dunstan's-hill, London, E.C., had an imposing array of exhibits comprising such well-known preparations as aspirin, guaiacol, spirosal, and the organic compounds of iodine and bromine, sajodin and sabromin respectively. The modern pharmacy was most adequately represented at the stall of Messrs. Wyleys, Limited, of Coventry. They showed a number of hercin preparations, an elegant series of liquors, tinctures, and syrups. Messrs. Charles Zimmermann and Co., of 9 and 10, St. Mary-at-Hill, London, E.C., showed acidol in tablet form, which is described as a hydrochloric acid substitute and useful in subacid conditions. The same substance is combined with pepsine. They also showed some lecithin compounds and an iodoform substitute known as ottoform, and aphrodine, an alkaloid with aphrodisiac properties. The Denver Chemical Manufacturing Company, Limited, of Bow, London, E., exhibited their excellent cataplasm known as antiphlogistine, which is both hygroscopic and antiseptic. Finally, modern medicaments were well represented on the stall of Messrs. Evans, Sons, Lescher, and Webb, of 160, Bartholomew-close, London, E.C. There were "curdlettes" for the preparation of soured milk, and "membroids," containing drugs in a membrane which carries them through the stomach unchanged into the intestinal tract where solution and absorption take place. The exhibit included a preparation called algiron, a form of iron which is assimilated without trouble and which has given good results in anæmia and chlorosis; it is a compound of algeric acid from seaweed with the metal.

It was very generally admitted that this section of the exhibition gave abundant evidence of the high scientific position at which all those connected with the technical side of pharmacology and pharmacy are aiming.

(To be continued.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on July 25th, Mr. BUTLIN, the President, being in the chair.

It was resolved to grant 83 Diplomas of Membership to successful candidates at the recent examination, and it was resolved to issue, in conjunction with the Royal College of Physicians of London, 24 Diplomas in Public Health to successful candidates.

The annual report of the Finance Committee was adopted.

Dr. Frederick Taylor was appointed visitor to the examination of the Egyptian Medical School for the examinations in December next.

Mr. R. Clement Lucas was appointed a member of the Executive Committee of the Imperial Cancer Research Fund in place of Sir Henry Morris, who has become an *ex-officio* member of the Committee.

It was stated that Mr. M. Stephen Mayou had consented to undertake revision of the eye specimens in the Museum, and that Mr. A. H. Cheatle had consented to undertake revision of the ear specimens.

The PRESIDENT reported that the term of office of Mr. A. S. Underwood on the Board of Examiners in Dental Surgery would expire on Oct. 12th next, and that the vacancy so created would be filled at the quarterly meeting of the Council in October.

It was resolved that the fees for each part of the examination for the Diploma in Public Health shall be raised from 6 to 10 guineas for those candidates who do not possess the diplomas of the Royal Colleges, and that such alteration do apply to all candidates who enter for examination for the first time on or after July 1st, 1911.

DONATIONS AND BEQUESTS.—Under the will of the late Baron Schröder the following bequests have been made:—£10,000 to the German Hospital, Dalston; £1000 to the Windsor Royal General Dispensary; and a similar sum to Princess Christian's Windsor District Nursing Fund. The same will confirms the gift by deed to the Egham district council of the site of an isolation hospital.—The Kilmarnock Fever Hospital and Infirmary will receive £4000 and the Ayr Infirmary and the Glenafton Sanatorium £1000 each under the will of the late Mr. T. H. Walker of Crosbie Tower, Ayrshire.—The late Mr. Leggatt of Hornsey has left a legacy of £8000 to be divided between the Royal Free Hospital, the Great Northern Central Hospital, and the Wood Green and District Hospital.

THE LANCET.

LONDON: SATURDAY, AUGUST 6, 1910.

The Conservation of Child Life[1]

THE late Sir MICHAEL FOSTER, with the pithiness which characterised so much of his writing, spoke of life as "a cycle beginning in an ovum and coming round to an ovum again." The animal body he described as "in reality a vehicle for ova; and after the life of the parent has become potentially renewed in the offspring the body remains as a cast off envelope whose future is but to die." From the standpoint of biology this definition stands upon a rock, although ethically some may regard it as less securely based. Yet its moral aspect is high, inasmuch as it indirectly suggests paternal and maternal obligations, which in these days are apt to be forgotten or evaded, until such a time as the offspring is placed in a position to carry on the struggle against environment, while it also serves to remind us of the duty that lies upon us to procreate our species, a duty which the statistics of Europe show to be little honoured. It is true that within recent years a change has come over our opinions in this country, although not our practices. The preachings of the Neo-Malthusians to stay the devastating torrent of the babes are giving place to a very real alarm as to our place amongst the nations in the matter of our national fecundity. But we need not dwell further upon our rapidly falling legitimate and illegitimate birth-rate in order to emphasise the overwhelming importance of conserving the lives of the children born to us, and of promoting by all means in our power an efficient motherhood and favourable infantile environment; while everyone can see that it is for the national good that the future generations should be healthy, it follows that the more of a good thing that we can secure the better off we shall be. If, as some allege, certain of the functions of maternity are undergoing atrophy, so that the human infant is tending more and more to become a parasite upon the milch cow or the patent-food vendor, we should ascertain the facts, estimate the damage as best we can, and evolve the remedies, or try to do so. In this connexion it must be as well to have some clear idea as to the effects of saving infant life, whether it is commercially sound or whether it is followed by a higher mortality in after years, and before the lives saved have reached productive ages in a monetary or population sense.

The interest which Mr. JOHN BURNS, the President of the Local Government Board, takes in the whole problem is common knowledge, and the stimulus which he gave to the study of the subject by his eloquent and forcible addresses in 1906 and 1908 is now bearing fruit in many quarters. Probably, however, what will prove to be the most important outcome of his efforts in so far as the country as a whole is concerned is the extremely valuable report upon infant and child mortality which has recently been made in the Medical Department of the Local Government Board by Dr. A. NEWSHOLME, the principal medical officer. This document, which is a preliminary contribution to what is apparently to be a general critical study of the whole problem, is directed to the elucidation of three points: (1) whether in reducing our infantile mortality we are really effecting an economic gain in the sense already referred to; (2) which are the communities presenting a high infantile mortality year by year; and (3) the relative values of the different factors going to make up infantile mortality. The answer to the first of these problems presents the greatest difficulty owing to the impracticability of separating what may be termed the after-effects of infantile mortality proper from the continued operation of the same forces at later ages, but Dr. NEWSHOLME is able to show clearly, by means of ingenious diagrams based on relative mortality figures, that a high infant death-rate in a given community implies in general a high death-rate in the next four years of life, while low death-rates at both age-periods are similarly associated. In like fashion the evidence shows a general correlation between infantile mortality and mortality at age-periods up to 20 years of age. With respect to the distribution of infantile mortality in the country the report brings out the fact that in the first seven days of extra-uterine life the administrative counties of Durham, Norfolk, and Northumberland in the year 1908 had the highest death-rates, while Hereford, Berkshire, Kent, and Surrey had the lowest. If the first month of life be considered, Durham, Northumberland, and Carmarthen occupied the worst positions, while the rural counties above mentioned, together with Oxford, occupied the best. At later ages there are some variations in the positions of the several counties, but Durham and Glamorganshire rank among the worst during the first six months of life. In the third part of his study Dr. NEWSHOLME passes in review the several factors making for infantile mortality, such as the proportion of male to female births and of legitimate to illegitimate births, the size of the family, the quality of the help given at birth, the age of the wife at marriage, poverty and social conditions, factory employment of mothers, urban and rural conditions of life, domestic and municipal sanitation, conditions of housing, and ignorance of mothers. The influence of meteorological conditions which, in the opinion of many observers, is a quite important factor in the recent fall in infantile mortality, will at once arrest attention, and the fact that since 1899 there has been a fall in infantile mortality in most European countries suggests that the same cause or causes have been operative over a large area. Dr. NEWSHOLME states, however, that in respect of the country as a whole an analysis of the monthly rainfall and temperature at Greenwich in successive years does not appear to afford a sufficient explanation of the unexampled fall in infant mortality during the last three years, and he raises the question whether the rise in the infant mortality associated with deficient summer rainfall and excessive

[1] Thirty-ninth Annual Report of the Local Government Board, 1909-10. Supplement to the Report of the Board's Medical Officer, containing a Report by the Medical Officer on Infant and Child Mortality. London: Wyman and Sons, Limited, Fetter-lane. 1910. Price 1s. 3d. [Cd. 5263.]

temperature will in future be as great as, or less than, in the past. In his opinion the evidence points to the latter alternative, and he regards the fall of infantile mortality as largely due to a quickening of the public conscience. He evidently intends to deal with this subject later, but, whatever may be the credit due to climate and nature, there is abundant scope left for human effort, since even in the most favourable years meteorologically the loss of infant life is nothing other than a tragedy.

We make no attempt to follow Dr. NEWSHOLME in his detailed analysis of the several factors already enumerated. But reference may be made to the remarkably low infantile death-rate of Ireland, which is the poorest part of the United Kingdom, and to the fact that the lowest infantile mortality occurs in the counties in which agriculture is the chief industry, while conversely the highest infantile mortality is associated first of all with the mining industry, and then with the pottery and textile industries. Although Dr. NEWSHOLME points out that if mothers' milk could always be secured for infants a chief cause of excessive infantile mortality would have disappeared, he shows conclusively that excessive infantile mortality is brought about by certain elements of urban life, and of these he regards the most important as defective sanitation, more especially those phases of it which are associated with the conservancy system of excrement disposal, inefficient scavenging, and unpaved yards. This association can be demonstrated so far as infantile diarrhœa is concerned, and Dr. NEWSHOLME thinks that much of the excess under other headings may be of similar origin. He regards the principal means for lowering the infantile mortality to be efficient domestic and municipal sanitation, good housing, together with intelligent and painstaking "mothering." Among his recommendations are more detailed investigation of infant deaths, efficient administration of the Midwives and Notification of Births Acts, and the better training of midwives. Finally, he makes an appeal, which we trust will be heeded, to the administrative counties of Glamorgan, Durham, Northumberland, Monmouth, Carmarthen, Stafford, the West Riding of Yorkshire, and Lancashire, as well as to certain separate districts within each of these areas, to awaken to their responsibilities as, in the words of Sir JOHN SIMON, "the appointed guardians of masses of human beings whose lives are at stake in the business," and it will be well if every district councillor within what may be called a black list area will think of his responsibilities in these terms, instead of adopting a passive or hostile attitude which, in Dr. NEWSHOLME'S words, implies "that pockets are to be considered more than lives." Largely this question of infantile mortality is a matter of ignorance and a low stage of civilisation, of what Dr. NEWSHOLME not inaptly terms "insanitary barbarism," and our efforts must be directed towards civilisation in the best sense of the word. This report, of which on this occasion we only indicate the general scope, is a document of a very high order; it is worthy to rank with the best classics of the Medical Department of the Local Government Board, which is a very high encomium indeed. We offer the Local Government Board with Mr. BURNS at its head, and Dr. NEWSHOLME as his principal medical adviser, our cordial congratulations upon this report, which has emanated from a medical department to which great traditions attach.

The Pathology of Gall-stones.

MANY explanations have been offered of the formation of gall-stones, and, as so frequently happens in regard to explanations plausible at first sight, many of them have had to be discarded as new facts have come to light. GALEN suggested that gall-stones were formed by the coagulation of the bile, and this view held the field for centuries. With the chemical investigation of the bile in the eighteenth century, the obvious suggestion was put forward that gall-stones resulted from the precipitation of the normal constituents when they were in excess. It appears that to MECKEL VON HEMSBACH is due the credit of first suggesting the importance of catarrh of the gall-bladder in the production of gall-stones. This observation was developed by NAUNYN and his pupils into the view which has practically held the field since 1892, the year in which NAUNYN'S work was published. He stated that the cholesterin which enters so largely into the composition of biliary calculi was not derived from the bile, but from the epithelial cells lining the gall-bladder, especially when this structure was inflamed. Even normal bile contains desquamated epithelial cells, but in conditions of catarrh of the gall-bladder this desquamation is greatly increased, and the cells so shed are found to contain large and small droplets of myelin, which on the disintegration of the cells was described by NAUNYN as breaking down to form cholesterin. Small collections of this substance, together with masses of epithelial débris or clumps of bacteria, were regarded as the nuclei about which gall-stones form. Similarly, changes in the pigment, leading to the formation of masses of bilirubin-calcium, may be induced by bacterial changes, and these were stated to form the origin of another variety of calculus. To account for the peculiar structure of certain calculi NAUNYN described a metamorphosis caused by a solution of certain constituents and a recrystallisation of the cholesterin. In the interior of some stones the crystals of cholesterin are found, for the most part radially arranged, and it was suggested that the bilirubin-calcium is dissolved out, and that the cholesterin already present in the stone recrystallises, together with fresh cholesterin infiltrating the stone from its surface, so that a concretion originally composed of cholesterin and bilirubin-calcium may eventually become converted into a so-called pure cholesterin stone. NAUNYN'S work was apparently confirmed by many observers, some of whom demonstrated the importance of bacterial infection of the gall-bladder, especially with organisms of low virulence, in the genesis of gall-stones, while others experimentally produced calculi in animals.

These conclusions of NAUNYN have, however, recently been traversed in an interesting monograph[1] on the subject of cholelithiasis by Professor L. ASCHOFF and Dr. A. BACMEISTER of Freiburg. They record their observations on the histology of the normal gall-bladder and on the changes induced in this organ by disease, taking care to

[1] Die Cholelithiasis. Von L. Aschoff and A. Bacmeister. With 18 lithographic plates and 18 figures in the text. Jena: Gustav Fischer. 1909. Pp. 117 + xviii. plates. Price 20 Marks.

secure their material before post-mortem changes had occurred. They also describe and figure the appearances of very numerous gall-stones, and arrive at conclusions different in many points from those of NAUNYN and his followers. In the lining epithelium of the gall-bladder Professor ASCHOFF and Dr. BACMEISTER differentiate two kinds of cell, the first and most abundantly present being the ordinary gall-bladder epithelium, the second being goblet cells analogous to those of the intestine. The gall-bladder cells are long and cylindrical in shape, with oval nuclei, the free half of the cell being distinctly granular and sometimes presenting a narrow border. They probably secrete the mucoid nucleo-albumin which occurs in gall-bladder bile, the goblet cells secreting true mucin. In addition to their secreting function, Professor ASCHOFF and Dr. BACMEISTER believe that the true gall-bladder cells are capable of absorbing fat and pigment granules from the bile. They were unable to observe any disintegration of these granules into myelin, and they assert that NAUNYN'S interpretation of these fatty granules and his suggestion that they serve to yield cholesterin are erroneous. They also lay stress upon the mucous glands of the neck of the gall-bladder and upon certain depressions of the mucous membrane of other parts, to which the name of Luschka's ducts are given. These are cleft-like depressions of the mucous membrane extending into the wall as far as the muscular coat, and even in some places to the fibrous investment of the gall-bladder. Although they have been mistaken for glands, they are not glandular in structure or function. As a result of investigations of cases of cholelithiasis, these two observers conclude that the one essential feature common to all is obstruction, no matter how produced, and not catarrhal inflammation.

The histological appearances of an obstructed gall-bladder are a thickening of the folds with deepening of the furrows; the epithelium is unaltered, but the muscular layer is thickened, and there is a small-celled infiltration, especially of the subepithelial tissues. There is also a deepening of Luschka's ducts. In such gall-bladders, apart from any inflammatory manifestation, gall-stones are frequently to be found, but almost invariably it is a single stone of characteristic appearance, being oval or round in shape, almost translucent at the marginal zone, the surface being irregularly tuberculated. On section they are crystalline and show a definitely radial arrangement of the crystals, without any indication of lamination. The centre is occupied by a dark amorphous mass. Chemically, these calculi consist of pure cholesterin, with traces of calcium salts, amorphous pigment, and protein. Professor ASCHOFF and Dr. BACMEISTER most emphatically deny that these stones are formed from laminated cholesterin-pigment stones by secondary recrystallisation in the manner described by NAUNYN; moreover, they found these stones only in simple obstructed gall-bladders without inflammation. In regard to the origin of the cholesterin, they find that this substance is derived from the bile itself and not from the epithelium of the gall-bladder. Epithelial cells from the gall-bladder, added to filtered sterile bile, lead to the separation of cholesterin crystals, and this process can be observed microscopically. They find that these solitary radial cholesterin stones grow very slowly, probably taking years to reach the size of a cherry. So long as no complications develop they give rise to no symptoms, and they are found unexpectedly at many necropsies. None the less they are a source of danger, since they tend to render infection of the gall-bladder more easy, and thus to set up the changes which are commonly regarded as characteristic of cholelithiasis. It is now generally admitted that normal human bile is sterile, although it affords a ready culture medium for many organisms. In an obstructed gall-bladder, however, infection occurs very readily, and the presence of a stone such as the radial cholesterin stone favours infection, since contraction and emptying of the gall-bladder are interfered with, and therefore the bile is not frequently renewed; while the rough surface of the stone and its porous character favour the deposit of bacteria and hinder their excretion. Consequently radial cholesterin stones are found by surgeons in inflamed gall-bladders, but the inflammation, according to these observations, is secondary, and is not the cause of the stone formation, since these stones are found in gall-bladders which are simply obstructed and not inflamed. After a simple infective cholecystitis is induced a primary inflammatory hydrops of the gall-bladder may occur and this may lead to a variety of arrest of the symptoms. More often the inflammatory processes become chronic or fresh infections occur, with increasing changes in the wall of the gall-bladder, and fresh calculus formation. Dr. BACMEISTER, in a previous research, has brought forward evidence to show that this may result in a laminated deposit of cholesterin and calcium salts upon the original radial stone, forming a so-called combined stone, or it may lead to the formation of multiple cholesterin-bilirubin-calcium stones in addition. Besides the presence of the stone, another important factor in causing chronic and relapsing cholecystitis is afforded by Luschka's ducts. These become dilated to form diverticula reaching to the serous coat, and may become the site of formation of small concretions, or may harbour infective organisms, leading to perforation and intramural suppuration. In the process of healing after some of these inflammatory processes Luschka's ducts appear to play some part, since they serve to regenerate the epithelium, and they may become increased in number. In these new Luschka's ducts the number of goblet cells may be greatly increased. Small stones forming in these diverticula may be the cause of the return of gall-stones after operation, since they may make their way into the gall-bladder and there enlarge.

So far, the observations of Professor ASCHOFF and Dr. BACMEISTER have been somewhat opposed to those of NAUNYN; they admit that chronic cholecystitis with obstruction can lead to the formation of gall-stones, but they affirm that all stones produced in this way are characterised by richness in calcium, which differentiates them from the radial cholesterin stones. The calcium is present either in the form of calcium carbonate or combined with the pigment chiefly as bilirubin-calcium. The origin of this calcium is described as twofold, partly in association with the excess of mucin poured out in all chronically inflamed gall-bladders, especially from the newly-formed

goblet cells, but the greater part comes from the inflammatory exudate from the inflamed wall of the gall-bladder. As a result of their observations, the later authors maintain that it is usually possible to recognise the general nature of the patient's history from the character of the gall-stone: thus the combined stone with a radially arranged centre and a laminated exterior rich in calcium began as a non-inflammatory case and subsequently infection developed. In the inflammatory cases the stones are rich in calcium and are often very numerous, and may be facetted. They are much more rapid in growth than the radial stones. Pure bilirubin-calcium stones occur chiefly in the intrahepatic ducts, as stated by NAUNYN, and they are of little clinical importance. The observations of Professor ASCHOFF and Dr. BACMEISTER are of great interest, and indicate that the formation of gall-stones may own several different causes, that some of them may result from changes in the bile in an obstructed gall-bladder, and that inflammatory changes are not an invariable antecedent. They also suggest that further research may throw light upon the variations in the amount of cholesterin formed in the body and in its excretion, and possibly upon the prophylaxis of some forms of gall-stone. In the light of these observations more attention should be paid in future to the structure of the gall-stones removed at operation.

Legislation and Anæsthetics.

WE need not remind our readers of the various steps towards legislation for safeguarding the public in the matter of anæsthetics which have been put forward within the last few years; their record in our columns is recent. We are glad, however, to be able to draw attention to the distinctly more favourable position to which the matter has been elevated quite recently. In answer to a question put in the House of Commons by Sir WILLIAM COLLINS, the Home Secretary replied to the effect that he hoped, when time permitted, to propose legislation with regard to those recommendations of the Coroners' Committee which dealt with deaths under anæsthetics. It is much more likely that success will be achieved by a Government Bill than by one sponsored by a private member. The lines of such a Bill as would be welcomed by the medical profession have already been laid down and thoroughly considered both by the General Medical Council and by the Departmental Committee of the Home Office which sat upon the question of coroners' law. Both these bodies have reported favourably upon the proposed legislation, as has also a special committee of the Royal College of Surgeons of England as far as the general principle involved.

Further support is likely to be forthcoming from the Council of the British Medical Association, whose Section of Anæsthetics inaugurated its career not only by excellent technical discussions, but by unanimously passing a resolution at a largely attended meeting affirming the form of the proposed legislation, and recommending the Council of the Association to take the necessary steps to represent to the Privy Council and to the Home Secretary the need for such legislation in the interests of the public safety. This resolution, moved by the President of the section, Dr. F. W. HEWITT, received the support both of Mr. BUTLIN, who was present, and Sir WILLIAM COLLINS. In his remarks upon the subject Sir WILLIAM COLLINS was able to give some highly valuable hints as to the direction from which difficulty is likely to arise and as to the nature of the difficulty to be anticipated. He drew an amusing picture of the sort of perplexities likely to involve any man bringing forward a Bill of the kind proposed, and asked for such special aid as the members of the section were likely to be able to provide him with in answering questions that might be put to him. As Sir WILLIAM COLLINS pointed out, the interest and importance of the proposed legislation lie not merely in the fact that it would remove an anomalous position by which agents of the greatest possible harm are legally in the hands of those entirely unskilled and untrained in their use, but also in the fact that this legislation might, in the future, be looked back upon as having been one of the first steps towards the control of unqualified practice generally. We have always warmly upheld the general principles upon which the proposed legislation is based, and we believe that Dr. HEWITT was correct in stating that the details, in regard to which there are several discordant views, are almost certainly capable of an adjustment which will satisfy all parties. These difficulties concern chiefly the question of local anæsthetics, and the extent of the powers with regard to anæsthetics that should be granted to the qualified dentist. No unreasonable opposition will come from within either the medical or the dental profession to proposals which can be shown to be not disadvantageous to those professions, while they are certainly of the highest value to the general public safety. There will have to be some give and take in several directions between those who now think differently on certain points, but we do not anticipate any deep and permanent professional disagreement on the matter of the forthcoming Bill.

Annotations.

"Ne quid nimis."

ANCIENT RECORDS OF DISEASE.

THE elevation of the Assuan dam has had a result beyond that of providing a better irrigation of Egypt; it has added a new and unexpected chapter to the history of human injury and disease. The archæological survey of the long stretch of the Nile Valley, which will be permanently flooded as the result of the operations now approaching completion, has revealed already over 100 cemeteries, containing thousands of human remains of the races which have lived and died in Nubia at various periods which range from early prehistoric times to our own era—a stretch of some 5000 to 6000 years in extent. Not only are the discoveries of a much earlier date and of an infinitely greater extent than any hitherto made, but they surpass all others in the systematic and expert manner in which the various operations have been performed. The Egyptian Government was extremely fortunate in the men chosen to carry out the survey. The direction was given to Captain H. G. Lyons, F.R.S.; the accurate dating of the graves and cemeteries which were explored was in the expert hands of Dr. G. A. Reisner; the identification and description of the human remains were carried out by Professor Elliot Smith, F.R.S., assisted by Dr. F. Wood Jones and Dr. Douglas E. Derry. The results of their investigations have escaped the notice they deserve because they have appeared from time to time in a form not likely to attract

popular attention—viz., as Bulletins of "The Archæological Survey of Nubia," issued by the Ministry of Finance, Egypt. In our soil and climate all traces of a generation and of its diseases are soon blotted out, but in the Nile Valley and in some parts of Peru the conditions are such that after thousands of years the nature of the disease or injury in the dead can be recognised with certainty. In the pelvis of a young woman Professor Elliot Smith observed "a thick band of old adhesion springing from the appendix near the tip and passing over to be attached to the opposite side of the pelvis—apparently clear evidence of an old appendicitis." In another body "the shrunken left lung was attached to the chest wall by numerous old pleuritic adhesions." A Peruvian mummy recently added to the Museum of the Royal College of Surgeons of England shows a typical picture of an old and untreated empyema cavity in the left pleura. No trace of syphilis has been found in ancient Nubia, and although at first tubercular lesions were not found several specimens have been discovered latterly, including cases of caries of the spine and of the hip-joint. Evidences of osteo-arthritis are abundant. Specimens illustrating the various forms of fracture, the splints used for securing a proper union, and the degree of success attending the efforts of those ancient Nubian surgeons are being found by the score. Leprosy occurred, so did gout. Specimens exemplifying middle-ear disease, empyema of the maxillary antrum, malignant and also peculiar tumours of bone have come to light. In the latest Bulletin (No. 5) a remarkable example of tolerance of severe injury is figured and described. The case is that of a negro, one of a band who invaded Nubia in post-Roman times. He was evidently a warrior and bore the marks of several severe fights. A sword had cleft his skull, so that the left half of his forehead was prised forwards, in which position it became firmly healed, leaving a cleft in the vault, through which all the fingers of one hand can now be thrust. At the same time, or more probably previous to his frontal wound, the upper part of his left parietal bone had been cleanly sliced off; the condition of the cut edges of the bone showed that the wound had become healed over. Across the healed parietal wound lies the more recent one, which we have every reason to believe brought his fighting career to a close. These unique records of the history of disease, so accurately dated and so clearly and ably described in the Bulletins of the Egyptian Survey, are now in the Museum of the Royal College of Surgeons of England. The Egyptian Government is to be congratulated on the public service it has rendered to medicine by placing this collection where its preservation is secured and where it is available for study by experts from all the world. Such an opportunity of noting the changes in physical form, in the diseases, and in the culture of a people will probably never recur again in the world's history. It is only in Egypt that we can expect such a possibility, hence the present necessity of accurately recording and preserving the many discoveries now being made along the Nile Valley. We are glad to know that the Egyptian Government is fully alive to its responsibility in this matter and willingly provides the funds necessary for exploration and publication.

THE KING AND QUEEN AT THE LONDON HOSPITAL.

ON Saturday afternoon, July 30th, the King and Queen, accompanied by Princess Mary, visited the London Hospital, Whitechapel-road. They drove in an open carriage without ceremony from Marlborough House, which they left just before 3 o'clock, and they were welcomed by an enthusiastic and orderly crowd, which was nowhere more enthusiastic than in the East-End itself. They were received at the hospital by the Hon. Sydney Holland, chairman of the hospital, Mr. J. H. Buxton, an ex-treasurer, and Sir Frederick Treves, consulting surgeon. Mr. F. S. Eve, the senior surgeon, and Dr. F. Warner, the senior physician, were presented to their Majesties, who also recognised Dr. Bertrand Dawson and Mr. H. M. Rigby who are on the staff of the Royal Household, and Mr. Morris, the secretary of the hospital, whom the King had met before. Mr. James Hora and Mr. Fielden, benefactors of the hospital, were also presented, as was also Sir Frederick Young, the oldest vice-president, who is 94 years of age. Their Majesties inspected the grounds and buildings of the hospital, including the Finsen light department and the X ray department, in connexion with which Dr. Wickham of Paris, who happened to be in London for the British Medical Association meeting, was presented to their Majesties. Dr. J. H. Sequeira explained the merits of the light chambers which he has invented. The King appreciated this invention, and also spoke sympathetically of the case of the late Mr. H. W. Cox. In the out-patient department their Majesties were received by Miss Lückes, the matron of the hospital, when Miss Mackintosh, the newly-elected matron of St. Bartholomew's Hospital, was presented to their Majesties, who cordially received her. The visit to the hospital occupied an hour, during which time their Majesties saw much and uttered many a cheering and sympathetic word to the patients young and old, and they left amid hearty cheers and genuine enthusiasm.

FOREST FIRES.

AT a time when the re-clothing of hillsides and river-margins, denuded of their silvan vesture by reckless tree-felling, is engaging the attention of nearly every legislature in the Old World and the New, the report of extensive forest fires in North America comes fraught to us with peculiar bitterness. Surely we might have been spared such a visitation, when meteorology, agriculture, hygiene, and a host of interests depending on these are calling loudly for telluric rehabilitation, with its beneficent sequelæ in the restoration of atmospheric equilibrium, the prevention of devastating floods, the amelioration of climate, the return of health to the soil, and the withdrawal from it of the noxious elements which breed and sustain insect life to the annoyance and the detriment of man. Last year's congress held at Bologna on the problem of re-afforestation drew together representatives of silvi-culture and its cognate interests from all parts of the world, unanimous in their adhesion to resolutions which declared the urgency of remedial legislation which would give despoiled nature her due, by steady and systematic "restitutio in integrum" of her silvan property. The "justissima tellus," in the profoundly significant phrase of the poet-laureate of nature-study, as it resents ill-treatment or neglect, visiting on its inhabitants a penalty exactly proportioned to their wrong-doing, is no less equitable in its reward of those who are intelligent and loyal in its service, penalty and reward in the matter of silviculture being amply illustrated, at the Congress referred to, by the recorded experience of delegate after delegate as reporters from their respective nationalities. History, indeed, had already supplied an impressive example of the Nemesis that follows improvident tree-felling in Spain's loss of her mercantile marine by the exhaustion of her timber; while, in the day now passing, Italy bears rueful testimony to the same "retributive justice," seeing on the other side of the Alps the preservation of the Swiss woodlands maintaining an equable river-flow throughout the year, to the steady evolution of that electric force which was Italy's own discovery, but which her tree destruction, causing irregular rainfall and the conversion of her rivers into gravel-pits, prevents her from utilising in the industries now enriching her more circumspect neighbour.

Nothing, it was put in evidence at the Congress, is so "sensitive as the atmosphere," or circumambient air; but, by the reduction of woodland into prairie and the consequent substitution of sudden and violent evaporation for that which is gentle and gradual, we generate the winds which year by year, *pari passu* with extended tree-felling, increase in volume and in violence, till we create the cyclones which are becoming periodical in their recurrence and disastrous in their effects, making trans-oceanic navigation more and more dangerous and disturbing the atmospheric equilibrium of regions in which they were previously unknown—witness the "nubifragi" in the Alta Italia during the last week, unprecedented in force and in the devastation they have caused. The air-ship may be "the locomotive of the future," but its risks will be incomparably greater than those encountered by the "liner" on the high seas if the "liberties taken with the earth's crust" are to go on unchecked, to the still further intensifying of the atmospheric response already seen in the cyclonic movements of the last decades. By the droughts induced as a consequence of tree-felling uncompensated by tree-planting, forest fires become more and more frequent, as Italy knows to her cost, both on the Tuscan and the Ligurian littoral, and her experience will be that of other nations, not least, indeed, that of America, where the recent destruction of so many miles of wooded country is fraught with danger in the future as inevitably provocative of similar visitations. *Post hoc* is not necessarily *propter hoc*, but Italian meteorologists are not without plausibility, connecting the cyclones of last week which have involved so much of Lombardy and the Venetian territory in ruin, agricultural and industrial, with the atmospheric disturbance, the violent subversion of aerial equilibrium, due to the great American forest fires, which, reducing wide tracts of woodland to prairie, must by the violent evaporation supervening, have caused the vertiginous gales and the "nubifragi" under which the year's agricultural labour has deplorably collapsed.

EARTHWORMS AND CANCER.

THE discovery of the cause of cancer has been so often announced, and as often proved unfounded, that each new claim is necessarily received with scepticism. In a pamphlet[1] Dr. H. D. Walker of Buffalo gives the results of a series of experiments, which, in his opinion, prove that malignant tumours are caused by parasites which he has discovered in the cœlomic cavities of earthworms. Twenty-five years ago Dr. Walker worked ont the life-history of the "gape-worm of fowls," which passes its embryonic stage in the intestinal canal of the earthworm, so that his more recent observations on the parasites of the earthworm deserve consideration. The cause of cancer, according to Dr. Walker, is a form of sporozoa found abundantly in the peri-intestinal tissue and in the seminal vesicles of the earthworm—the sexual stage with the formation of spores taking place in the latter structure. He finds a correlationship between the distribution of cancer and earthworms, which he states in the following formula: "No earthworms, no cancer. Plenty of earthworms, plenty of cancer." Man merely serves as an accidental host, the spores, which resist boiling, finding access to him with vegetable food. He gives details of 52 experiments—which are crude in technique as well as in description—of introducing the sporozoa from the earthworm into the bodies of various mammalian animals, in some of which malignant tumours subsequently appeared. He figures Allolobophora fœtida, "the earthworm which contains the parasites which cause carcinoma"; Lumbricus herculeus, "the earthworm which contains the parasites which cause small round and spindle-celled sarcoma"; Allolobophora profuga, "which contains parasites which cause malignant tumours believed to belong to the sarcoma—perhaps large-celled sarcoma." The numerous microphotographs of the parasites and of the tumours which are appended to the pamphlet are unconvincing; they may be what Dr. Walker says they are, or simply matter out of place. At least the evidence, if insufficient to induce us to curtail our vegetable diet, may stimulate someone to repeat Dr. Walker's experiments under more accurate conditions. Our scepticism of Dr. Walker's discovery is increased by the fact that he has "finally discovered a preparation which readily kills these parasites and can be taken by persons without injury." Unfortunately he gives no clue as to what this remedial agent may be, merely stating that "it is only in its experimental stage." Perhaps it would have been wiser to have withheld publication until the experimental stage was over.

[1] Cancer and Sarcoma. A Series of Experiments comprising Seven Years of Research Work, made for the Purpose of Determining the Origin and Cause of Cancer and Sarcoma, their Method of Propagation and Means of Prevention. With 29 figures. By H. D. Walker, M.D., Buffalo, New York. Pp. 42.

THE INDIAN STUDENT.

Dr. Garfield Williams, in a pamphlet on "The Indian Student and the Present Discontent," recently published, gives a very correct account of the average life of the Indian student, more especially of the student in Calcutta. His essay is really a defence of—or, we may almost say, an excuse for—the Indian student during the present political unrest. The picture Dr. Williams paints of the unhealthy conditions under which he pursues his studies is a sad one, for there is no doubt that he labours under many difficulties. Dr. Williams omits to mention, however, that there is an excess of students over the number of posts likely to be available both in the professions and in commercial offices, and that the competition is excessively keen even amongst those who have successfully passed their examinations. There are large numbers of disappointed men. Not the least valuable part of this small publication is the comparison drawn between the student of the West and him of the East and of the respective circumstances nnder which they pursue their studies. Notwithstanding, however, all that Dr. Williams portrays, we do not believe that the present discontent had its origin so wholly in the vicious systems of the Indian student's education. The young and only half-educated Indian has proved a fruitful field in which seditionist ideas easily germinate. That is all; the present discontent did not have its origin among the students, although many of them have acquired a reputation for disloyalty. We are not, however, concerned with the political side of this question, and it is sufficient to draw attention to what is the main point of this publication—viz., the evil effects of the existing conditions surrounding the educational life of the Indian student. How to deal with these conditions is a very difficult problem, and we are not satisfied that Dr. Williams's suggested treatment would effect more than a partial cure. It is a difficult question that can only be worked out in India itself, and the essential differences between East and West must not be forgotten. We very much doubt whether Dr. Williams's idea of a university of "the Oxford type in government" would be suitable for the modern native of India, be he Hindu or Mahommedan. If there are any records surviving of the now forgotten universities of Cordova or Timbuctu it would be well to consult them, as their universities were at least oriental. The whole subject, however, is under the consideration of the educational authorities in India, and it must not be forgotten that the carrying out of any scheme, however promising and valuable it may seem, depends almost entirely upon the funds at the

disposal of Government. Much more assistance in the direction of corporate life might be given by the rich noblemen and gentlemen of India than is given at present.

A NOVEL CURE FOR OBESITY.

IT is obvious that there can be no real cure of obesity unless the habits of life, dietetic and otherwise, undergo a radical change. Now this is what obese persons, generally large eaters, specially resent and in the majority of instances they are unable, or at any rate unwilling, to suffer the pangs of unrequited hunger entailed by the necessary restrictions. Dr. Dubois-Havenith of Brussels relates the curious case of a young lady afflicted with polysarcia who "enjoyed her food" to such an extent that before she reached 25 years of age she weighed close upon 190 pounds. She found herself quite unable to forego the pleasures of the table, and as her digestion was slack she suffered a good deal of discomfort after dinner. On one occasion she experienced such physical distress that she provoked vomiting by putting her finger down her throat with immense relief. She was delighted to find that it was possible to conjure the evil effects of over-indulgence in so simple a manner, and so it degenerated into a habit. To her surprise she found that under this regimen she rapidly lost flesh, so much so that in three months her weight had fallen to 120 pounds. She then called attention to the fact that whereas a moderate quantity of food used to leave her with an unsatisfied craving, after deliberate emesis she was free from hunger between meals. Physiologists may explain this on the assumption that the mere act of eating "decongests" the digestive apparatus and so confers functional peace. In any event, the Romans, who were past-masters in gastronomy, knew all about voluntary vomiting, as is shown by the institution of the *vomitorium*, which was resorted to presumably very much for the purpose described in Dr. Dubois-Havenith's case. Of course, it is irrational to take more food than one requires, but having done so the provocation of vomiting cannot be described as unphysiological. Nature provides that remedy automatically in suckling infants whose overloaded stomachs are relieved by a timely puke, and even in grown-up persons the reflex is not unfrequently called into play to avert the consequences of over-indulgence in food or drink. Whether, however, voluntary vomiting can safely be allowed in any individual to degenerate into a habit is a matter calling for careful consideration. Æsthetically objectionable and morally questionable, the method is also physiologically incorrect, and it is not likely to supplant more orthodox treatment which affords a disciplinary training of value.

Dr. Edward C. Seaton, who has resigned his post as medical officer of health of Surrey and has been appointed consulting medical officer to the council, has been succeeded by Dr. Thomas Henry Jones. Dr. Seaton's work in public health has covered a period of nearly 40 years, 20 of which he has spent under the Surrey county council.

MEDICAL RE-EXAMINATIONS IN THE CIVIL SERVICE.—The Civil Service Commissioners, in their annual report, state that in pursuance of the practice instituted a few years ago of allowing, in some cases, a further medical examination when the result of the first was unfavourable, the cases of 143 candidates were, during 1909, reconsidered with reference to their physical qualifications. In 82 of these cases the unfavourable verdict was reversed, and the candidates were pronounced qualified, and in 61 it was confirmed and the candidates were finally rejected.

BRITISH PHARMACEUTICAL CONFERENCE.

THE BACTERIOLOGICAL STANDARDISATION OF DISINFECTANTS.

AS we stated last week, a debate upon the bacteriological standardisation of disinfectants was introduced in a brief paper by Professor G. SIMS WOODHEAD and Dr. CONSTANT W. PONDER. They said:—

For some time past we have been engaged on the study of some of the factors that must be taken into consideration in the determination of the value of a disinfectant. In common with other workers, we were confronted, almost at the commencement of our investigations, by the difficulty of obtaining any reliable method of standardising this value under what may be termed practical conditions of disinfection, and, in common with others, we had to fall back on a comparative valuation, taking phenol (carbolic acid) as our standard. Elsewhere[1] we have given a brief sketch of the methods that have, from time to time, been employed by various workers to attain this end, and we there gave our reasons for our adoption of a modification of the Rideal-Walker drop method in carrying on our work.

In this short note we wish to make clear our position in regard to this question of standardisation of disinfectants. In view of the great demand for reliable antiseptics and disinfectants, there have been placed on the market a large number of these reagents, many of them coal-tar product emulsions, for which have been claimed very high carbolic acid coefficients. Had the makers of these various disinfectants been able to agree as to the relative value of their products it would not have suggested itself to us that we should investigate this question, but such divergent results were obtained and reported by different observers that it was evidently a matter of some difficulty to obtain a common basis of comparison. On taking up the work we realised at once that the Rideal-Walker drop method gave more promise than any other, from the theoretical point of view, of precise results. We realised, further, that before much knowledge of the process of practical disinfection could be gained the question would have to be studied in great detail from the theoretical point of view. Moreover, the coal-tar emulsions had all been standardised by the Rideal-Walker method, so that we had a further reason for adopting this method, with which we made a series of preliminary experiments, following out with such care and accuracy as we could command the details as published by the authors, and summarised by Mr. Partridge. Our results, however, were so disappointing, in so far that they were extremely irregular, that we came to the conclusion that whatever results this method might give in the hands of those who were constantly using it, it was not one by which, in the hands of casual though fairly skilled workers, consistent results could be obtained.

On analysing the process, we picked out the following factors and gave to each some consideration.

Organisms to be acted upon.—In this country disinfectants are used mostly to render inactive the pathogenic organisms found in sewage. In the Rideal-Walker method B. typhosus is used as being the most common of such organisms. Finding that the Bacillus coli communis is only slightly more resistant than the B. typhosus, we determined to use it as our test organism, in the first instance, at any rate, firstly, because it is non-pathogenic, and is therefore less dangerous to work with; and, secondly, because its presence can be so readily recognised by the use of McConkey's bile-salts litmus medium, without the use of the microscope, and with great certainty, because of the formation of acid and gas, through which we get marked turbidity and change of colour—from blue to red—as the organism multiplies in the medium.

Number of micro-organisms and amount of organic matter to be added.—We soon convinced ourselves that the number of micro-organisms must be fairly large if consistent results are to be obtained—i.e., must be so large that allowance is made for a considerable margin of error. This margin of error is enormously greater where small quantities of a culture are taken with an öse than when larger quantities are taken with a spoon. The same applies to the amount of organic matter introduced along with the micro-organisms.

[1] THE LANCET, Nov. 20th, 1909.

How important is this latter factor may be gathered from the fact that in a series of experiments with chloro-hypochlorite of lime (bleaching powder) the addition of 0·3 c.c. of broth to a litre of water interfered with the bacterial power of the "bleach" to such an extent that instead of killing something like 258,000 in every 258,001 colon bacilli (B.c.c.) it killed only 73 out of 74. What applies in the case of bleach applies also to other disinfectants.

Strength and number of dilutions.—These should be as close together, but should extend over as wide a range as possible, in order that full data may be obtained. Further, the intervals between each should be, as far as possible equal, and should take the form of a percentage difference. Only when we have these points attended to can the curve described below be satisfactory.

Time during which the disinfectant is allowed to act.—In making an experimental observation the time factor must be more or less arbitrary, but taking into consideration the fact that certain antiseptics appear to give their maximum results in a comparatively short time, whilst others take a somewhat longer time to give their best results, it appeared to be more fair to all the disinfectants examined to take a mean between two extremes than to take any fixed point between those extremes.

Temperature.—As most of the standardisation experiments have been carried on in climates within the temperate zone we adopted a more or less arbitrary temperature, the mean temperature met with in that zone, at which to carry on our experiments. It will probably be found well, however, in making a test to maintain the temperature at which the solutions and emulsions are kept approximately that at which the work of practical disinfection is to be carried on, say, in South Africa, on the one hand, or in Northern Europe or America on the other. We suggest this with confidence because we now have evidence that the carbolic acid coefficient of a disinfectant may vary enormously according as we are working with solutions and emulsions kept at 55° F. at a temperature of 80° F. This, of course, has long been known, but we believe that even now its great importance has not been realised.

With our apparatus, of which we have now wide experience, we have been able to obtain from the very outset of our work most consistent results. Many of these have been published, and we hope to publish others very shortly. Here we give only a simple table, as our object is not to make a comparison between different disinfectants, but to make clear the basis and method on and by which we work.

As mentioned elsewhere, we lay great stress on obtaining a complete chart from which to construct a curve—i.e., from the data obtained from both time and dilution factors. Along this curve it will be seen that the figures derived from our table check one another very closely, the intermediate figures, though not used in our calculation, being of considerable value in building up the general picture of results. The figures we use are those obtained at the extreme points of our curve, the mean between these being taken to indicate the carbolic acid coefficient of the disinfectant.

Finally, it is evident that all comparisons as regards the germicidal activity of disinfectants can be accepted as reliable only under the conditions obtainable, these, at present, being of the simplest and most limited character. These comparisons must, however, be made and deductions drawn therefrom before any further advances can be made, as germicidal activity must necessarily be taken as the basis of disinfection, whatever other factors may ultimately have to be introduced. It is obvious that as the experiments carried out deal with a simple organism only the carbolic acid coefficient of any disinfectant so tested applies to that organism only, and for practical purposes it will be necessary to obtain the coefficient for the special organism that has to be dealt with in the disinfecting process. Some further modification of our method, apparatus, and media may therefore be required to meet special cases and circumstances.

In the course of the discussion, those who differ from us will, of course, assert their own position. All we ask is a careful consideration of our facts before our inferences therefrom are criticised. No one recognises more clearly than do we that the whole question is still in the melting-pot, and in a very marked stage of flux and change. We put nothing forward as final or conclusive, but we do claim that

TABLE.

Minutes.	Dilutions.											
	1/140	1/160	1/180	1/200	1/220	1/240	1/260	1/280	1/300	1/320	1/340	1/360
	0·714%	0·625%	0·555%	0·500%	0·454%	0·416%	0·384%	0·357%	0·333%	0·312%	0·294%	0·277%
2½	0	*24	18	16	13½	13	13	12½	—	—	—	—
5	0	0	0	18	17	13½	13½	13	—	—	—	—
7½	0	0	0	0	19	15½	16	13½	—	—	—	—
10	—	0	0	0	0	18	15½	14	13½	—	—	—
12	—	—	0	0	0	19	16	15½	13½	—	—	—
15	—	—	—	0	0	19	19	15½	15½	13½	—	—
20	—	—	—	—	0	0	0	18	14½	13½	—	—
25	—	—	—	—	—	0	0	0	17	14½	13½	13
30	—	—	—	—	—	—	0	0	17	14½	13½	13½

Carbolic Acid Control.

Minutes.	Percentage dilutions.							
	1·10	1·00	0·917	0·846	0·786	0·733	0·687	0·647
2½	0	0	16	16	—	—	—	—
5	0	0	0	17½	—	—	—	—
25	—	—	—	—	0	0	18½	18½
30	—	—	—	—	0	0	0	18½

Room temperature 63° F.

The coefficient of this disinfectant is, therefore— $\frac{\frac{1\cdot00}{0\cdot714} + \frac{0\cdot687}{0\cdot357}}{2} = \frac{1\cdot4 + 1\cdot9}{2} = 1\cdot65.$

* These figures indicate the time at which an acid-gas reaction is obtained. The greater the effect of the antiseptic the longer the time required for its production. These figures add greatly to the accuracy and value of the curve.

our method and results, the most consistent yet obtained, shall be considered as a careful, impartial, and conscientious effort to add something to our knowledge of the standardisation of disinfectants.

Our interest is absolutely impersonal. We have no desire to magnify or minimise the well-grounded claims made for any disinfectant on the market. Our one aim is to obtain knowledge of the actual and relative germicidal value of disinfectants, and to improve the process of disinfection.

The following abstract of a note on the Woodhead-Ponder method of testing disinfectants, by Professor R. TANNER HEWLETT, has been furnished us.

1. Woodhead and Ponder state that the spoon holds 0·08 c.c. and contains more than three times as much as the standard loop. It is found that the spoon *contains* at least 0·10 c.c. and *carries over* about 0·15 c.c., which is 10 to 15 more than a standard loop. If it be necessary to "seed" with three to four times the quantity carried by a standard loop all that is necessary is to have a wire with three to four loops instead of one loop.

2. It is very questionable if there be any need to "seed" the sub-cultures with more than a standard loopful. The apparent necessity in Woodhead and Ponder's work is due to the fact that the McConkey medium is far less delicate than lemco broth for sub-culturing.

3. As regards the use of Bacillus coli instead of Bacillus typhosus, probably a desirable change. Much work requires to be done, however, in order to ascertain if various strains of B. coli show much variation in resistance, and, if so, whether this affects the coefficient.

4. The use of a larger number of dilutions of disinfectant and carbolic is desirable, but is really equivalent to doing three to four Rideal-Walkers, though it is done in less time. The Rideal-Walker rack may be modified to contain six to eight tubes of disinfectant solution, and similarly six to eight culture tubes in each series. This will serve every purpose.

5. The extension of the time limit from 15 to 30 minutes is of questionable utility, at least for "coal-tar" derivatives. An extension to 20 minutes may be desirable, and may be done by adding another series of sub-cultures in the Rideal-Walker method, the last time interval being taken at five instead of two and a half minutes.

6. The performance of the test always at a standard temperature—e.g., 65° F.

7. Woodhead and Ponder's method of calculating the coefficient (the mean of that at 2½ and that at 30 minutes) practically always raises the coefficient over that obtained at an early period. It therefore tends to reduce the "factor of safety" as given by the Rideal-Walker method, which is thus proved to be a *stringent test*.

8. Astonishing statement that no disinfectant has been met with having a coefficient above 13.

Dr. DAVID SOMMERVILLE also read a paper on the subject. He said: THE LANCET method furnishes lower coefficients than the Rideal-Walker method, so also does the Lister Institute method; but none of these methods furnishes any information concerning types and quantities of disinfectants required for efficient disinfection in practice. It is idle to state that any method of standardisation assists in this direction. It is true that in recent years that R.-W. coefficients have been freely advertised several points higher than can be obtained by a proper use of the test. This fact should, however, not be used to discredit the test; rather those who wrongly use it. So long as the conditions of the R.-W. test are fulfilled it yields uniform results; and the harmonious curves insisted on by Walker and myself in 1906, and seen in the three tables selected at random from a series of 130 tests performed in the last two years, are always produced.

TABLE I.

No. 47. 9/10/09.

47	1 : 800	×						B. typhosus 72 hrs. 37° C.
	900	×	×					
	1000	×	×	×				
	1100	×	×	×	×			
Phenol.	1 : 110	×	×	×				

$\frac{1000}{110} = 9.$

TABLE II.

No. 50. 4/11/09.

50	1 : 1600	×						B.typhosus 72 hrs. 37° C.
	1 : 1650	×	×					
	1 : 1700	×	×	×				
	1 : 1750	×	×	×	×			
Phenol.	1 : 110	×	×	×				

$\frac{1700}{110} = 15{\cdot}4.$

TABLE III.

No. 56. 21/12/09.

56	1 : 1200	×	×					B.typhosus 72 hrs. 37° C.
	: 1300	×	×	×	×			
	: 1400	×	×	×	×	×		
	: 1500	×	×	×	×	×	×	
Phenol.	1 : 100	×	×	×	×			

$\frac{1300}{100} = 13.$

It appears necessary again to state that in order to obtain uniform results the conditions (including the composition of the broth used) must be scrupulously fulfilled.

It has recently been stated that when in the R.-W. method broth made from bullock's heart (THE LANCET formula) is substituted for broth made from lemco the coefficient drops considerably. With a view of discovering, if possible, something of the meaning of the alleged drop in coefficients, I made a careful determination of the total N, P_2O_5, creatin, and creatinin in each broth. These are:—

—	% Total N.	P_2O_5	Creatin.	Creatinin.
LANCET broth	0·194	0·082	0·120	0·040
Lemco broth	0·423	0·092	0·170	0·080

Lemco broth is considerably richer in the total N and in creatin and creatinin, and slightly richer in P_2O_5. It should be noted that the composition of McConkey's medium is totally different from both. It will be interesting later to learn what an effect an increase or decrease of any of these constituents in the primary broth, secondary broth, or in the case of THE LANCET method, in McConkey's medium, has on the coefficient, and whether such effect is produced through the phenol, or through the disinfectant under test, or through both.

The chemical examination put forward by THE LANCET is of importance and to be welcomed. But in a case of disinfectants formed from phenoloids emulsionised by resin soaps or fat acid soaps (which class forms the bulk of the better class disinfectants advertised), it is not necessary to adopt the lengthy process detailed in THE LANCET report. The percentage composition can be roughly and rapidly determined thus: Fractionally distil, say, 100 grammes, measure water, and weigh phenoloids. Below 270° C. resin gives no trouble, as any resin spirit present, never more than 5 per cent. in resin soaps, is in union with alkali, and resin oils boil between 300° and 400° C. Should a small quantity of neutral oil come over, which very rarely happens, it may be separated from the phenoloids by washing with soda and subsequently splitting off the phenoloids with H_2SO_4. Five grammes of the disinfectant are incinerated, resulting in Na_2CO_3, or K_2CO_3. The residue is lixiviated with H_2O filtered, titrated with standard HCl and calculated as Na_2O or K_2O, the weight of the chloride will at once determine whether one is dealing with K or Na. As the residue in the distillation retort consists of anhydrides of fatty acids, or resin acids, or both, of the form:—

$$\begin{matrix} R\,CO{-}ONa \\ | \\ R\,COO \quad Na \end{matrix}$$

it is plain that in the original disinfectant these anhydrides $+H_2O$ are equivalent to the Na_2O. Hence 5 grammes of disinfectant − weight of Na_2O = fatty acids and resin in 5 grammes.

This rough-and-ready method will give the water and

alkali fairly exact and the phenoloids within 2 per cent. of error. It can be completed leisurely by a skilled worker within an hour; and it avoids those experimental errors attaching to hydrolysis and multiple filtrations. If the fatty acid and resin figures are required separately they can be easily worked out from the retort residue by the method of Twitchell.

Dr. RIDEAL, who spoke as the joint author of the Ridcal-Walker test pointed out that of the two methods for the valuation of disinfectants, the chemical and the bacterial, the latter during the last five years had been most extensively used owing to the general adoption of the techuique and conditions suggested by himself and Mr. Ainslie Walker at the Sanitary Institute Congress in July, 1903. In that paper they defined certain conditions of testing which they themselves had found convenient, and which, if they became conventional, would obviate confusion in the future. THE LANCET, however, in November, 1909, suggested a modification of the Rideal-Walker coefficient process, and also attempted to show that a chemical method of examination, based on the amount of phenoloids and their bromine absorption, in the case of coal-tar emulsions, gives "a decided clue to germicidal power." On Dec. 18th, 1909, he drew attention to some of the difficulties which THE LANCET method of testing introduced into the subject, and the Commissioners replied to his objections in the same issue, and since that date he had had the opportunity of discussing the matter with Professor Sims Woodhead and Dr. Ponder, and doing further work on the subject. On May 7th, 1910, THE LANCET again gave the exact details of the chemical analysis of coal-tar disinfectants as employed in their laboratory, and they had to-day an opportunity of further discussing the subject. He wished first to refer to the chemical method. It had always been difficult to complete the extraction of the phenoloids from an emulsion in which a soap was used, and when mixed with neutral hydrocarbons. THE LANCET process converted the phenoloids into a sticky mass of baryta salts, which it was difficult to wash and to free from the less soluble baryta compounds. The difficulties of estimating accurately a mixture of more or less deliquescent volatile tar acids by drying and weighing were not overcome in this process, and as only a small quantity of phenoloids are dealt with in the ethereal extract, the error involved in attempting to completely dry without loss of volatile tar acids might be considerable. In the process as described in November, 1909, evaporation at 100° F. was the only detail mentioned, and he found that an error of 4 or 5 per cent. in the percentage of phenoloids could occur by varying the amount of air drawn through in this process. The Commissioners therefore modified the process in reply to that criticism, and on Dec. 18th suggested that the last portion of the ether should be allowed to evaporate over anhydrous calcium chloride. Even this refinement had not at his hands given concordant or definite results; for while the water was evaporating some volatile tar acid escaped, and there could be no sharp line of demarcation between the volatilisation of the water and that of the tar acids. To take one case, a disinfectant gave 41·59 per cent. of phenols on a Saturday after all the water had apparently disappeared, but it was then returned to the desiccator and kept over calcium chloride for the week-end and weighed on the Monday, and found to be only equal to 33·49 per cent., the actual weighing being 0·8318 gramme, falling to 0·6699. The desiccator on the Monday showed on its sides an oily film smelling of tar acids. It was clear that the conventional use of a fixed time of a quarter of an hour that was introduced into the process by THE LANCET on May 7th did not give a scientific or correct result. There was no difficulty in determining the bromine absorption of the phenoloids, but it was assumed by THE LANCET that the formula $\frac{P-B}{3}$ represented the germicidal value. There was no reason for that, and it was obvious that if the tar acid used was carbolic acid P = B one got the startling result of an emulsion made from carbolic acid having no germicidal value, since $\frac{P-B}{3}$ would represent zero. It also followed that the addition of any amount of carbolic acid to a coal tar disinfectant would not alter its germicidal value when so determined. In fact, the formula $\frac{P-B}{3}$ did not even give a measure of the higher phenols, and also wrongly assumed that the higher the molecular weight the higher the germicidal action. Nothing definite was known as to the relation between bromine absorption and germicidal value, and until phenoloids of known constitution had been examined a few chance agreements could not warrant a generalisation of that character. With cyllin disinfectant, which he purchased in the open market, and two other disinfectants that Mr. Ainslie Walker had prepared, both made with 40 per cent. phenoloids and showing about 21 per cent. bromine absorption, he obtained the following results:—

—	Rideal-Walker carbolic acid coefficient.	P.	B.	$\frac{P-B}{3}$	THE LANCET bacterial test.
Cyllin (1)	19·5 W.	—	—	—	—
,, (2)	19·0 R.	41·9	19·6	7·4	5·2
Disinfectant 15 (1) ...	15·0 W.	—	—	—	—
,, (2) ...	15·5 R.	40·3	21·8	6·2	5·5
,, 25 (1) ...	25·26 W.	—	—	—	—
,, (2) ...	26·5 R.	39·2	21·6	5·9	6·5

The Commissioners were agreed that the Rideal-Walker test, if properly carried out, was accurate. But he contended that these results showed decisively that the phenoloids and the bromine absorption did not, as claimed by the Commissioners, determine the germicidal activity of disinfectant emulsions. Referring next to the bacteriological section Dr. Rideal said: The first criticisms of THE LANCET method, not referring to any particular disinfectants, are that it is cumbrous and elaborate, requiring special apparatus to work it, a large number of tubes and other objections to the technique. On p. 1612 THE LANCET Commissioners say that the figures calculated from $\frac{P-5}{3}$ agree, "with few exceptions" (and, again, "in the majority of cases") with the carbolic acid coefficient they find by their "modified" method with B. coli. But the table they give on the same page shows eight exceptions out of 17 experiments, so that there are about an equal number of cases where the figures agree as when they divergo widely, sometimes to the extent of 50 per cent., according to their own finding, and there is no chance of improving matters by amending the divisor 3, as the discrepancies sometimes give a higher and sometimes a lower ratio. What can we think of a proposed formula which gives a calculated result, occasionally agreeing with the experimental figure, in other cases double the latter, and which gives the carbolic acid itself a germicidal value of 100 - 100 = 0? It may also be incidentally observed that tribrominated phenoloids, which under the circumstances have no bromine absorption, would have a calculated germicidal value of $\frac{100-0}{3} = 33{\cdot}3$. The Commissioners themselves suggest a general doubt in the remark "assuming that there is any value in the calculation at all." I have found that the wheel and spoons are difficult to work at first, and are by no means so easy to use for inoculating the sub cultures as the platinum wire loops, but after the practice required in a couple of tests one can carry through a complete test without accident. The specimen pots which contain the dilutions and culture broth are left unplugged throughout the test. On some of my charts, and also on some published in THE LANCET, there is "no growth" sign, followed by "growth" later on. In my case these accidents have occurred in tests that seemed most carefully carried out, and the only explanation of the contamination appears to be the open pots. On this ground the R.-W. test is preferable. The dilutions and the broth tubes for sub-culture are all plugged, and the cotton-wool plug is only removed while a loopful of the disinfectant dilution and culture is being transferred to the broth subculture. The time allowed in THE LANCET method to inoculate the disinfectant dilutions, and later to inoculate the subcultures from the dilutions, is not sufficient for a thorough mixing. In the R.-W. test the disinfectant dilutions are shaken before a loopful is taken out, not merely occasionally stirred. This is impossible in THE LANCET method because of the short open pots employed, even if sufficient time were available. The statement of the Commissioners that each chart carries its own credentials is, of course, true of the original R.-W. chart, the importance and value of which the authors have always insisted upon. The chart produced by THE LANCET test is acknowledged by the Commissioners not to be necessary to the test, as the two and a half and 30 minute lines alone are required, but only to serve as a "line of demarcation"—that is, as a control. But whatever the "line of demarcation" may indicate it is of no use if either the two and a half or 30 minute lines of the tests show irregularities. The objection to the large number of test-tubes and materials used is felt more in some laboratories than others. Where there is a large amount of mixed work the holding up of over 70 or sometimes 100 tubes is often a great nuisance. The feeling running through the bacterial section of the Commissioners' reply seems to be that the R.-W. test is so difficult that only an expert can obtain consistent results, but that THE LANCET test is so much easier that it can be used by an average chemist or medical officer of health who are unable to carry through the R.-W. test. One would think that a man experienced in bacteriological testing would prefer a test lasting 15 minutes which required one platinum loop, four dilutions of the disinfectant, and one of the carbolic acid, and 30 tubes to inoculate at the rate of one every 30 seconds, in place of a test that needs an apparatus requiring some practice to use, nine or ten dilutions of disinfectant, and four or five of carbolic acid, and over 70 tubes to be inoculated, one every 12½ seconds, and the test taking 30 minutes to finish. And in my opinion, apart from questions of accuracy between the spoons and the loops, &c., THE LANCET test is more formidable, and requires at least as much skill as the R.-W. process, in spite of the use of the automatic sterilising apparatus. THE LANCET Commissioners have investigated the R.-W. test, and did not obtain satisfactory results; the carbolic acid coefficients that they did obtain were much lower than those obtained by other chemists and bacteriologists, or claimed by the manufacturers. So they suggest that advantage has been taken of loopholes in the R.-W. method, and that the manufacturer often has results spread over a wide range, and then picks out the most convenient coefficient. This seems unjust, in view of the fact that some leading manufacturers have published the whole of the R.-W. coefficients obtained by different bacteriologists with their disinfectant for a variety of organisms. They proceed to discuss the reasons why all other chemists and bacteriologists differ from them in the R.-W. test results and specify a number of ways in which the test in their opinion is at fault. These are: (1) No definite organism being prescribed; (2) old carbolic acid controls being used; (3) the effect of temperature being ignored; (4) the coefficients being deduced from insufficient data, whereby biased observers may obtain results far from the truth but convenient. I can only say in reply to such criticisms that if any of these errors are committed the test is not conducted according to the Rideal-Walker method. One important point, the composition of the broth, has escaped the Commissioners' investigation, or they would not have proposed bullock's heart to be employed. No mention is made as to whether the bullock be young or old, under or overfed, or whether the heart be fresh or chilled; yet every one of these factors influences the growth of bacteria in the broth. I explain the failure of the Commissioners to obtain satisfactory results with the R.-W. test by supposing that they used bullock's-heart broth in place of the lemco recommended by Mr. Ainslie Walker and myself. I have found the change in the carbolic acid coefficient caused by using bullock's-heart broth instead of lemco broth, both for the culture medium and subcultures. If, therefore, the Commissioners used bullock's-heart broth instead of the lemco broth prescribed, their failure with the R.-W. test is readily explained. That the R.-W. test does not agree with THE LANCET test may be due to three reasons: 1. The culture medium: lemco broth does not give so resistant a culture to disinfectants as bullock's-heart broth does, although in both cases the resistance of the bacteria to phenol is nearly the same. As we have seen, the use of bullock's-heart broth lowers the coefficient almost one-half. 2. The test organism: the R.-W. test is done with B. typhosus and THE LANCET test with B. coli. B. coli has been found to be about 10 per cent. more resistant than B. typhosus in the R.-W. test. 3. The use of spoons in place of loops: the five drops of culture added to a dilution in the R.-W. test is approximately 0·10 c.c.

THE LANCET spoons transfer, on an average, 0·10 to 0·15 c.c. But in the inoculation of the subcultures the loop carries 0 004 c.c., and the spoon, as before, 0·10 to 0·15 c.c. The increased quantity of liquid carried by the spoon does not determine the lethal point of the bacteria, because less mixing of the culture and disinfectant is possible in THE LANCET process. So although in theory the spoon ought to give a fairer sample than the loop, in practice it does not, as we often find irregularities when the spoon is used. This carrying over of disinfectant into subculture has always been a source of criticism in all bacterial tests, and although the R.-W. test has reduced the amount of disinfectant to a minimum by using a fine loop, this point has been raised against it on the continent. In THE LANCET method a still larger dose of disinfectant is carried over to the subculture. I may conclude by saying that the only point raised by the Commissioners worth noticing is that which deals with the wide range provided by the R.-W. test. They expressly state that the R.-W. test is accurate if properly carried out. Is it not better to use this test, which sorts out the disinfectants from 0 to 25 when working with the same organism, than to use another test in which the same disinfectants are placed between 5 and 8?

Mr. ERNEST FEILMANN, B.Sc., Ph.D., F.I.C., remarked that the gravimetric determination of the total phenolic bodies was a weak point in the "L.A.B." method; to determine their percentage by the method given, or indeed by any known available method, to two decimal places, as given in the tables in the recent articles on this subject in THE LANCET, must surely be recognised as impossible by anybody accustomed to this class of work, and in his opinion an accuracy of one-half of a per cent. was about as much as could be expected with ordinary precautions by any method. It was more accurate to determine the volume, specific gravity, and water contents of the isolated phenolic bodies, from which data their dry weight and percentage are readily calculated. For this purpose it was better to take at least 25 grammes of the sample instead of 10 grammes, as recommended by THE LANCET Commissioners. The baryta solution of the phenols, however, obtained was for this purpose acidified slightly with hydrochloric acid, and the separated phenols poured into a burette graduated to 0 1 cubic centimetre. Any residual phenols were rinsed out of the separating funnel with a little ether, which was then used to extract the acidified barium solution. This ethereal solution was in turn extracted with a few cubic centimetres of fairly strong caustic soda solution. This alkaline extract was also acidified with a few drops of hydrochloric acid after the ether has been driven off on the water bath, and the liquid is then added to the phenols in the burette after adding a little common salt. When the phenols had completely separated their volume was read off. Their specific gravity was taken in a small pyknometer—a very high degree of accuracy being useless and therefore unnecessary—and the percentage of water was determined by distilling a known volume from a small distilling flask connected with a short condenser into a small graduated vessel, stopping the distillation when pure phenol commences to distil, and measuring the water, which comes over first. By proceeding in this manner with ordinary care the personal error is much smaller than by evaporating the ethereal extract and weighing, and it is not very much more trouble. It was difficult to see in what way the method of separating phenols, neutral oils, and organic acids described in the paper referred to was an improvement on the very similar method, differing only in details, described by Ditz and Clauser 12 years ago. He did not propose to say much in reference to the $\frac{P-B}{3}$ figure, as that had been effectively done by others, but what the authors meant by the passage on p. 1615, starting, "It would be of interest to know what it is that bromine displaces, &c.," it was difficult to understand. It was perfectly well known that in the Koppeschaur test the bromine replaced certain hydrogen atoms attached to the benzene nucleus, and no others, three hydrogen atoms in the case of phenol and the cresols, and possibly fewer in the case of some of their higher homologues. He thought it was also obvious, from the very manner of their isolation, that all the bodies classed by the authors and others as "phenoloids" contained a hydroxyl group. The so-called "phenoloids," or "tar-acids," were in no sense mysterious compounds; they simply consisted of phenol and its higher homologues, and the term "phenoloid" appeared to be unfortunate and misleading. "Phenolic bodies," or simply "phenols," was a far better term.

Mr. J. E. PURVIS, M.A., said he was very sorry that Mr. Vasey was not present that morning in order to reply in a better manner than he could to the somewhat strenuous criticism which had been made in regard to the chemical side of these papers, especially as the question in which he, as a chemist, was particularly interested was the chemical aspect. He thought that Dr. Rideal's remarks required some reply from him, and this he would endeavour to do. There was a certain amount of cynical criticism of an empirical formula. Of course, in such a formula as $\frac{P-B}{3}$ there could be no mathematical accuracy except up to a certain point. This formula was designed to correlate the two equivalents—the bacteriological and chemical. That was all that was claimed for it. It was not put forward as a final or absolute figure, it was purely tentative. He thought that would be apparent to anyone who read the report a little more carefully and with a little less bias. The point to remember was that, taking the numbers for P and B, by the use of the formula the number obtained had a correlative comparison with the numbers obtained from the bacteriological tests. In all such empirical formulæ their aim was to sum up a series of facts, and that formula appeared to sum up the facts of the analyses in the directions indicated. Dr. Rideal had said that Professor Sims Woodhead and Dr. Ponder in their paper brought no further accuracy into the method which Rideal and Walker had suggested seven years ago. He did not think that that was the point at issue; they were discussing now the relative value of different experiments and experimeuters. The question should be considered from the point of view of the purchaser—the man who went into the shop for a certain disinfectant and saw a number upon the bottle, and upon that number made his purchase. Then perhaps he went into another shop, and got another disinfectant with a lower number on the bottle. The tendency would be to always purchase the disinfectant with the higher number. What was the result? Dr. Rideal had one number and Professor Woodhead had another. Who should decide whether the purchaser should believe Dr. Rideal or Professor Woodhead? The latter had very properly said in his paper that he had no axe to grind, and that he was not specially interested in any particular industry and held no shares in any particular company. But Professor Woodhead desired to show that the Rideal-Walker test was a test which could not claim absolute values, and the fact that different experimenters obtained different coefficients proved the point at issue. Dr. Rideal knew very well that this was true, and the final judge of the relative numbers was not this man or that, but the public who bought the disinfectants. The point of interest to the general community was that they might not get the proper article. Dr. Sommerville considered the method of analysis was as deficient not only in that it was long-winded but also that it did not give the accurate results which were claimed for it. He proposed another method, which was the distillation method. He (the speaker) had tried the distillation method and had found it an absolute failure, because the closeness of the boiling-points interfered with a complete separation, for it was a well-known physical principle that at no particular temperature did a compound come over when mixed with others, but that many distillations had to be repeated before there was a good separation. He went on to say that there could be no hard-and-fast rule. In conclusion, he pointed out that the main object of THE LANCET Commission was to show that there was no absolute standard for disinfectants, and if a fictitious number were given the public might be paying for something which was not there.

Mr. J. F. TOCHER, F.I.C., said that he considered the method of Professor Sims Woodhead and Dr. Ponder a distinct improvement on the Rideal-Walker method for many reasons. He had no time to discuss the details of the method, but he would offer a suggestion to the authors of the paper bearing on the interpretation of the results. It should be noted that the authors took the extreme coefficients, and, striking the mean, give that as the measure of the bactericidal power of the disinfectant compared with that of phenol. This method was not statistically sound. The accurate method of interpreting the results shown on the table would be to evaluate the coefficients for each dilution for each time period, and to calculate the mean value of the coefficients so found. The figure obtained would give the true bactericidal measure of the disinfectant compared with phenol under the conditions of the experiment.

Professor SIMS WOODHEAD, replying to the discussion, thought that Dr. Rideal had brought forward several points which would have to be met in the spirit in which they had been put forward. It was a very easy matter to raise the question of spoons. It diverted attention from the question at issue. Largeness of heart was one thing and largeness of mind another. Then, again, they might compare spoons and loops, and long enough loops might be applied to a certain other use which it was unnecessary for him to designate! He pointed out that what he (the speaker) wanted was constant results, not high figures. They all knew that investigators had to make allowance for a margin of error, and that if they worked with sufficiently high dilution the higher the error would be. It must be remembered that they were always working against the same standard—carbolic acid—and that was a solution, not an emulsion, and must not be judged by the same rules as an emulsion. If they could be sure of getting constant results it did not matter whether the B. coli was more active than the B. typhosus. Carbolic acid had been taken as the standard with which the disinfectants were compared, and by which one disinfectant was compared with another. He emphasised the point that it did not matter to them which was the best disinfectant, but they wanted to find the best. In regard to bullock's heart, did it matter so much if they were using the same bullock's heart or if they were using lemco? If lemco was giving artificial values, then he thought they must give it up. There was no disinfectant on the market which would give the Rideal-Walker figures if the test was performed in what they, the authors of the paper, considered to be a fair practical way. In reference to the particular temperature, up to 80° the carbolic acid coefficient rose, but higher than that there was a steady fall. Therefore, if they were to obtain the best results they must determine the temperature at which they were going to work. He urged that an arbitrary standard in that case was not applicable everywhere. He did not wish to doubt the value of the Rideal-Walker method, because he thought it was of extreme value, but he must protest against them being expected to accept it as a final standard. (Dr. Rideal: Conventional standard.) Why must they accept a test because it was seven years old? Seven years hence he hoped they might have a still more satisfactory test. With regard to the difference between B. coli and B. typhosus the difference was almost negligible, and certainly not so great as to interfere with the value of the test. In conclusion, he would say that if they had differed in their expressions of opinion that morning there was certainly more agreement in the discussion than he had expected, and he was convinced that before long the agreement would be still more complete.

It was generally felt that this interesting debate fulfilled a useful purpose in introducing to the pharmaceutical world the difficulties attendant upon the standardisation of disinfectants.

EPSOM COLLEGE.

FOUNDER'S DAY was celebrated at Epsom College on July 27th. Mr. H. J. Mackinder, M.P., an old Epsom scholar, gave away the chief prizes for the year, amongst those on the platform being the Rev. T. N. H. Smith-Pearse (the headmaster), Sir Henry Morris (the treasurer), Sir Constantine Holman, and Sir Shirley F. Murphy.

The HEADMASTER gave the usual summary of the work of the school during the past year, drawing attention to the fact that the number of boys at present in the school (287) was the highest on record. He referred to the educational successes gained since last Founder's Day, which include 13 passes in the whole or a part of the first examination for medical degrees of the University of London; 10 passes in the matriculation examination of the same University; and 9

higher certificates and 25 lower certificates of the Oxford and Cambridge Schools Examination Board. In regard to the annual inspection of the Officers' Training Corps the report was very satisfactory.

After giving away the chief prizes, Mr. MACKINDER said it was about 30 years ago since he had walked up to a platform in that hall to receive a prize and had captained the school "fifteen." Many things had happened since then and great changes had been made, and the sum total was good. He was glad to hear the cheers that went up when the Officers' Training Corps was referred to, because there was a danger lest boys when they left school should forget the necessity for keeping physically fit. In the extraordinary and increasing rush of civilisation men required poise, which they could not have unless their bodies were fit. A great deal of character came from physical fitness and its accompanying self-possession. In conclusion, he urged upon all who were going through the school to win for it the reputation that the old Epsomian was a citizen of whom his country should be proud.

Sir HENRY MORRIS, in proposing a vote of thanks to Mr. Mackinder for his speech, remarked that even had Mr. Mackinder not spoken a single word, but had merely appeared on the platform, he would have been a useful object-lesson to the boys, as he was a man who both at school, at Oxford, and since leaving the University had combined in a remarkable manner physical development with mental cultivation. He referred to Mr. Mackinder's work as Reader in Geography at the London and Oxford Universities, and as the director, for a time, of the London School of Economics and Political Science; and also to the reputation he had made as a mountaineer and explorer.

After the speeches the visitors inspected the new buildings and other improvements which have been carried out within the past few years at a cost of close upon £20,000. These include the "Markham Skerritt" block, comprising large new physical and biological laboratories with lecture-rooms, workshop, battery room, a day boys' common room, and four good-sized classrooms; a large gymnasium, with boxing and fencing gallery and Swedish exercise appliances; boxroom, changing room, and lavatory accommodation; a music hall for concerts and class teaching, with separate sound-proof music practice rooms; the provision of a hot-water supply and heating installation throughout the whole of the buildings; an armoury, with stands for 200 rifles; a carpenter's shop with a large timber store attached; the extension, levelling, and asphalting of the quadrangle, and a covered way running round the quadrangle connecting the whole of the numerous buildings.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on July 28th, Sir THOMAS BARLOW, Bart., K.C.V.O., the President, being in the chair.

The PRESIDENT reported that His Majesty the King graciously received a deputation to present the address from the College, and called in the Registrar to read His Majesty's reply, which was as follows:—

I thank you on behalf of the Queen and myself for the loyal and dutiful address which you have laid before me to-day.

It is a consolation to me in this time of sorrow to feel that my grief is shared by my subjects in all parts of the great empire over which I have been called to reign, and to know that the character and aims of my beloved father were appreciated by those whose prosperity and welfare were ever in his thoughts.

You may be assured that it will be my constant endeavour to justify the confidence which you repose in me, to follow, with the help of Almighty God, in my father's footsteps, to uphold the honour of our country, and to labour, as far as in me lies, for the prosperity and progress of my people.

The REGISTRAR read the following letter from the Home Office conveying the thanks of Her Majesty Queen Alexandra for the address which she has graciously received from the College:—

I am directed by the Secretary of State to inform you that the address of condolence of the President and Fellows of the Royal College of Physicians of London on the death of His late Majesty King Edward the Seventh has been laid before Queen Alexandra, whose thanks I am to convey to you.

The following gentlemen having passed the required examination were admitted Members of the College: John George Adami, M.D. Cantab., Benjamin Hobbs Deare, L.R.C.P. (Major I.M.S.), Gilbert Henry Dive, L.R.C.P., Septimus Montague Hebblethwaite, M.D. Lond., L.R.C.P., Sorabji Manekji Kaka, L.R.C.P., and Peter N. Lakshmanan, M.B. Madras, L.R.C.P.

Licences to practise physic were granted to 88 gentlemen who had passed the necessary examinations.

In conjunction with the College of Surgeons, Diplomas in Public Health were granted to the following:—Alec Barber, M.B., B.S. Lond., M.R.C.S., L.R.C.P., Thomas David Collis Barry (Lieutenant-Colonel, I.M.S.), M.R.C.S., L.R.C.P.I., Kul Bhúshan, L.R.C.P. & S. Edin., L.F.P. & S. Glasg., Robert Cameron, M.D., Ch.B. Edin., William Henry Cazaly (Captain, I.M.S.), M.B., B.S. Lond., M.R.C.S., L.R.C.P., John Thomson Clark, M.B., Ch.B. Glasg., James Kilian Patrick Clarke, M.B., B.Ch. R.U.I., James Crawford Craig, M.B., Ch.B. Edin., John Findlay, M.B., Ch.B. Edin., John Neville Griffiths, M.B. Sydney, Arthur Herbert Hayes (Captain, R.A.M.C.), M.R.C.P., M.R.C.S., Henry Holroyd, M.B., B.S. Lond., Shiavax Kaikhoshro Nowroji Kabraji, L.M. & S. Bombay, Robert Craske Leaning, M.B., B.S. Lond., M.R.C.S., L.R.C.P., Helen Nora Payne, M.D., B.S. Lond., John Rose, M.B., Ch.B. Aberd., Erach Dinshaw Shroff, L.R.C.P. & S. Edin., L.F.P. & S. Glasg., Alfred Christopher Herman Suhr, M.B., B.C. Camb., M.R.C.S., L.R.C.P., Chandiprasad Trivedi, L.R.C.P. & S. Edin., L.F.P. & S. Glasg., Alfred Charles Foster Turner, M.B., B.S. Lond., Alice Mauricia Van Ingen, L.M. & S. Madras, L.S.A., M.D. Brux., Joseph Walker, M.D., Ch.B. Glasg., Hilda Kate Whittingham, M.B., B.S. Lond., and Alfred Carleton Williams, L.R.C.P., M.R.C.S.

A report was received from the examiners of the Murchison Memorial Scholarship, and the certificate was presented to the successful candidate, Mr. W. W. C. Topley, L.R.C.P.

On the nomination of the PRESIDENT, the Council, and the Library Committee, the following gentlemen were elected to act as Censors, other College officers, and examiners:—Censors: Dr. Frederick Taylor, Dr. Francis de Havilland Hall, Dr. Seymour John Sharkey, and Dr. David Bridge Lees. Treasurer: Sir Dyce Duckworth, Bart. Emeritus Registrar: Dr. Edward Liveing. Registrar: Dr. Joseph Arderne Ormerod. Emeritus Harveian Librarian: Dr. Joseph Frank Payne. Harveian Librarian: Dr. Norman Moore. Elected Members of the Library Committee: Dr. Humphry Davy Rolleston, Dr. Arthur Francis Voelcker, Dr. Raymond H. P. Crawfurd, and Dr. Charles Arthur Mercier. Curators of the Museum: Sir William Henry Allchin, Dr. Seymour John Sharkey, Dr. Frederick William Andrewes, and Dr. William Hunter. Finance Committee: Dr. Howard Henry Tooth, C.M.G., Dr. George Newton Pitt, and Dr. Herbert Pennell Hawkins. Examiners: Chemistry, Mr. Wm. Holdsworth Hurtley and Mr. Hugh C. H. Candy; Physics, Dr. Dawson F. D. Turner and Mr. Alfred Henry Fison; Practical Pharmacy, Dr. Arthur Philip Beddard, Dr. Edmund Ivens Spriggs, Dr. William James Fenton, Dr. Alfred Ernest Russell, and Dr. Arthur Robertson Cushny; Physiology, Dr. Nathaniel Henry Alcock and Dr. Marcus Seymour Pembrey; Anatomy, Dr. Christopher Addison; Medical Anatomy and Principles and Practice of Medicine, Dr. Wilmot Parker Herringham, Dr. Richard Grainger Hebb, Dr. Sidney Harris Cox Martin, Dr. Herbert Pennell Hawkins, Sir Edwin Cooper Perry, Sir Hugh Reeve Beevor, Bart., Dr. James Galloway, Dr. Arthur Francis Voelcker, Dr. Wilfred James Hadley, and Dr. Wilfred John Harris; Midwifery and Diseases Peculiar to Women, Dr. Arthur Hamilton Nicholson Lewers, Dr. George H. Drummond Robinson, Dr. Arthur Francis Stabb, Dr. George H. A. Comyns Berkeley, and Dr. John Shields Fairbairn; Public Health, Part I., Dr. Henry Richard Kenwood; Part II., Dr. Louis C. Parkes.

The following communications were received: 1. From the clerk of the Privy Council, *re* the petition of the College against the proposed charter of the British Medical Association. 2. From Dr. J. F. Payne, thanking the College for conferring upon him the title of Emeritus librarian. 3. From Sir James R. Andrew Clark, asking leave to have a copy made of the portrait of the late Sir Andrew Clark. Permission was granted. 4. From the committee of management of the Chelsea Physic Garden, thanking the College for their donation. 5. From the Registrar of the General Medical Council concerning (*a*) the assistant surgeon branch of the Indian Subordinate Medical Department; and (*b*) the subjects of the Final Examination, and whether candidates

should be allowed to enter for them separately. 6. From the secretary of the Royal College of Surgeons, reporting proceedings of the Council of that College on June 9th. 7. From the clerk to the corporation of the City of Glasgow, concerning congresses on public health. 8. From the secretary of the Imperial Merchant Service Guild, concerning a committee upon sight-testing which has been appointed by the Board of Trade.

A report was received from Dr. H. Lewis Jones on the Third International Congress of Physio-Therapy, held in Paris, March 29th to April 3rd, 1910.

A report was received from Dr. Norman Moore, the representative of the College on the General Medical Council.

The annual report of the Imperial Cancer Research Fund was received and adopted.

The following reports from the Committee of Management were received and adopted:—

Report dated June 7th, 1910. The Committee of Management recommended—

1. That the following Universities be placed on the list of Universities whose examinations are recognised as exempting candidates from the First and Second Examinations of the Board under the conditions of paragraph III. Section III. of the Regulations, viz.—(*a*) the National University of Ireland; (*b*) Queen's University, Belfast.
2. That the George Washington University, Washington, U.S.A., be added to the list of foreign Universities whose graduates are exempted from the First and Second Examinations of this Board under the conditions of paragraph IV. Section III. of the Regulations.
3. That the following hospitals be added to the list of fever hospitals recognised by the Board for instruction in infectious diseases—(*a*) the Kendray Hospital for Infectious Diseases, Barnsley; (*b*) the Great Yarmouth fever hospitals.

Report dated July 12th, 1910. The Committee of Management recommended—

1. That the following institution, which has been visited by a member of the committee and reported as fulfilling the requirements of the Board, be added to the list of institutions recognised by the Examining Board in England for instruction in chemistry and physics: Wolverhampton—the Grammar School.
2. That Dr. Frederick Taylor be appointed the visitor to the examinations of the Egyptian Medical School for the examinations to be held in December next.
3. That the fee for each part of the Examination for the Diploma in Public Health be raised from 6 to 10 guineas for those candidates who do not possess the Diplomas of the Royal Colleges, and that such alteration do apply to all such candidates who enter for examination for the first time on or after the 1st of July, 1911.

MEDICAL INSPECTION OF LONDON SCHOOL CHILDREN.

Present Arrangements.

A CONSIDERABLE extension of the medical inspection of school children in London is foreshadowed in a report issued recently by the Education Committee of the London County Council. Up to the present the Board of Education, recognising the difficulty of organising medical inspection efficiently in so wide an area, has sanctioned a scheme for the metropolis which provides for the gradual compliance with the Education (Administrative Provisions) Act, 1907. Before the passing of the Act the Council arranged for the annual inspection of the vision of all children in senior departments of elementary schools, supplemented by the general medical examination of specially selected children from all departments. The Board allowed this to continue, with the addition that "entrants" and "leavers" in a limited number of schools should undergo a detailed examination, and that the number of schools in which this took place should be gradually increased as additional medical officers were appointed. For this purpose the staff of school medical officers was increased to 40 in 1908–09 and to 56 in 1909–10, the number for the ensuing years being fixed at 72. The Board of Education was told that during 1909–10, in consequence of the arrangements made for medical treatment, and in order to make the information in respect of each school more complete, it was probable that the medical officers would examine during the year all children in the schools inspected by them.

Comments of the Board of Education.

To this communication the Board of Education replied that it would find great difficulty in expressing satisfaction with an authority's arrangements for medical inspection unless (1) provision were made for the regular inspection of children entering school and children about to leave school; and (2) a staff of inspecting officers adequate for this purpose was employed. The Board further stated that the restriction of inspection of "entrants" and "leavers" to selected schools was obviously inconsistent with the provisions of the Act. Even if the scheme were rearranged with a view to examining all "entrants" and "leavers," the staff of inspecting officers employed was not adequate, the number of children in the two groups being estimated at 148,000. Even when the staff obtained its full prospective growth, on Sept. 1st, 1910, there would be only 72 quarter-time officers available for this work. As a portion only of the "quarter-time" was actually devoted to medical inspection, the staff now engaged could not be regarded as equivalent in effect to 14 whole-time inspectors, and when the full prospective strength was obtained the working power available for "detailed" inspection would be less than that of 18 full-time inspectors. In order to complete the inspection of the two groups of "entrants" and "leavers" in London by a staff of 14 whole-time officers it would be necessary for each officer to inspect on the average 10,500 children in the year, and with 18 whole-time inspectors each officer would have to inspect 8400 children. Even in the most favourable circumstances the Board thought it would not be reasonable to expect an officer working full time at inspection to undertake the examination of more than 5000 children. But even if 7000 children was adopted as the measure of the absolute maximum working power of a whole-time inspector, the Board stated that the existing provision of inspecting officers must be regarded as showing a deficiency to the extent of at least 50,000 children in the two groups, or more than one-third of the total requiring inspection, and the prospective appointments would still leave a deficiency on this basis of at least 22,000 children. In practice the Board had no doubt the deficiencies would be much greater. Accordingly the Board was very dubious as to whether the Council had in fact made provision for medical inspection in accordance with Section 13 (1) (b) of the Act of 1907. It was obvious that the Council's arrangements did not purport to be in accordance with the requirements of Article 58 (b) of the Code, which required the examination of all "entrants" and "leavers," and not merely of those in selected schools. The Board stated, in conclusion, that it was unable at present to regard the Council's scheme as satisfying the conditions of Articles 25 (c) and 58 (b) of the Code, and asked for the Council's observations on the various points raised.

Proposed Scheme.

Replying to this communication the Education Committee said it was recognised at the time of the adoption of the modified scheme of inspection that the staff sanctioned for the purpose would be the minimum required, and the possibility of additional appointments was foreshadowed. Since the introduction of the modified scheme inspection of selected children had been abandoned and every child in the schools visited by the medical officers had been examined. Whereas each school medical officer could examine on an average only 14 children a session under the schedule of the Board of Education, 20 children per session could be examined under the Council's modified scheme. It would take nearly five years to complete the inspection of the whole of the London elementary school children with the staff of 72 quarter-time medical officers which would be at work from Sept. 1st, 1910. It was clearly the intention of Parliament that every child should be brought under inspection at particular stages of its school life, and that each school should be visited at least once a year by a school medical officer. The system whereby children selected by the teachers as ailing alone were examined obviously did not satisfy the requirements of the Act. In place of this the committee had come to the conclusion that provision should be made for the examination of the children of all schools at three age periods and had considered as to the most suitable ages at which inspection should be made.

The first period was fixed by statute as the first year of school life. With regard to the second period the committee thought children between 8 and 9 years of age should be examined, this being an important period in the life of a child from the health point of view. The third age period should be at 12 years—this to take the place of the examination of children about to leave school.

Difficulty was experienced in dealing with children who

attended the hospitals with which the Council had agreements without the necessary "voucher" card and who were referred back by the hospitals to obtain the card. Such cases occurred as a rule in schools in which inspection had not been carried out; they would be reduced by the inspection of children of three ages in all schools, and by arranging that each school was visited not less than once a term. The work could be so distributed that without requiring the children to travel unreasonable distances it would be possible for those appearing to need urgent treatment to attend the nearest school at which inspection was in operation. The dates of the visits of the school medical officers and nurses would be announced in the *London County Council Gazette*.

Larger Medical Staff Required.

There were some 220,000 children attending the elementary schools of the three ages at which the committee proposed to arrange for inspection. In determining the staff which would be required a sufficient margin should be allowed for special inquiries, the examination of urgent cases, and work connected with open-air schools, play-ground classes, and other matters affecting the health of pupils and teachers which the Board of Education regarded as part of the work of the school medical officers. One-fifth of the time of the school medical officers would be required for this work. The staff should be increased therefore to 100 by the addition of 28 assistant school medical officers. If each medical officer gave three sessions weekly for 44 weeks in the year this staff would correspond to 13,200 sessions annually. Deducting the one-fifth as above there remained time equal to 10,560 sessions. As 20 children a session could be examined by each medical officer 211,200 children would be inspected in a year, a deficit of about 9000, which would be covered by the inevitable leakage from illness or other cause of absence. The proposed increase of staff would not permit of the three years' rota agreed upon by the Council in regard to appointments of school medical officers. A four years' rota must be substituted, the medical officers who commenced duty on or since Sept. 1st, 1908, being made eligible for a fourth year of service.

In consequence of the increased responsibility and supervision involved in this large staff, and in order to enable adequate attention to be given to special inquiries, the permanent staff would require to be strengthened by substituting two full-time assistant medical officers for one half-time assistant and one quarter-time assistant. Consideration had been given to the present system of dividing the inspecting staff into two grades in order to provide supervision—i.e., school medical officers at £150 a year and assistant school medical officers at £120 a year, but the committee had decided that more effective supervision would be secured if a full-time assistant medical officer were appointed and there was only one grade of school medical officer at a salary of £120 a year for three sessions a week. The saving on the salaries of school medical officers would be £480 a year, and the salary of the full-time assistant medical officer would be £500 a year. These proposals would be adequate for the medical inspection of elementary school children for at least three years, but not of those of technical, secondary, and special schools. The committee suggested that the scheme should be put into operation as from Jan. 1st, 1911. The ultimate expenditure involved would be £5730 per annum.

MEDICINE AND THE LAW.

Notification of Births Act: Liability of Medical Men.

A CASE of considerable interest to medical men, involving a question as to their liability under the Notification of Births Act, came before the magistrates at the Acton Petty Sessions on July 27th, when Mr. Ernest Edward Balman Landon, of 271, The Vale, Acton, was summoned by the Acton Urban District Council for that he being the medical practitioner in attendance upon the mother at the time of or within six hours after the birth of a child born at 7, Stuart-road, Acton, on March 4th, offended against the provisions of the Notification of Births Act, 1907, by failing to give notice in writing of the birth of such child to the medical officer of health of the said district within 36 hours after the birth of such child as required to do by the Act.

Mr. W. Hodson, clerk to the district council, appeared in support of the summons; Mr. Schwave (instructed by Messrs. Hempson, solicitors to the Medical Defence Union), defended.

Mr. Hodson said the proceedings had been instituted by the Acton District Council, which had adopted the Act, against Mr. Landon, who was in attendance on the mother of a child born at 7, Stuart-road, on March 4th. There was also in attendance a certificated nurse from Queen Charlotte's Lying-in Hospital. After having done what was necessary for the comfort of the mother and the babe, the nurse asked the defendant if the Act had been adopted in the district, to which he replied in the affirmative and told her it would be necessary for either her or Mr. Hunt, the father of the child, to give notice to the medical officer of health in accordance with the requirements of the Act. The nurse assured the defendant that the matter should be attended to. These facts were admitted by the defendant, but he (Mr. Hodson) wished to call the attention of the Bench to the fact that Mr. Landon merely informed the nurse that it was necessary for the birth to be notified, but did not subsequently take steps to ascertain whether notification had been given within the time specified in the Act. The Act provided in section 1, subsection 1, that "In the case of every child born in the area in which this Act is adopted it shall be the duty of the father of the child if he is actually residing in the house where the birth takes place at the time of its occurrence and of any person in attendance upon the mother at the time of or within six hours after the birth to give notice in writing of the birth to the medical officer of the district in which the child is born in manner provided by this section." Section 2 provided that forms should be provided without charge by the local authority for such notice. That had been done. As a matter of fact, the defendant was a member of the council and of its public health committee, and was acquainted with the requirements of the Act. The most important part of the Act, as far as this case was concerned, was subsection 3, which enacted that "Any person who fails to give notice of any birth in accordance with this section shall be liable on summary conviction to a penalty not exceeding 20*s*., provided that a person shall not be liable to a penalty under this provision if he satisfies the Court that he had reasonable grounds to believe that notice had been duly given by some other person." It would appear that all Mr. Landon did was to satisfy himself that notice would be given; but he never sought to inquire or to satisfy himself afterwards that notice had been given within the time specified in the Act. He had not notified and did not come within the proviso of subsection 3.

The magistrates' clerk (Mr. John Pearce) pointed out that the father, the nurse, and the doctor were all liable under the Act.

Mr. Hodson said he thought all parties were agreed as to that.

Mr. King (from the bench): You have picked out one.

Mr. Hodson: We have picked out one.

The chairman (Alderman G. Wright), reading subsection 1, pointed out that the father was first mentioned as the person liable.

Mr. Hodson admitted that was so, but said the doctor and the nurse came within the provisions of the Act; unless the magistrates were satisfied that Mr. Landon had grounds for believing that notice had been given they must convict.

The chairman asked if that was the whole point.

Mr. Hodson said it was. The question as to what constituted reasonable ground in the case was one for the Bench. He did not propose to call evidence, as he understood the facts were agreed.

The magistrates' clerk asked if it was admitted that notice had not been given.

Mr. Schwave at first demurred to the suggestion that it was admitted no notice had been given, but eventually admitted that that was so.

Mr. Hodson said all he need add was to call attention to the proviso which was relied upon and to submit that the defendant had not satisfied himself and had no reasonable ground for believing that notice had been given by some other person.

Mr. Schwave called the defendant, who on being sworn said he was a qualified medical practitioner and on March 4th attended Mrs. Hunt, who belonged to the better class. Mr. Hunt, the father of the child, was in the house at the time, and there was also in attendance a properly certificated nurse

from Queen Charlotte's Lying-in Hospital, who had a midwife's certificate and was in the habit of attending confinements both with and without a doctor. She asked if the Notification of Births Act was in force in the district and he told her it was, and said he should expect her or the father to notify the birth. She replied that it should be done, and he concluded she knew and would attend to the requirements of the Act, and did not trouble further about the matter. If a case occurred in a poorer part of the district a doctor was in the habit of asking the next day whether the notice had been sent, but here it did not appear to him necessary. The nurse did not tell him she had not carried out his instructions, but he had no reason to believe she had not until a fortnight later.

The Chairman: The question was raised by this nurse?

Defendant: Yes.

Mr. Hodson: You did not afterwards satisfy yourself that what she said would be done had been done?

Defendant: I never thought any more about the matter until she asked me again if the Act was in force, and I told her I had told her so before. She said she had forgotten all about it.

The Chairman asked whether in the face of what the defendant had said it was contended that he should have gone the next day and asked the nurse if she had done what she said should be done, and if the Bench were asked to say whether in their opinion the defendant had reasonable grounds for believing that notice had been given?

Mr. King: You say there were three persons who were liable?

Mr. Hodson said all three came within the provisions of the Act. If the Bench decided against the Council they would make it impossible to get hold of the defendant or any other doctor. All he had to do was to say to a person, "You must notify," and need not trouble to ascertain whether his instructions were carried out.

The Chairman pointed out that the District Council did not take proceedings because the birth was not notified, but on the ground that the defendant did not use reasonable care under the Act. The magistrates were clearly of opinion the defendant was liable under the Act, but there was the proviso.

Mr. Hodson contended that the defendant should not have told the nurse to notify, but the father.

Mr. Monson (from the Bench): The father appears to be the man.

The Chairman: The father is the first person named under the Act.

Mr. Hodson said he had not wished to mention the fact, but the Council had previously summoned parents, and the opinion had been expressed by the Bench that they were hardly dealt with, and that the doctor or nurse should have been proceeded against.

Mr. King remarked that the authorities might have a lot of administrative difficulties, but could they say the defendant had not reasonable grounds for believing the notice had been given?

Mr. Hodson submitted that he had reasonable grounds for believing notice would be given, but not for believing it had been given.

Mr. King said they were all agreed that one of three parties was liable. One of them was told by another that the notice would be given. Could it be contended, then, that the defendant had not reasonable grounds for believing it would be done, but must ask next day whether it had been done?

Mr. Hodson said he should have asked the next day if the nurse was going to do it.

The Chairman pointed out that it would have been no good to do that, because the 36 hours within which notice must be given would have passed.

Mr. Schwave, addressing the Bench, said he was instructed by the Medical Defence Union, which had taken up this case as one of very great importance to medical men. It seemed to him that if the Acton District Council wanted to have a decision in a test case they had picked out the worst they could have selected. They had not taken the case of a doctor attending a poor person, but one attending a person in well-to-do circumstances. There was, as they had been told, a duly certificated nurse from Queen Charlotte's Hospital in attendance, and if a doctor could not rely upon such a person to notify it might as well be said he could not rely upon her giving the patient a powder. When he had given an order he had reasonable grounds for believing it was complied with. It was a serious matter to put medical men under a penal statute, an Act from which they derived no benefit of any sort, and to prosecute a doctor under the circumstances disclosed here. He asked that the summons should be dismissed with costs.

The Chairman said the Bench were of opinion the summons must be dismissed, because Mr. Landon had told them under oath this qualified nurse asked him if the Act had been adopted in the district. He told her it was and that she must take care that the child was registered. Having told her that, the doctor in their opinion did all that was required of him under the Act. They were satisfied he had reasonable grounds to believe notice had been given by some other person.

Mr. Schwave asked for costs, and the Bench allowed 5 guineas.

Mr. Hodson said he was instructed by the District Council to ask their worships to state a case.

The Chairman advised that the application should be made at a later date.

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 4th, 1832

IMPUNITY WITH WHICH
VEGETABLES AND FRUIT
MAY BE EATEN DURING THE PREVALENCE OF CHOLERA.*

To the Central Board of Health.

GENTLEMEN,—An impression having existed in the public mind that the eating of fruit and vegetables has tended to promote the disease now unhappily prevalent in this country the persons whose names are undersigned, growers and producers of these commodities, beg leave most respectfully to state for your information, and that of the public in general, that among one thousand and ten persons employed by twenty-one individuals, being a very small proportion of the number of those connected with horticultural pursuits in the vicinity of this metropolis, the average expenditure of many of the female part of whom does not exceed 1*s.* 6*d.* or 2*s.* per week, and who are engaged in the cultivation and gathering of fruit and vegetables, *no case of cholera has presented itself*, although a great number of those so employed subsist almost entirely on a fruit and vegetable diet; exposed at the same time to the various privations necessarily attached to a life of laborious exertion, and to the frequent consequences attending incautious habits.

Feeling, therefore, most acutely the injury to which the interests of the growers are exposed, as well as those of their labourers and vendors, they venture to submit to you the following statement of the number of persons employed who both are and have been entirely free from the prevailing disease, and beg leave to subscribe themselves, Gentlemen yours most respectfully,

(Signed) S. HUTCHINGS, Chairman.

24th July, 1832.

(Here follow the names and addresses of 21 Growers who employed a total of 1,010 persons)

All in health but one individual at Crayford, who was unwell when the paper was signed.

It may be added, in confirmation of the above, that in the extensive parish of Fulham in particular, which is principally occupied in gardening cultivation, *not one instance of cholera has appeared.*

In the same issue of THE LANCET the Editor made the following editorial comment:—

With respect to the document issued by the market gardeners, which we publish in another page, we are bound, on consideration, to say that it by no means proves the case they desire to establish, inasmuch as all the *fruit-fed* individuals whom they specify, have hitherto lived beyond the bounds of the epidemic influence. Had a similar number of exemptions been recorded *in a place infected with cholera*, the evidence would then be conclusive for the gardeners. At present it is by no means sufficient to induce us to overlook the fact, that in three-fourths of the numerous cases which we have met with in the last

month, fruit was clearly ascertained to have been the *exciting cause* of the attack.

We are happy, however, to be able to add, that the disease is so much on the decline in the metropolis, that in all probability, the early autumnal fruits may be consumed with the usual impunity. *The deaths in the metropolis have not for the past week averaged more than thirty a day*, and there remain now, under treatment, not more than 350 cases. The document to which we have alluded, however, may fairly be allowed to have its effect in moderating the alarm felt in districts which the cholera has not yet visited.

* Communicated by the Central Board of Health.

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The Borough of Cambridge.—The estimated population of this borough amounted in 1909 to a little over 40,000, the birth-rate to 21·1, and the death-rate to 13·4 per 1000 in each case. The infantile mortality was 83 per 1000 births, the death-rate from phthisis 0·81 per 1000, and from cancer 1·33 per 1000—i.e., the cancer death-rate exceeded the phthisis death-rate. The number of certificates of exemption from vaccination is steadily increasing in Cambridge, as in almost all other towns, and the Cambridge figures since 1905 are as follows—66, 51, 96, 409, and 470. It will be noticed that a marked increase occurred in 1908, consequent upon the passing of the Vaccination Act of 1907. There were 78 cases of diphtheria notified in 1909, the fatality-rate, which was 7·7 per cent., being the lowest on record since the year 1900, when it was only 4·7 per cent. The town council has recently agreed to pay a fee of 1*s.* for each swab taken from "contacts." There were 121 cases of scarlet fever notified and only 1 death—i.e., a fatality-rate of 0·8 per cent. The enteric fever block at the isolation hospital has been set apart for the treatment of 6 cases of pulmonary tuberculosis, and during 1908 18, and during 1909 11 cases were admitted. Further accommodation is to be provided by the erection of a new pavilion. The difficulties and suspicions connected with the Cambridge water supply were emphasised during 1909 by the bacteriological examinations, which showed that although under ordinary conditions no sewage organisms were present, Bacillus coli was often present after heavy rains. As a result of these examinations and of the other common knowledge with regard to the sources of the Cambridge water, the council threatened to consider the desirability of taking steps to obtain a proper supply. But later in the year the company intimated its intention of introducing a Bill for the provision of more wells and additional reservoirs, the sterilisation or other treatment of the water, and the adoption of by-laws relative to the construction of drains and sewers over the areas involved in its water-supply. This Bill has recently been opposed in Parliament, and as a result of the opposition and the arrangements arrived at, the water-supply of Cambridge should before many years be free from the suspicions which now attach to it. There has been considerable opposition in Cambridge to the adoption of the Notification of Births Act, 1907, and a voluntary scheme of notification was accordingly given a fair trial. But this was not a success, and the Act came into operation on July 1st, 1909. The experience since gained has, Dr. A. J. Laird reports, entirely removed any fears that were entertained regarding it. Some good work has been carried out in Cambridge by the health visitors, and the results of their investigations for the years 1906–1909 have now been presented. Among 1774 children fed entirely on the breast the deaths amounted to 1·9 per cent., amongst 459 partially fed to 6·59 per cent., and amongst 343 not breast-fed at all to 11·9 per cent. If the deaths from epidemic diarrhœa for the same year are alone considered the death-rate amongst the wholly breast-fed was 0·17 per cent., amongst the partially breast-fed 3·05 per cent., and among the non-breast-fed 6·99 per cent.

The County Borough of Warrington.—Dr. J. Coote Hibbert reports that the Notification of Births Act was adopted in the early part of the year 1910, and he points out that as some 1636 of the 2258 births which occurred during 1909 were attended by midwives and no medical man was called in there will be about this number of infants to be visited and revisited in 1910. As it will only be possible for the present health visitor to visit these cases once it will be necessary to appoint a second health visitor. It is hoped when the new small-pox hospital is completed to make use of it for the treatment of cases of pulmonary tuberculosis when small-pox is absent from the town. Dr. Hibbert is not prepared to say how far the Warrington smoke can be reduced without interfering with industrial processes, but he is certain that much improvement might be brought about without imposing any unreasonable conditions.

The City of Carlisle.—Carlisle is unfortunately one of the very few towns in which typhus fever appears from time to time, and during 1909 there were 8 cases of the disease with 1 death. In 1874 some 680 persons were attacked with the malady and 68 died, and in the two years 1874–75 there were in all 1140 cases. In 1887 there were 11 cases, and in 1892, 16. It is an interesting circumstance that each of the outbreaks above referred to commenced in the month of April, and that in nearly every case the Irish element in the population was the first attacked. Moreover, all the outbreaks have begun in the limited area occupied by old house property situated in adjacent districts in the vicinity of the Castle. Enteric fever has been nearly absent from Carlisle during the last few years, and Mr. J. Beard, the medical officer of health, thinks that the principal factors in promoting its elimination have been the conversion of the old midden privies into water-closets, the introduction of the Gilt sdale water scheme, and the improved system of sewage disposal. It would have added to the interest of the table relative to enteric fever prevalence year by year if the several factors referred to had been marked in the margin.

Bridlington Rural District.—Mr. W. A. Wetwan, the medical officer of health of this district, furnishes a table showing the gradually increasing number of exemption certificates as regards vaccination, and he reports that in 1908 there were no fewer than 125 certificates out of 296 births. In Mr. Wetwan's view the virulence of small-pox is not lost, and it is still the same disease which "depopulated countries, brought armies to a standstill, and paralysed the movements of trade and commerce." There is no doubt that there is need to-day to remind the public of the terrible character and devastation of small-pox in pre-vaccination times, and Mr. Wetwan observes that no longer ago than 1760 a seventh of all the deaths in this kingdom were due to small-pox, while two out of every three persons met were marked with the disease; in other words, the disease was then responsible for more deaths than tuberculosis is at the present day. But it is difficult to bring home to the public the fact that the ravages of the disease are held back by vaccination, even although Macaulay's account of the disease "filling the churchyards with corpses" and "leaving on those whose lives it spared the hideous traces of its power" be quoted in the reports of medical officers of health. The public are apparently more prone to believe that the disease has gone with typhus fever and relapsing fever before the march of civilisation and sanitation, and even the striking immunity of Germany from small-pox since the enforcement of primary vaccination and revaccination fails to convince them. But really the growth of the exemption certificates is evidence not of unbelief so much as of indifference and the spirit of contrariety and independence. Were small-pox to visit this country in epidemic form there is not the faintest doubt but that 90 per cent. of all those holding certificates would rush to be vaccinated. In this event and in the case of the natnral supply of lymph not proving equal to the demand, it might perhaps be hoped that preference will be given to those not holding exemption certificates, but this would be to visit the carelessness and mental obliquity of the parents upon the innocent children.

REPORTS OF SCHOOL MEDICAL OFFICERS.

The City of Birmingham.—Dr. G. A. Auden reports that the education committee has added to the requirements of the Code by providing for an examination of the school-children who have passed their seventh, but not their eighth, year. It is thought that as the children at this age are able to take an intelligent part in the examination it will possess an educational value. Moreover, there are still six years or more of school life during which efforts can be made to remedy defects observed. This is, of course, not the case with regard to the final examination, after which little, if any, control can be exercised over the children. But Dr. Auden thinks that with the establishment of Labour

Exchanges the leaving examination might be turned to good account by means of the close coöperation with the local labour bureau, as is done at Frankfort and Mannheim, where the school medical officer is able to advise the children in the choice of a career with due regard to their physical capabilities. For instance, a boy with pulmonary weakness is advised to take up an open-air occupation, and a boy with defective vision is persuaded to avoid industries where eye-strain is inevitable. Dr. Auden also commends the example of the Germans in the manner of the close connexion of their school medical officers with the various fresh-air agencies. There can be little question in the minds of anyone at all familiar with Germany and the habits of its people that the spirit of coöperation and coördination is much more highly developed in Germany than in this country. This may be due in part to their compulsory insurance system and in part to their military organisation, but whatever the explanation the fact remains. During 1909 there were 26,484 children examined in Birmingham, and in connexion with these examinations there were 21,925 parents present—i.e., 82·7 per cent. The relation of the nutrition of children to the infantile mortality of the district which they inhabit is well shown in the accompanying table, the infant mortality figures being the mean level of the ward-rate above or below the infant mortality-rate of the city as a whole for the last five years:—

Ward.	Persons per acre.	Infant mortality figure.	Children examined.	Normal.	Below normal.
				Per cent.	Per cent.
Egbaston	9·7	−47·2	455	85	14·8
Rotton Park ...	41·1	−22·0	629	84	16·0
All Saints... ...	81·9	−16·2	661	78·5	21·5
Dudderton ...	74·2	+16 0	852	77·2	22 8

It appears, therefore, that the wards can be arranged in a descending order of nutrition, which compares closely with the order of their infantile mortality-rate. Considerable difficulty has been experienced in obtaining a prescription for glasses in cases of defective vision, as at the two chief agencies in the city there are deterrents either in the shape of multiple notes or fees, and even when glasses are ordered many of the parents are quite unable to pay for them. But arrangements have recently been made whereby spherical lenses can be procured for 1*s.* 9*d.*, plano-cylindrical for 3*s.*, and sphero-cylindrical for 4*s.* Possibly some reduction even in these charges may be found practicable at a later date. The prevalence of pulmonary tuberculosis in Birmingham school-children is difficult to determine, but during 1909 there were 67 boys and 85 girls who were regarded as probably suffering from pulmonary tuberculosis, while in the case of 18 boys and 17 girls the probability amounted to a certainty. Six of these have been periodically examined, and of these two are improving, three are holding their own, and one is going down hill. The cases which were diagnosed in 1908 were carefully followed up in 1909, and of nine which continued to attend school seven were improving, one was maintaining his ground, and one was going down hill, figures which are regarded as incidentally showing that continued attendance at school is no bar to recovery. During 1909, owing to the continued depression of trade, the number of children receiving free meals under the Provision of Meals Act was large, and the highest daily average amounted to 4550.

County Borough of Blackburn.—Dr. Alfred Greenwood, school medical officer and medical officer of health, divides his annual report into four sections, the first of which relates to school attendance, the second to sanitary improvements in the schools, the third to infectious diseases in the schools, and the fourth to the medical inspection of the children. As regards infectious diseases, there were in 1909, out of 1013 cases of scarlet fever reported to the medical officer of health, 62·9 per cent. occurring amongst school children. Of 102 cases of notified diphtheria, 48 per cent. were children attending school, while of 69 cases of enteric fever notified only 26·0 per cent. were amongst school children. These figures, of course, are not intended to convey any idea as to the amount of disease in each case which may be regarded as being due to school influences; they merely indicate more or less the age-incidence of the several maladies. The teachers at the several schools have now been requested to admit no child to the school without first obtaining from the parents the duly filled up admission form relative to the dates of birth and other details necessary for the school records, such data being especially necessary at Blackburn where the majority of the parents do not attend the medical inspection of their children, a fact which is mainly due to the circumstance that a large number of the parents are working at the cotton mills during the daytime. There were 5066 children examined during 1909, and among the more instructive investigations made may be mentioned one in connexion with stature in relation to colour of hair. Although the figures are not large enough for any reliable inference, they do not, so far as they go, indicate any relationship between the two conditions referred to, and this also appears to have been the case as regards the data for 1908. An interesting comparison is made between the average height and weight of the school children from the Lancashire cotton towns of Blackburn, Oldham, and Bolton. In nearly every age-group the Bolton children are inferior to the Blackburn, but at the age period, 12 to 13, the Bolton figures as regards weight are better than the Blackburn. An endeavour was made in May to stimulate the interest of the school children in plant cultivation, and 2030 young plants were distributed, soil for re-potting being also given out. Centres for the feeding of children were open throughout the year both in school time and holidays. During the school terms the cost of administration, £307, was defrayed out of the rates, but during the holidays the whole cost was borne by voluntary contributions. The guardians paid for those children whose parents were receiving relief. The total number of meals given was 104,040, 32,504 being paid for by the guardians and 71,536 from voluntary organisations. Dr. Greenwood speaks guardedly with reference to the subject of treatment, and, so far as Blackburn is concerned, the official treatment up to the present has consisted in the appointment of a nurse who visits children requiring treatment at their own homes and ascertains what progress has been made. But, in addition, every Wednesday afternoon interviews are accorded by the assistant school medical officer to the parents of children in whom defects have been discovered. Advice as to the best means of obtaining treatment is given and the defects are pointed out to the parents. Parents to whom notices have been sent with regard to the health of their children are told that they can obtain more information by applying on Wednesday afternoons.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8900 births and 3665 deaths were registered during the week ending July 30th. The annual rate of mortality in these towns, which had been equal to 11·0, 11·4 and 11·1 per 1000 in the three preceding weeks, rose again to 11·3 in the week under notice. During the first four weeks of the current quarter the annual death-rate in these towns averaged only 11·2 per 1000, and in London during the same period the death-rate, calculated on the probably over-estimated population, did not exceed 10·6 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 2·1 in Hornsey, 4·3 in Leyton, and 4·9 in Stockton-on-Tees; the rates in the rest of the 77 towns ranged upwards to 17·7 in Bootle, 18·5 in Swansea, 18·7 in Huddersfield, and 19·0 in Middlesbrough. In London the reported death-rate last week did not exceed 10·2 per 1000. The 3665 deaths registered last week in the 77 towns showed an increase of 43 upon the low number in the previous week, and included 353 which were referred to the principal epidemic diseases, against 324 and 361 in the two preceding weeks; of these 353 deaths, 120 resulted from diarrhœa, 87 from whooping-cough, 85 from measles, 31 from diphtheria, 18 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·1 per 1000, against 1·0 and 1·1 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Southampton, Hornsey, Plymouth, Northampton, Huddersfield, or in nine other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·1 in Walsall, 3·4 in Burnley, 3·7 in Bootle, and

4·1 in Barrow-in-Furness. The deaths attributed to diarrhœa in the 77 towns, which had been 68 and 103 in the two preceding weeks, further rose last week to 120; the highest annual rates from this cause during the week were 1·5 in Rhondda, 1·7 in Wigan, 2·1 in Birkenhead, 2·6 in Walsall, and 3·0 in Bootle. The fatal cases of whooping-cough, which had been 88 and 106 in the two previous weeks, declined again last week to 87; they caused the highest rates, 1·7 in Salford and 1·9 in Burnley. The 85 deaths from measles showed a further decline from the numbers in recent weeks, and were fewer than in any previous week of this year; this disease showed last week the highest proportional mortality in Nottingham, Liverpool, Merthyr Tydfil, and Barrow-in-Furness. The 31 deaths referred to diphtheria showed an increase upon recent weekly numbers, and included 6 in London and its suburban districts, 3 in Liverpool, and 2 each in Portsmouth, Birkenhead, Leeds, and Hull. The 18 fatal cases of scarlet fever were fewer than in any previous week of this year; 3 occurred in Stoke-on-Trent, and 2 both in London and Leeds. The deaths referred to enteric fever, which had been 7, 14, and 11 in the three preceding weeks, were 12 last week, of which 4 were returned in London. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had increased in the four preceding weeks from 1353 to 1548, had further risen to 1562 on Saturday last; 179 new cases of this disease were admitted to these hospitals during last week, against 249 and 173 in the two preceding weeks. Only 1 case of small-pox was under treatment in the Metropolitan Asylums at the end of last week. The 957 deaths registered in London during last week included 111 which were referred to pneumonia and other diseases of the respiratory system, showing a decline of 20 from the number in the previous week; they were 8 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 30, or 0·8 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Leicester, Salford, and in 52 other smaller towns; the 30 uncertified causes of death in the 77 towns last week included 4 in Liverpool, 4 in Sheffield, and 2 each in Preston, Hull, and Gateshead.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 854 births and 460 deaths were registered during the week ending July 30th. The annual rate of mortality in these towns, which had been equal to 12·4 and 12·0 per 1000 in the two preceding weeks, rose again to 12·7 in the week under notice. During the first four weeks of the current quarter the death-rate in these towns averaged 12·3 per 1000, and exceeded by 1·1 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 8·4 and 9·8 in Leith and Aberdeen to 13·8 in Dundee and 13·9 in Glasgow. The 460 deaths from all causes in the eight towns last week showed an increase of 26 on the number in the previous week, and included 46 which were referred to the principal epidemic diseases, against 33 and 58 in the two preceding weeks; of these 46 deaths, 20 resulted from diarrhœa, 11 from whooping-cough, 4 from measles, 4 from diphtheria, 4 from "fever," and 3 from scarlet fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·3 per 1000, against 1·1 from the same diseases in the 77 English towns; the highest rate from these diseases in the Scotch towns last week was 2·2 in Glasgow. The 20 deaths attributed to diarrhœa in the eight towns last week were within one of the number in the previous week, and included 17 in Glasgow. The fatal cases of whooping-cough, which had been 2, 3, and 12 in the three preceding weeks, were 11 last week, of which 9 occurred in Glasgow. Three of the 4 deaths from measles were returned in Glasgow; and one each from scarlet fever in Glasgow, Dundee, and Paisley. The fatal cases of diphtheria, which had been 5 and 8 in the two preceding weeks, declined last week to 4, of which 3 occurred in Glasgow and 1 in Edinburgh. All the 4 deaths referred to "fever" were returned in Glasgow; 3 were certified as enteric and 1 as cerebro-spinal meningitis. The deaths referred to diseases of the respiratory system in the eight towns, which had been 49 and 50 in the two preceding weeks, further rose to 61 last week, and exceeded by 18 the number in the corresponding week of last year. The causes of 16, or 3·5 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In the city of Dublin 243 births and 120 deaths were registered during the week ending July 30th. The annual rate of mortality in the city, which had been equal to 16·8, 14·8, and 17·2 per 1000 in the three preceding weeks, declined again to 15·5 in the week under notice. During the first four weeks of the current quarter the annual death-rate in the city averaged 16·1 per 1000; the mean rate during the same period did not exceed 10·6 in London and 11·9 in Edinburgh. The 120 deaths in the city last week from all causes showed a decline of 13 from the number in the previous week, and included 8 which were referred to the principal epidemic diseases, against 7 and 12 in the two previous weeks; of these 8 deaths, 4 resulted from diphtheria, 3 from scarlet fever, 1 from enteric fever, but not one from measles, whooping-cough, diarrhœa, or small-pox. The annual death-rate from these epidemic diseases in the city last week was equal to 1·0 per 1000, against 0·6 in London and 0·4 in Edinburgh. The 4 fatal cases of diphtheria in the city last week showed a marked increase upon recent weekly numbers; the 3 deaths from scarlet fever corresponded with the number in the previous week. The 120 deaths included 52, or 43·3 per cent., which were recorded in public institutions. The causes of 7, or 5·1 per cent., of the deaths in the city last week was not certified either by a registered medical practitioner or by a coroner. In Belfast 214 births and 135 deaths were registered during last week. The annual rate of mortality in this town, which had been equal to 19·3, 18·1, and 15·6 per 1000 in the three preceding weeks, rose again last week to 18·0. During the first four weeks of the current quarter the annual death-rate in Belfast averaged 17·8 per 1000, and exceeded the rate during the same period in Dublin by 1·7 per 1000. The 135 deaths from all causes last week in Belfast showed an increase of 18 upon the number in the previous week, and included 17 which were referred to the principal epidemic diseases, against 24 and 29 in the two previous weeks; of these 17 deaths, 8 resulted from measles, 6 from diarrhœa, 2 from enteric fever, and 1 from diphtheria, but not one from scarlet fever, whooping-cough, or small-pox. The annual death-rate from these epidemic diseases in Belfast last week was equal to 2·3 per 1000, against 1·0 in Dublin. The fatal cases of measles in Belfast, which had ranged between 19 and 49 in the 13 preceding weeks, declined to 8 last week; the 6 deaths from diarrhœa and the two from enteric fever exceeded the numbers in recent weeks. All but one of the causes of death in Belfast last week were duly certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeon: H. W. A. Burke to the *Collingwood*. Surgeons: J. H. B. Martin to the *St. Vincent*, and F. L. Smith to the *King Alfred*.

ARMY MEDICAL SERVICE.

Colonel Edward North retires on retired pay (dated August 3rd, 1910).

Lieutenant-Colonel Richard H. S. Sawyer, from the Royal Army Medical Corps, to be Colonel, vice E. North (dated August 3rd, 1910).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Majors are placed on retired pay (dated July 29th, 1910): Henry J. Parry, D.S.O., and Robert W. H. Jackson.

Captain George H. Richard, from the Half-pay List, is

restored to the establishment with precedence next below Captain C. W. O'Brien (dated July 25th, 1910).

Colonel T. J. R. Lucas, C.B., has been appointed Principal Medical Officer of the First (Peshawar) Division in place of Colonel C. H. Beatson, C.B., who has vacated the appointment. Lieutenant-Colonel W. A. Morris, commanding the station hospital at Cawnpore, has been selected to officiate as Principal Medical Officer of the Allahabad and Fyzabad Brigades during the absence on leave of Colonel L. E. Anderson. Lieutenant-Colonel J. M. Irwin, from the War Office, has been posted to the Eastern Command for duty at Woolwich. Lieutenant-Colonel M. L. Hearn has been appointed Medical Inspector of Recruits for the Irish Command, vice Major C. Dalton appointed Staff Officer to the Principal Medical Officer in Ireland. Lieutenant-Colonel T. H. F. Clarkson has been warned for service abroad for the coming trooping season. Lieutenant-Colonel J. S. Green has arrived home on leave from India. Major E. M. Hassard has been appointed to command the station hospital, Lahore Cantonments. Major A. J. Luther, on return from a tour of service at Thayetmyo, Burma, has been posted to Cahir. Major A. W. N. Bowen, from Jersey, has joined at Poona. Major C. W. R. Healey has been transferred from Kamptee to Nasirabad. Major J. Grech, from Meerut, has been posted to Warrington. Major W. A. Ward, specialist in dermatology and venereal diseases at Rochester Row, has joined at Bulford Camp, Salisbury Plain. Major H. J. Parry, D.S.O., on return from a tour of service at Pietermaritzburg, has been posted to Cosham. Major H. J. M. Buist, D.S.O., on completion of the tenure of his appointment as Deputy Assistant-Director at the Medical Division of the War Office, has been appointed to Pirbright. Major E. M. Williams has been appointed Specialist in Midwifery and Diseases of Women and Children to the 8th (Lucknow) Division. Major H. C. French has arrived home on leave from Malta. Captain T. E. Fielding has been transferred from London District to Woolwich. Captain C. W. Bowle, specialist in dental surgery, has joined at Dalhousie from Multan. Captain D. P. Johnstone, on completion of at our of service in Burma, has been posted to Preston. On completion of the promotion course at the Royal Army Medical College, Cantain W. C. Croly, Captain A. W. Sampey, Captain W. W. Browne, and Captain F. W. Rowan-Robinson have been appointed to the Eastern Command and posted to Colchester for duty. Captain A. H. Davidson, from Buttevant, has joined the Curragh Camp. Captain A. S. Littlejohns has been transferred from Potchefstroom to Pretoria. Captain J. S. Pascoe, from Cyprus, has been posted to Pretoria. Captain R. Rutherford, from the Royal Army Medical College, has been ordered for service in the Straits Settlements, embarking in September. Captain D. T. McCarthy, on return from leave, has been transferred from Meerut to the station hospital at Agra for general duty. Captain G. W. G. Hughes and Captain W. Byam have arrived home on leave from Egypt. Lieutenant L. C. Hayes and Lieutenant E. M. Parsons-Smith have joined the London District and have been appointed to Queen Alexandra's Military Hospital, Millbank, for duty. Lieutenant A. L. Stevenson, from the Curragh, has been posted to Bangalore to undergo a course of Indian sanitation. Lieutenant J. E. Ellcome, from Tregantle, has joined the station hospital at Kamptee. Lieutenant G. P. Taylor has been transferred from Glasgow to Irvine Camp.

INDIAN MEDICAL SERVICE.

Colonel W. A. Quayle has been appointed Principal Medical Officer of the Abbottabad and Sialkot Brigades. Lieutenant-Colonel C. M. Thompson has been permanently transferred from military to civil employment. Lieutenant-Colonel A. L. Duke has been appointed Administrative Medical Officer of the North-West Frontier Province, vice Lieutenant-Colonel G. W. P. Dennys. Lieutenant-Colonel E. Hall, civil surgeon of Dacca, Eastern Bengal, has been granted three months' privilege leave. Lieutenant-Colonel R. E. S. Davis has arrived home on leave from India. Major D. Graves has been reverted from civil to military employment. Major R. G. Turner, civil surgeon of Cawnpore, has been appointed Civil Surgeon of Sharanpur, United Provinces, in place of Lieutenant-Colonel W. Vost, who has been granted leave. Major F. O'Kinealy, civil surgeon of Simla, has been selected as surgeon on the staff of the Viceroy-Elect of India (Sir Charles Hardinge). Major T. W. Irvine has been granted six months' leave from India. Major C. H. Bensley and Major J. Mulvaney have arrived home on leave from India. Captain W. B. A. K. Cullen has been appointed to the substantive medical charge of the 61st Prince of Wales's Own Pioneers, vice Lieutenant-Colonel C. M. Thompson. Captain R. A. Chambers has been posted temporarily to the Jail Department of the Punjab. Captain E. W. C. Bradfield, in medical charge of the 31st Duke of Connaught's Own Lancers, has been appointed a Specialist in Ophthalmology to the 7th (Meerut) Division. Captain J. M. A. Macmillan has been selected to officiate as Civil Surgeon of Pachmarhi. Captain J. Husband has been posted to the Civil Medical Charge of the Kohat district in place of Captain G. Browse. Captain C. F. Marr has been appointed to the Civil Medical Charge of Bhamo, vice Lieutenant-Colonel K. Prasad who has been granted leave. Captain S. A. Ruzzak has been posted to South Canara as District Medical Officer. Captain W. D. Wright has been selected to officiate as Civil Surgeon of Ahmadnagar. Captain R. A. Chambers has taken over charge of the Lahore District Jail and the female jails. The services of Captain J. Morison have been placed temporarily at the disposal of the Government of Eastern Bengal and Assam. Captain P. K. Tarapore has been posted to the Rangoon Central Jail. Captain H. Emslie-Smith has been appointed Civil Surgeon of Murshidabad. Captain P. S. Mills has been appointed a Specialist in Radiography and Electrical Science to the 5th (Mhow) Division. Captain A. W. Greig, superintendent of the Mandalay Central Jail, has been granted two years' combined leave from India. Captain T. W. Harley, Captain H. Hay-Thorburn, and Captain J. W. McCoy, Bombay, have arrived home on leave from India.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant Morton W. Ruthven is confirmed in his rank.

John Henry Bell to be Lieutenant (on probation) (dated June 21st, 1910).

TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd East Anglian Field Ambulance: Major and Honorary Surgeon-Lieutenant-Colonel Harry T. Challis to be Lieutenant-Colonel (dated June 20th, 1910).

3rd Lowland Field Ambulance: Lieutenant James W. Keay to be Captain (dated June 1st, 1910).

Attached to Units other than Medical Units.—Lieutenant Colonel Frederick H. Appleby resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated July 30th, 1910). Lieutenant-Colonel John F. Tabb resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated July 30th, 1910).

For attachment to Units other than Medical Units.—William Thomas Blackledge (late Captain, 3rd West Lancashire Brigade, Royal Field Artillery) to be Captain (dated Jan. 24th, 1910). Noël Wallace Kidston to be Lieutenant (dated May 1st, 1910). Charles Douglas to be Lieutenant (dated May 19th, 1910).

THE ROYAL VICTORIAN ORDER.

Fleet-Surgeon George Trevor Collingwood, R.N., of the Royal Naval College, Osborne, has been appointed a member of the Fourth Class of the Royal Victorian Order. The appointment is dated July 24th, 1910.

ROYAL ARMY MEDICAL CORPS EXAMINATIONS.

The following is a list of successful candidates for commissions in the Royal Army Medical Corps at the examination held in London last month, for which 29 candidates entered:—

	Marks.		Marks.
J. D. Bowie	597	E. L. Fyffe	556
C. H. H. Harold	597	R. F. Bridges	554
J. K. Gaunt	588	C. H. Stringer	547
G. O. Chambers	573	L. F. K. Way	546
H. G. Monteith	570	T. J. Hallinan	533

INDIAN MEDICAL SERVICE EXAMINATIONS.

The following is the result of the examination for 15 commissions in His Majesty's Indian Medical Service, which was held in London last month:—

	Marks.		Marks.
P. B. Bharucha	3773	H. E. Shortt	3292
J. B. Tackaberry	3751	R. de S. B. Herrick	3282
R. W. G. Hingston	3720	H. L. Batra	3275
N. Davis	3623	W. O. Walker	3206
R. C. Clifford	3564	M. Purvis	3205
C. Newcomb	3472	D. M. Taylor	3195
L. H. Khan	3318	V. P. Norman	3193
T. A. Hughes	3316		

THE FUTURE OF THE INDIAN MEDICAL SERVICE.

The *Broad Arrow* of July 29th gives a long report of the recent Indian Medical Service dinner at Simla. Surgeon-General C. P. Lukis, Director-General of the Indian Medical Service, in proposing the toast of the evening, said that nowadays it was the fashion to say that the palmy days of the Indian Medical Service were past, and many of the younger generation were depressed by fears that it would no longer offer a career to men who were really keen on their profession. He had no hesitation whatever in saying that those fears were groundless, and after more than a year's experience in his present office he honestly assured them that it was his firm conviction that the Indian Medical Service would flourish even more vigorously in the future than it had in the past. Changes would undoubtedly come ere long, but those changes would be for the better and not for the worse, and would place them in a stronger position than they ever occupied before. Pointing out the defects of the service, he said that every thinking man must be struck by the marvellous improvement in military medical organisation that had been made by the sister service since the Boer War, but could the same be said of the Indian Medical Service? He feared not. It seemed to him that so far as the military branch was concerned it was very much where it was when he came to India 30 years ago. Wherever he went he found square men in round holes, and he saw lieutenant-colonels in charge of regiments performing precisely the same duties that they did as lieutenants, and with no greater responsibilities or opportunities of acquiring administrative ability than they had in the days of their griffinhood. This appeared to him to be a grave defect, and, therefore, as the head of the service and as being chiefly responsible for the selection of officers for promotion to the administrative grade, he had felt it his duty to place his views on this subject before the Government, who would, he hoped, give them their earnest consideration.

BRITISH RED CROSS AND TERRITORIAL NURSING NOTES.

On July 29th, by invitation of Colonel the Hon. H. G. L. Crichton many people assembled at Netley Castle to witness a display by the Hampshire branch of the British Red Cross Society. The lady members of the various voluntary aid associations in connexion with the county branch gave a practical demonstration in looking after the wounded.

The Mayor of Derby presided over a public meeting on July 28th which was convened with the object of forming a local branch of the British Red Cross Society. The Duke of Devonshire strongly deprecated the friction between the Red Cross Society and the St. John Ambulance Association in certain quarters, remarking that there must be no friction in Derby. If he and the leaders of the St. John Ambulance Association in Derbyshire could not devise some reasonable and practicable scheme for coördinate working after a quarter of an hour's consultation he would retire, he said, from public life altogether.

At a luncheon given by Mr. Arthur Stanley, M.P., at the Carlton Hotel on July 29th in honour of the delegates of the Japanese Red Cross Society now in England, Mr. S. Hirayama, one of the delegates, said that the Japanese society was now devoting all its energy to the development of a perfect system of relief which could be instantly put into operation in time of war. In this way they were contributing to the great international work of the Red Cross which endeavoured to ameliorate the condition of the soldier wounded in war.

A branch of the British Red Cross Society for the Repton division has been formed at Ticknall.

MEDICAL BRANCH OF THE NAVY LEAGUE.

At a meeting held under the presidency of Dr. W. P. Herringham at the Imperial Institute on July 29th, a medical branch of the Navy League was formally constituted. Sir Richard Douglas Powell, Bart., K.C.V.O., was appointed President.

DURING the past few days His Majesty the King has graciously consented to become the patron of King's College Hospital, of the Royal Meteorological Society, of the Royal Sea-Bathing Hospital, Margate, and the Royal Sanitary Institute, and the King and Queen have been graciously pleased to become patrons of the Royal Dental Hospital of London, Leicester-square.

Correspondence.

"Audi alteram partem."

A CASE OF ENLARGED FRONTAL SINUSES.

To the Editor of THE LANCET.

SIR,—The following is an account of greatly enlarged frontal sinuses in an imbecile, aged 24 years, physically well developed but with a rather small cranium. The cavities formed projections into the floor of the anterior fossa of the skull equalling each the size of a small hen's egg, and occupying the whole extent of the orbital plate. The case illustrates, I believe, certain of the changes in the skull bones which are apt to develop consequent on changes in the brain, and indeed it may be also taken to exemplify the theories of tissue-tension (Ribbert) and "boundary-struggle" (Thiersch and Boll).

The cranium, though somewhat small (namely, ant. post. 7¾ inches, trans. at the frontal ext. ang. proc. 4⅛ inches, and at the parietal eminences 5¼ inches), seemed sufficient in size, nevertheless, to warrant the presence of a brain considerably over 38½ ounces in weight. This organ, which was uniformly abnormally firm, was decidedly ill-developed in the frontal regions. As to the frontal sinuses, these measured 3¼ inches across combinedly; the right cavity was 1¾ inches aut. post. and the left 2 inches; while the depth of each was 1⅞ inches. In each case the opening of communication with the nose was near the midline on the floor of the cavity ¾ of an inch from the ant. side. The sinuses were separated by a thin bony partition; their walls were regular, except above, where a multilocular tendency was present. Behind and internally they communicated by wide mouths with a large ethmoidal sinus on each side.

I am, Sir, yours faithfully,

HORATIO MATTHEWS, M.B., Ch.B. Glasg.,
Acting A.M.O., Three Counties Asylum, Hitchin.

July 26th, 1910.

GRAIN ITCH.

To the Editor of THE LANCET.

SIR,—Under this heading Dr. H. J. Fardon mentions in THE LANCET of July 30th a case of skin eruption after the handling of straw. I think the cause of the eruption to be the fœtid chamomile (Anthemis cotula). This plant is a frequent cause of skin irritation in the hands and arms of those reaping corn by hand. I recently had under my care a brother and sister who developed a vesicular eruption after playing in a hay-field. This eruption I attributed to some plant in the hay, but I was unable to identify it.

I am, Sir, yours faithfully,

Knightwick, Worcester, August 1st, 1910. P. G. FOULKES.

A SLUR ON ENGLISH PATHOLOGISTS.

To the Editor of THE LANCET.

SIR,—In Dr. Hertz's book on "Constipation and Allied Intestinal Disorders" there occurs a statement which I think should not be allowed to pass unchallenged. On p. 107 we find the following:—

> Virchow, writing in 1853, expressed his astonishment that such a common condition as localised chronic peritonitis had up to that time aroused so little attention; it is also remarkable that until quite recently very few further observations of any value were made on the subject. This is due to the fact that, at any rate in England, the pathologist generally examines the viscera after they have been removed from the abdomen by an attendant, so that the peritoneal relations are destroyed and most of the adhesions are divided.

Now not only peritoneal adhesions but many other important pathological conditions would be overlooked if the pathologist only examined the viscera after they had been removed from the body by an attendant, and no pathologist worthy of the name would consider that he had made a satisfactory examination if he had not himself done the dissection or supervised it. It is possible, indeed, Dr. Hertz's statement would lead one to believe that in the hospital with which he is connected the sections are conducted in this fashion. If so it is rather surprising, for, so far

as I am aware, this is not the practice in any other hospital where there is a specialist in pathology, either in London or the provinces, or in Scotland or Ireland. If the statement had occurred in an unimportant book I should not have troubled you with this letter. But Dr. Hertz's book is an excellent piece of scientific work and bids fair to become a classic on the subject of which he treats. It may even attain the honour, which it thoroughly deserves, of being translated into German and other languages; and what will our continental friends think of our English methods of conducting necropsies as described by Dr. Hertz? I sincerely hope that Dr. Hertz will correct this statement in his next edition.

I am, Sir, yours faithfully,

July 29th, 1910. PATHOLOGIST.

ON THE NOTIFICATION OF CONSUMPTION.

To the Editor of THE LANCET.

SIR,—In THE LANCET of July 23rd under this title Dr. Robert Farquharson, a man whose views the members of the medical profession must always respect, states the case against rendering compulsory the notification of tuberculosis at considerable length and argues it with much vigour. As Dr. Farquharson used a powerful voice in Parliament on many social questions, what he has to say is interesting also to laymen, and as a layman I venture, Sir, to address you, though I understand that your columns are, as a rule, only open to members of your own profession.

Many medical men, no doubt, will agree with Dr. Farquharson, but there is admittedly a certain lack of unanimity on the part of the medical profession as to the practical advantages likely to accrue from compulsory notification, both to the individual and to the community. Now the latter body is composed of persons who for the most part are not medical practitioners, but who desire to be guided by the best medical opinions obtainable in deciding to adopt, or to refuse to adopt, an alleged precautionary measure against a terrible disease on behalf of their neighbours who suffer from it, or who are liable to do so. I use the word neighbours because I regard whatever steps may be taken to arrest tuberculosis by Parliament as being due to the goodwill of the healthy portion of the community who desire to provide and pay for a system of some kind which will relieve a section of it which is unhealthy. I believe also that it is a question of charitable goodwill rather than of a commercial desire on the part of the healthier and "better-off" section to relieve itself from supporting those reduced by tuberculosis to pauperism; and, large as the number may be of tuberculous patients in the kingdom, I do not observe any great political pressure brought by them to procure legislation against the disease which oppresses them. Primarily, however, no doubt, the movement against tuberculosis is of medical origin, and, as I have said, medical opinion must be consulted by laymen desirous of seeing how that movement may best be furthered. Finding a divergence of medical opinion, and reading views expressed with such wholehearted fervour and unhesitating conviction as those of Dr. Farquharson, a layman will naturally observe that he writes as an advocate rather than judicially.

Now an advocate may ignore or traverse the arguments and statements of his opponents, but he must take the risk of contradiction. The layman whom I have suggested may study the words of Dr. Farquharson and wonder whether in his admitted advocacy he has made quite such palpable hits as at first sight would appear. In a concluding paragraph he will find it suggested that there has been an important conference on the subject under discussion held at Edinburgh and producing "startling results," which, so far as Dr. Farquharson is concerned, confirm him apparently in his views. The most startling of these, according to Dr. Farquharson, is an opinion which he ascribes to Professor Sims Woodhead that tuberculosis is an universal disease affecting over 90 per cent. of the population. "This is an alarming statement," Dr. Farquharson writes, "and the logical outcome of it is, if the notifiers have their own way, that the entire population must be reported by their medical attendants to the local authority, they must stand among the dreary ranks of the unemployed or shiver out their lives in chilly sanatoriums, or wait patiently in a hospital until relieved by friendly death." "Startled" by this deduction, the inquirer will wonder whether Professor Sims Woodhead did in fact say or imply all that Dr. Farquharson imputes to him, and pending the study of a fuller text he may turn to the abstract of his address given in THE LANCET of July 16th, p. 186. There he will find Professor Woodhead's observations on this topic thus summarised: "The presence of tuberculosis in human beings was far more common than was generally believed. Probably more than 90 per cent. of the living *had been affected at one time or another* in their existence. Almost everyone who had reached the age of 45 years *had been* attacked." The layman seeking to weigh the opinions of Dr. Farquharson and to estimate their worth will perhaps wonder how he arrived at his "logical outcome" of Professor Sims Woodhead's dictum, and, having begun an inquiry as to what passed at Edinburgh, may desire to ascertain what medical opinions were there expressed directly upon the question of compulsory notification, and in particular as to whether any record of experience was laid before the conference.

Dr. Farquharson, treating the subject prophetically and speculatively, pictures the tuberculous person "branded like Cain" through notification, "shunned like a leper," and "almost forced into the ranks of the unemployed," his lot being made so manifestly worse by notification than it would be if he were left to himself that "the last thing he will think of will be to send for a medical man." Curiously enough, the counterblast to Dr. Farquharson's breezy denunciations of compulsory notification was published in THE LANCET a week earlier in the full report of the paper of Dr. W. Leslie Mackenzie,[1] medical member of the Local Government Board for Scotland. The whole of this document may be read and weighed against what Dr. Farquharson has written, and it must not be forgotten that it is founded on actual experience, though this is necessarily limited in time and as to the area over which it extends. Reference may especially be made to the paragraph in which Dr. Mackenzie writes: "The stricken people are too eager to find ways of recovering their health to be worried about any sort of social consequences," and in which he relegates the use of terms such as "ostracism" and "boycotting" in such a connexion to the "inexperienced amateur." Perhaps, however, the sentence best worth noting is where he says: "We are now well into the stage when we must deal with the individual case and his individual environment. That is why notification is important. It enables the local authority to bring the full force of an improved environment to bear on the specific needs of the individual patient." The layman who reads these words, and who has to decide how he shall use his vote or influence with regard to the question of compulsory notification, will probably read also with interest other papers bearing less directly upon the subject in the same issue of THE LANCET. He is also not unlikely to be of the opinion, from a purely businesslike point of view, that if a particular disease is to be dealt with at all by the State it must be dealt with in a comprehensive and businesslike manner, so that the State machinery may work with the utmost possible efficacy and economy. He will also realise readily that it must be difficult even to formulate an opinion with any precision as to the results obtainable so long as it is not possible to ascertain how many cases of the disease are to be dealt with in a particular locality, and what distinctions of variety, of degree, and of circumstances characterise them.

This point of view was recently put forward at a meeting of the representatives of the public health authorities of the Rochdale union in a motion worded thus:—

> That in the opinion of this conference it is desirable that measures should be taken by the public health authorities to ascertain the cases of tuberculosis in their districts, and that for this purpose it is suggested that compulsory notification should be adopted.

After discussion, and owing to the admitted divergence of medical opinion and other causes, this motion stood adjourned, but the report of the conference is instructive, and not less so on account of the doubts expressed on this subject. They may be studied in the *Rochdale Observer* of July 6th by the lay inquirer whom I have suggested. As the result of his investigation he will probably realise that the subject in which he is interesting himself is being approached with considerable earnestness and practical sympathy by the

[1] THE LANCET, July 16th, 1910, p. 162.

various public authorities concerned, including the vastly abused boards of guardians, and that the stamping-out or substantial diminution of tuberculosis, when it takes place, will be due not to improved housing, to less drunkenness, to smoke abatement, to greater cleanliness, or to measures consequent upon compulsory notification, but to the combination of these influences in an age alive to the possibility, as well as to the desirability, of preserving the people's health for the sake of the individual and of the State. At all events, having once read and compared the views of Dr. Farquharson with those of Dr. Mackenzie, a brother Scot not less experienced in medicine and in public health administration, he is not likely to accept the conclusions of the former without further inquiry.—I am, Sir, yours faithfully,

July 25th, 1910. FORENSICUS.

SANITARY CONDITIONS IN MONTREAL.

(FROM A SPECIAL CORRESPONDENT.)

MONTREAL is not distinguished by the cleanliness or by the paving of its streets and side-walks, and these for the most part are badly kept. In the outskirts and in parts of the city itself many of the side-walks are of wood. A large portion of Montreal is old, and the climate in winter and early spring is not conducive to the maintenance of a high sanitary standard. Moreover, Montreal is built on the side of a hill, a situation which does not easily lend itself to the provision of level pavements. However, the work of paving and repaving the streets of Montreal is being proceeded with rapidly, a very large sum having been appropriated by the city recently for that purpose. Montreal has a magnificent situation. The city is placed on an island formed by the St. Lawrence River and a deviation of the Ottawa River, known as the Back River or Rivière des Prairies. The following information with regard to the sewerage system of Montreal was obtained through the courtesy of Major Stuart Howard, the head of the department of sewers in Montreal.

Sewerage System.

The sewers of Montreal are constructed on the separate system. Their total length is more than 232 miles. Many of them date from the year 1844. The city has spread so rapidly that many of the trunk sewers are inadequate, and now that the streets are being permanently paved, and owing to the fact that the rain storm water reaches the sewers more quickly than formerly, several new intercepting sewers have had to be laid down in order to catch the water at a higher level and so prevent the flooding of cellars in the low-lying districts. More than half the area of the city drains naturally into the St. Lawrence. There are nine outfalls into the river, three of which discharge into the harbour proper, while the other sewers empty into the rapid current of the river beyond the wharf line. At high water, when the ice is forming for the winter, and at the time of the breaking-up of the ice in the spring, three outfalls are closed by gates to prevent the water from being forced back into the sewers and flooding the city, many portions of which are five feet lower than the river water in the spring. The sewage is then pumped from the low sewers inside the closed gates into the river. The land within the city confines, which lies on the further side of the dividing line between the St. Lawrence and the Back River, drains into the latter river at the north portion of the island of Montreal. The area so drained includes the St. Denis, Mount Royal, Laurier, and Rosemount wards, and two-thirds of Outremont, all of which have still to be supplied with a sewerage system. One main sewer has already been constructed from St. Denis ward to the Back River, and this district has a sewage farm of 20 acres worked on the filtration plan, with subsoil tile pipes to carry away the effluents. Many of the main sewers are on a very flat grade, but intercepting sewers are being constructed to overcome the difficulty of obtaining a proper fall. Small municipalities bordering on Montreal are now being annexed. Most of, if not all, these drain into the Back River, and their annexation will necessitate the construction of many trunk sewers, which will be difficult and costly to make, as they will have to be bored through rock. Further, the Provincial Board of Health of Quebec, under whose jurisdiction the Back River is, calls for purification of all waters draining thereinto. This will necessitate the installation of expensive plants for sewage purification. Many miles of small tiled sewers laid down in early days still remain in Montreal. These are gradually being replaced by large oval sewers. In Sherbrooke-street a very large intercepting sewer is being put in position. This is intended to intercept and carry off all the drainage from the upper levels, leaving the sewers on Ontario-street, on St. Catherine-street (which runs parallel to Sherbrooke-street), and on Craig-street to deal with the sewage of the lower parts of the city. This sewer will cost about £100,000. The outlying districts of Montreal are very poorly provided with sewerage systems and a few districts have none. Vigorous steps, however, are being taken to instal a completely modern system in Montreal and district.

Water-supply.

The water-supply of Montreal is derived from two sources. The city authorities control the supplies to about two-thirds of the population, and a private company, the Montreal Water and Power Company, supplies the remaining inhabitants of the city and those of practically all the subnrban districts. The area administered by the city corporation is 10,000 acres, with a population of 400,000 or thereabouts. The facts regarding the city supply set down here are derived from personal investigation and from information given by M. George Janin, chief engineer and superintendent of the City of Montreal Waterworks; by Dr. J. E. Laberge, of the Montreal Health Department; and by the secretary of the Quebec Provincial Board of Health, Dr. Elzćar Pelletier. Up to the year 1854 the supply of water for Montreal came from the harbour. In 1853 an open aqueduct was commenced. This aqueduct is four and three-quarter miles in length. It enters the river St. Lawrence a mile above the Lachine Rapids, and was finished and opened in 1854. In 1877 the entrance of the aqueduct was carried 3000 feet up the river, and for 4800 feet of its length was made 130 feet wide and 14 feet deep. With regard to the pollntion of the Montreal water-supply, it may be stated that the city sewage can be regarded as almost a negligible quantity. The sewage of Montreal is discharged into the St. Lawrence at a distance of some miles from the intake of the city water-supply, and the flow of the water is in a contrary direction. The towns and villages up the St. Lawrence and Ottawa Rivers above the intake are the sources of pollution. The shores of Lake St. Louis, for instance, immediately above the intake are thickly populated, especially in the summer. The surface drainage of the streets, backyards, and lanes of St. Anne and many other of the villages and small towns on the shores of Lake St. Louis go directly into the shore water, which in turn feeds the Lachine Canal, and finally the aqueduct below the town of Lachine. In short, the shore water of the lake is the natural receptacle for the surface drainage of the thickly populated summer resorts, and also for that of the agricultural lands in the rear.

The Montreal Water and Power Company supplies the city wards of St. Denis, Delorimier, St. Henri, St. Cnnegonde, and Mount Royal, and also the fringe of populated districts which partly encircle Montreal. The population of this area is abont 170,000, the company's intake station being at first nearer Montreal than the intake of the corporation supply. Immediately above the Victoria Bridge is the St. Paul or Nun's Island, and up to two or three months ago the company's intake stations were situated at this island, close to the shore of the island of Montreal and in proximity to the Verdun sewer, a large open sewer which is constantly discharging into the river—a fact which may to some extent account for the large number of cases of typhoid fever which have occurred in the districts supplied with water by the company. The intake, however, has now been removed to a point in the river more than 1000 feet from the shore. A covered steel conduit has been built alongside the aqueduct capable of conveying a part of the supply and is now in operation, and a further safeguard has been afforded by the removal of the intake into the middle of the river, where it is protected, as far as is possible, against contamination. The city water-supply is liable to pollution from sources up the rivers St. Lawrence and Ottawa and from the shores of Lake Louis in particular, and the Montreal Water and Power Company's supply is also liable to contamination from shore water and from sewers and drains entering the river a short distance above its intake. M. Janin, the superintendent of Montreal Waterworks, while freely admitting that the sewage from the villages and houses above both intakes is a source of

danger, argues that the funnel-like opening of the Lachine Canal, 1500 feet wide, which draws its water from the river, diverts the shore water so that it pours into Montreal harbour. This probably is the case during the summer. But it has been pointed out that at the close of navigation in November the Lachine Canal is shut, and it has been shown that the event usually synchronises with the outbreaks of typhoid fever, thus seeming to demonstrate clearly that when the shore water is not diverted into the canal, but finds its way into the intakes of both supplies, typhoid fever occurs. This explains the fact that Montreal is peculiar in generally having her epidemics of typhoid fever, not in the summer, but in the winter.

The Montreal water-supply varies very considerably at different times of the year. During the months of February and March Montreal receives virtually St. Lawrence water alone. At this season of the year the ground ice and frazil at the foot of the Cascade Rapids form a dam which deflects the St. Lawrence water round Ile Perrot and forces back the Ottawa water to Rivière des Prairies and Rivière des Milles Iles, and in front of the island of Montreal flows an unmixed stream of St. Lawrence water. At the end of March, when the ice bridge breaks, a remarkable change in the constitution of the city water is witnessed, as at this time the waters of the St. Lawrence and Ottawa both flow past the front of the island. Investigations have been made from time to time into the water-supply of Montreal, and usually the results of these inquiries have shown that the supply is open to grave suspicion. The latest report made to the city council was that by a commission appointed through the agency of the Emergency Hospital committee. This committee suggested to the Universities of McGill and of Laval that a commission should be formed, chosen from the medical faculties of the universities, to investigate and report on the water-supply. The suggestion was adopted and the members of the commission were appointed as follows: J. G. Adami, G. E. Armstrong, R. F. Ruttan, and T. A. Starkey representing McGill University; and A. Bernier, J. J. Guerin, Henri Hervieux, and E. P. Lachapelle representing Laval University. The gist of their report was to find the evidence overwhelming that the chief cause of disease in Montreal is the water-supply of the city and suburbs, proving that the water-supply of the city must be provided by a thorough system of filtration before distribution to the public. These are uncompromisingly plain statements, but Professor Starkey of McGill University has issued reports of a like tenour within recent years, as have also Dr. Laberge, Dr. Bernier, and others. It seems obvious that water-supplies which have their intakes close to a shore which is liable to contamination must be viewed with suspicion. And when serious outbreaks of typhoid fever are constantly occurring among the consumers of this water the suspicion is strengthened into conviction. Since the recent epidemic both the companies have made vigorous efforts to safeguard the water-supplies. Not only have the intakes been removed to points in the river at considerable distances from the shore, but resort has been had to chemical disinfection of the water by the agency of bleaching powder, and it has been decided by the city council to establish a filtration plant. The Water and Power Company is also making arrangements for the establishment of a similar plant, but it is probable that the city will purchase the company's rights and will assume complete control of the water-supply of Montreal and district.

The water of the St. Lawrence differs widely from that of the Ottawa in appearance and constitution. Throughout the year the St. Lawrence water is very much less turbid, even in flood time, than the Ottawa water. A commission which investigated the water-supply of Montreal in 1905 reported that the amount of solids in solution in St. Lawrence water is about two and a quarter times that of the Ottawa, the average of total solid for the former being 146·67 per 1,000,000. The St. Lawrence contains from 3 to 5 times more chlorides than the Ottawa, and the alkalinity expressed in terms of calcium carbonate is 5 times greater. The total number of water bacteria is greater in the Ottawa than in the St. Lawrence water, but there is considerably more organic matter in the Ottawa water. Perhaps, after all, the most instructive point to be considered, in regard to the water-borne outbreaks of typhoid fever which have taken place with unpleasant frequency during the past two or three decades is that a river of large volume and rapid current, such as the St. Lawrence, does not necessarily purify itself quickly enough to prevent the spread of disease, even though the amount of pollution may be relatively small. Professor W. T. Sedgwick of Massachusetts Institute of Technology, in an address which he delivered at the last annual conference of Sanitary Officers of the State of New York, held in the beginning of the year, said: "It is now agreed by all competent sanitarians that to depend upon the self-purification of sewage is to lean upon a broken reed." Montreal appears to be a case in point.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

The University of Bristol: a Treasury Grant.

A DEPUTATION representative of the University waited on Mr. C. E. Hobhouse, M.P., Financial Secretary to the Treasury, last week, to urge that Bristol be included among the universities which receive an annual grant of £2000 for examination and administrative purposes. The Treasury had declined to do this, in anticipation of a rearrangement which will "pool" these grants with Parliamentary "University College" grants, made for teaching purposes and distributed under the advice of a standing committee. The deputation, which consisted of the Vice-Chancellor and Treasurer of the University, the Lord Mayor of Bristol, Mr. Augustine Birrell, M.P., Mr. G. A. Gibbs, M.P., and Mr. J. W. Arrowsmith, was successful in its pleadings, Mr. Hobhouse undertaking to put Bristol on the list as from April 1st last until the rearrangement should take place.

The University Colour.

In the *Bristol University Gazette* for July is an interesting account by Miss Ida Roper of the origin of the colour known as "Bristol red," which is to be the colour of all University hoods. There is reason to believe that it was so called from its coincidence with the colour of the "flower of Bristol," the scarlet lychnis, known to herbalists as "nonesuch." This is a garden flower, a native of Eastern Europe and the Levant, but introduced into England in the Middle Ages when Bristol was the second port in the kingdom. At this time also Bristol enjoyed a reputation for dyeing woollen goods a particular red, which seems to have become associated with the colour of the "flower of Bristowe." Other articles in the *Gazette* give a very clear impression of activity in the development of the University. A short description of the new buildings to accommodate chemistry and physiology is given; the new block is so large that it will almost double the size of the University buildings. Special provision is being made for advanced research. There is a truly portentous list of organisations and their proceedings, including anatomical and physiological societies, which appear to be in a very flourishing condition. A catalogue of departmental publications during the last 12 months is given, and contains 74 items, many of which represent original research of considerable scope and value.

Bristol Royal Infirmary.

At the quarterly meeting of governors of the Royal Infirmary it was announced that the contract for the new buildings had been let with the stipulation that the work should be completed in one year and eight months. The scheme, it will be remembered, provides for the immediate erection of a block to contain 180 beds, at an estimated cost of £50,000. Allusion was also made to the retirement, under the rule of age limit, of Dr. Charles A. Hayman from the post of assistant dental surgeon. In spite of a further increase in the subscriptions there is a deficit of £4260.

Bristol General Hospital.

Dr. E. Emrys-Roberts, who has for the past two years held the post of pathologist to the General Hospital with that of assistant to the professor of pathology at the University, has been elected to the chair of pathology in the University of Wales. His migration to Cardiff will leave a considerable gap in Bristol, where he has done much good work both in pathology and in the development of various University organisations.

Medical Inspection of School Children in Bristol.

The report of work done in 1909, compiled by Dr. T. A

Green, acting school medical officer, makes very interesting reading. A few statistics may here be quoted. 15,161 children were examined; in 47·8 per cent. some defect was found. 271 children were excluded temporarily or permanently from school attendance for various reasons, phthisis accounting for 32, non-tuberculous pulmonary disease for 60, scabies for 19, and impetigo for 17. In 1691 cases it was found necessary to notify parents of the need for general medical treatment. At rather more than half the total number of inspections parents were present; it is interesting to note that a higher percentage of parents attended in the poorest districts than in any of the others. A "good" state of nutrition was noted in 89 per cent. of the children. Tabulations of heights and weights are included, which it is hoped will (after a number of years) throw light on the relation between a high rate of infant mortality in any given year to the state of health in children born in the same year but surviving the first 12 months of life. Verminous heads were noted in 2280 cases, ringworm in 67. There were 426 children found to be "dull," 45 were mentally defective, and 5 were imbecile. External eye defects were present in 3 per cent. and visual defects in 10 per cent. of the children examined. In no less than 62 per cent. were there dental defects; about one-third of these were recommended to seek advice, but apparently without result in a considerable proportion (nearly two-thirds of those so advised). Much more that is of interest is also included in this admirable report, though it cannot be reproduced here.

August 2nd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The late Captain E. D. Simson, I.M.S.

MANY Merchistonians and graduates of the University of Edinburgh will hear with regret of the death from cholera of Captain Ernest David Simson, I.M.S., at Nowshera, India, at the age of 28 years. Captain Simson was widely known as a famous half-back in the football field, playing first for Merchiston Castle, later for the University of Edinburgh, and finally in the International team for Scotland. He played in all 17 International matches, including the match against the New Zealand "All Blacks." But what equally made him a man of mark was the strength and goodness of his character. Dr. John Kelman, referring to Captain Simson's death on Sunday, July 24th, spoke of him as the greatest single influence for good which he had known at the University of Edinburgh. The fact that Captain Simson's marriage was to take place in September makes the circumstance of his death peculiarly sad.

Scottish University Grants.

The report of the committee on Scottish Universities has just been issued. The total amount of the claims for additional assistance from public revenues was approximately £55,000. The committee, however, thinks that capital expenditure on buildings should not be included in annual grants, but dealt with as occasion demands, and that any claim then made should be accompanied by proper details and estimates, and the grant, if any, be regarded as an aid to other sources rather than a substitute for them. The committee reports: 1. That a good claim has been made out for an additional grant of public money to the universities of Scotland, and that in its opinion £40,000 would be a fair and reasonable contribution to their more pressing needs at this time. 2. That this sum of £40,000 may be allocated as follows between the four universities: viz.: to the University of Edinburgh, £12,500; to the University of Glasgow, £12,500; to the University of Aberdeen, £9000; and to the University of St. Andrews, £6000. 3. That these grants should be made and accepted on certain conditions—viz.: (*a*) the administration of the grants shall be in the hands and on the responsibility of the university court in each university, but the court shall submit annually to the Treasury a report of its dealings with the grant and an account in a prescribed form of all moneys received and expended, the Treasury, if they see fit, to institute an independent inquiry into the whole circumstances at intervals of five years; (*b*) in the apportionment of the grant of £6000 to St. Andrews University, not less than £1500 thereof shall be devoted to the Conjoint Medical School at Dundee, it being the intention that the sums available for the purposes of the medical school from this grant and from the former grant under Ordinance No. 46 shall, when taken together, never be less than £4500. 4. That in addition to the above grant of £40,000 there should be paid to the council of University College, Dundee, for the purposes of the college an annual sum of £3000, the administration of this grant to be in the hands and on the responsibility of the council of the college. 5. That if the grant of an annual sum of £3000 be made to University College, Dundee, as indicated in recommendation (4), the grant hitherto paid to the college from the university colleges (Great Britain) grant should be discontinued.

Scarlet Fever Outbreak at Perth.

A serious outbreak of scarlet fever has taken place in Perth and the number of cases reported has grown so large that the public health committee of Perth town council has considered the advisability of having the small-pox hospital at the Shore opened as an emergency hospital. Over 50 patients have been admitted to the Friarton Hospital during the past week and the committee authorised the painting and cleaning of the small-pox hospital being carried out immediately.

Bignold Hospital, Wick: Financial Crisis.

A financial crisis has occurred in the affairs of Bignold Hospital, Wick, in consequence of the intimation that Sir Arthur Bignold will not continue his annual donation of £300 to the funds of the hospital. A public meeting was held in Wick on July 27th, to consider the matter. Sheriff Stuart presided over a very representative attendance. It was explained that Sir Arthur Bignold had spent about £600 in building, equipping, and partially endowing the hospital, and since its opening in 1903 had given an annual donation of £300 to the funds. The annual outlay was about £500. The income from endowments and subscriptions was about £124. It will, therefore, be necessary to find some means of raising an additional £350 or more a year if the institution is to be carried on. It was resolved to express regret at the loss of Sir Arthur Bignold's support, but to thank him for his generous gift of the institution. It was also agreed that a direct personal appeal should be made annually to the people of Wick, Thurso, and the county of Caithness on behalf of the funds of the hospital.

August 2nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Registrar-General's Report.

THE annual report of the Registrar-General for Ireland for the year 1909 shows that the natural increase of population, or excess of births over deaths, was 27,786, and the loss by emigration 28,676 (which number is greater than the number of emigrants enumerated in 1908—namely, 23,295, but less than the average number—37,141—for the ten years 1899–1908). There would, according to these figures, appear to have been a decrease of 890 persons in the population on Dec. 31st, 1909. The remarkable decrease in emigration in the past two years is not, at any rate in the main, a measure of increased prosperity in Ireland, but is the result of commercial depression in America. The marriages registered during the year numbered 22,650, representing a rate of 5·18 per 1000 of the estimated population. This rate is 0·02 below that for the previous year, but 0·06 above the average for the ten years 1899–1908. There were 102,759 births during the year 1909, including 52,726 boys and 50,033 girls, the ratio to the estimated population being 23·5 per 1000, which is 0·3 above the average rate per 1000 for the ten years 1899–1908. 99,997, or 97·3 per cent., of the children were legitimate, and 2762, or 2·7 per cent., illegitimate. These results bear favourable comparison with the returns for most other countries. The number of deaths was 74,973, or 17·2 per 1000 of the population, which is 0·4 under the rate for the year 1908 and 0·6 under the average rate for the previous ten years. An interesting feature of the report is a marked decrease in the number of deaths due to tuberculous diseases from 11,293 in 1908 to 10,594 in 1909.

Reforms in Trinity College.

For some years past it has become more and more plain

that if Trinity College, Dublin, is to develop so as to suit modern requirements it will be necessary for its constitution and form of government to undergo modification. The Royal Commission in its report on the condition of Dublin University and Trinity College a few years ago suggested certain reforms which it considered necessary, and recommended the establishment of an executive commission to carry them into effect. The college authorities have been adverse to the latter suggestion, but have busied themselves in drafting a scheme of reform. They succeeded in obtaining a general agreement in favour of a scheme which included many radical changes. The most important of these were the introduction of an elective element to the governing body, which at present rests purely on the principle of seniority; the modification of a mere examination test in the election of Fellows; and the admission of professors to rights and privileges hitherto reserved for Fellows. To carry these reforms into effect a King's letter was necessary, and steps were taken to prepare a petition to His Majesty embodying the desired changes. Two conservative Fellows, however, who prefer the present state of affairs, moved in the King's Bench for an injunction to prevent the board asking for and accepting a King's letter, on the ground that the board had no power to attempt a change in the corporation of the college. This motion was dismissed, but it is stated that the malcontent Fellows intend to appeal against the decision.

University College, Galway.

The Chancellor of the Exchequer received last week a deputation from the governing body of University College, Galway, on the subject of an increase in the endowment of the college. The governing body pointed out that previous to the University Act of 1908, the colleges at Belfast, Cork, and Galway were equal as regards public endowment. By that Act large additional revenues and capital grants were given to Belfast and Cork, but Galway received scarcely any relief. In fact, the additional endowment of £600 a year is more than counterbalanced by the new charge of maintenance of the College buildings, a charge previously borne by the Board of Works. It is stated that in proportion to its numbers the students of Galway have always held their own in competition with the students of the other Colleges. If the present chairs are to be maintained an additional grant is necessary, and the governing body is anxious not merely to maintain the present chairs but to promote development along new lines, notably in the study of agriculture and of marine science. The answer of Mr. Lloyd George was discouraging. He pointed out that up to the present no local bodies had made any contribution to the College, and in the absence of such contribution he could not recommend an increased grant.

The Queen's University of Belfast.

The first graduation ceremony in connexion with the new University of Belfast took place on July 26th The Chancellor, the Earl of Shaftesbury, presided, and 146 candidates received degrees in the various faculties. No honorary degrees were conferred.

The Belfast Natural History and Philosophical Society.

The final agreements between the Belfast Natural History and Philosophical Society and the city corporation were signed on July 27th by the Lord Mayor and the town clerk on the one part, and by Sir John Byers (President of the society), Right Hon. Robert Young, and Sir Otto Jaffé on the other, by which the entire collection of the Belfast Museum is to be handed over to the library and technical instruction committee of the Belfast city council. It has been decided by the city corporation to amalgamate the Natural History and Philosophical Society's collection with the already existing municipal one and to provide museum buildings worthy of the city in which the joint collection will find a home.

Obituary: David Mark, L.R.C.P. & S. Edin., &c., J.P.

I regret to announce the death of Mr. David Mark of Belfast, which occurred suddenly at his residence in that city on August 1st from heart failure, secondary to chronic bronchitis and asthma. Mr. Mark, who was a native of Belfast, where he was born 60 years ago, in his early years was connected with the press, but subsequently studied medicine, and for the past 20 years he has been in active practice. Personally a kind and generous man, Mr. Mark was greatly respected both by his own patients and by the general public. He was a prominent member of the Masonic body. Mr. Mark leaves a widow for whom the deepest sympathy is felt in her sudden and sad bereavement.

August 2nd.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Consumptives.

Dr. Burnett Ham proposes to establish a farm colony in Victoria for the treatment of consumptive patients who are discharged from sanatoriums but not able at once to resume work. If the project is taken up by the Government there will in the near future be three special institutions in Victoria for consumptives—viz., sanatorium, farm colony, and special hospital for advanced cases. It is becoming increasingly evident that as a result of notification the State will soon have to provide for every case of consumption unless the sufferer has private means and can afford to live in a house of his own. Landlords will not let dwellings to any known sufferer, and the public dread of infection is daily growing.

Memorial to King Edward VII.

At a public meeting held recently in Melbourne it was decided to build a new wing at the Children's Hospital as a memorial of the late King. This decision has not met with general approval and the dissentients advocate the establishment of a charitable hospital fund similar to that organised in London under the late King's direction or alternatively to any charitable scheme, the erection of statuary or an ornamental building. Whatever eventuates it seems certain that the Children's Hospital will have its new wing.

Bush Nursing Scheme.

Lord Dudley addressed a gathering of nurses at Federal Government House, Sydney, on June 13th, and said that Lady Dudley and those assisting in her scheme for the establishment of bush nurses recognised that the only path to success lay through the interest and assistance of trained nurses. The scheme would not overshadow or menace any existing nursing association. It was intended to employ in the bush work only the very best and most efficient nurses. The scheme as yet has failed to meet with any warm reception in Victoria, but it must be admitted that no details have been made public and there is so far no active opposition, although the nursing associations and the medical profession generally regard it with disfavour at the present time.

Kalgoorlie Water-supply.

Kalgoorlie is supplied with water through an iron main 380 miles in length. Trouble has arisen from corrosion of the pipes, and London experts were consulted. As a result it has been decided to recommend the addition of five grains of lime per gallon so arranged that it could be supplemented by de-aeration if needed. The Cumberland electrical process was considered too costly. The pumping plant and supply is one of the largest in the world.

Ship Surgeon Acquitted.

The surgeon of the R.M.S. *Otway*, who was committed for trial at Fremantle for a breach of the Federal quarantine laws in making an alleged false statement with regard to a passenger's health, has been acquitted by the jury. The statement in question was returning as "sun-fever" a case of illness afterwards proved to be small-pox. The surgeon admitted he was unfamiliar with small-pox, and no evidence of any wilful concealment of the patient was adduced. The jury stated that they wished the surgeon to know he left the court without a stain on his character. The prosecution appears to have been quite uncalled for.

Pure Foods Conference.

A conference has been held in Sydney and attended by heads of health departments in all States and other authorities, and a number of recommendations were made to the various State Governments. Some of them are as follows:—

The addition to any form of milk of any preservative substance (save sugar) shall be prohibited.

It is highly desirable that the repeated dispensing of physicians' prescriptions without a fresh order given by the physician should be controlled by law.

In respect of milk the following was passed:—

The Commonwealth standard for milk shall be the normal clean and fresh secretion obtained by completely emptying the udder of the healthy cow, properly fed and kept, excluding that got during 15 days immediately before and ten days immediately following on parturition. It shall contain not less than $8\frac{5}{10}$th parts per centum of milk solids (not fat), $3\frac{5}{10}$th parts per centum of milk fat, not less than 12 parts per centum of total solids. Its freezing point shall not be higher than 0 55° C. below zero.

This proposal has already produced opposition from the dairy proprietors.

British Medical Association.

In pursuance of a policy of professional organisation the Council of the Victorian Branch of the British Medical Association has held a conference with the Council of the Medical Defence Society of Victoria with a view to arranging a union of the two bodies. Hitherto they have been entirely apart and the Medical Defence Society has gradually acquired work which it neither contemplated nor sought in the way of settling ethical disputes and the relations of lodge practitioners to their officials. This work, it feels, should be done by the Branch, the Defence Association being concerned only with defence of actions at law. The conference was entirely cordial on both sides, but some doubt was felt whether the Branch could take any responsibility for defence work or could amalgamate with outside bodies without reference to the parent association. It was decided to get counsel's opinion on these points and discuss the matter at a future date.

July 2nd.

Obituary.

JOSEPH CHARLES SANGER, M.D. ST. AND.

THE death occurred at Lewes, Sussex, on July 28th, of Dr. Joseph Charles Sanger, at the patriarchal age of 96 years. A native of Salisbury, he studied for the medical profession and took the M.D. degree at St. Andrews as far back as 1847. He then travelled extensively in South Africa and India, and in the former country was for some time medical officer in the Government service at the Cape of Good Hope. Returning to England he settled at Lewes, where he held several appointments, including those of house surgeon at the old Lewes Infirmary and at the Seaford Convalescent Home. Retiring from medical practice he devoted his time to music, of which he was passionately fond. Dr. Sanger had a wide circle of friends. His kindly disposition gained for him the esteem and respect of those with whom he was associated in public or private life.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—The following prizes and scholarships have been awarded: The Murray medal and scholarship (£25), Mr. B. S. Simmonds; the Freeman scholarship (£30), Mr A E. Runting; the Lyell medal and scholarship (£50), Mr. A. O. English; the Leopold Hudson prize (£11 11*s.*), Mr. E. L. P. Gould. The Broderip scholarships (£60 and £40 respectively): (1) Mr. B. S. Simmonds, and (2) Mr. G. O. Teichmann.

THE ITALIAN DELEGATION TO THE SECOND INTERNATIONAL CONGRESS ON THE MALADIES INCIDENT TO LABOUR.—This congress, to be held at Brussels from Sept. 10th to the 14th next, will attract many Italian medical men, whose official representatives will be Professor Biondi, Professor Monti, Professor Gallenga, and Professor Pieraccini. The Ministers of the Interior, of Agriculture, Industry, and Commerce, and of Public Instruction have, in token of their interest in the programme, nominated a "Comitato d'Onore Nazionale" for Italy, whose presidents will be Professor Baccelli, Professor de Giovanni, and Professor Boselli, while the working committee will be composed of Professor de Cristoforis, Professor Devoto, and Professor Pieraccini, with Dr. Carozzi, Dr. Veratti, and Dr. Vigano as secretaries. The topics in which the Italian delegation is expected to interest itself more particularly are: (1) Is it necessary to draw a special distinction between the maladies due to industrial misadventure and those due to other causes? (2) if so, what are their differentiating characters? (3) the service, medical and sanitary, as at present in working in factories, mines, &c.; (4) the fight against the ankylostoma; (5) the eye as affected by special industries; (6) work in compressed air; and (7) the toxic effects of special industries.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF ENGLAND.—At the First Professional Examination of the Conjoint Examining Board, held on July 18th, 19th, 20th, 21st, and 22nd, the undermentioned gentlemen were approved in the subjects specified:—

Chemistry and Physics.—Percy William Barnden, London Hospital; Norman Briggs, Leeds University; Eric Catford and Jean Cretin, St. Bartholomew's Hospital; Dennis Reginald Curnock, Birkbeck College; Leonard Snowden Dehenham, St. Paul's School; James Douglas Dimock, Sheffield University; James Angel Durante, London Hospital; Stanley Ernest York Elliott, St. Mary's Hospital; Sidney William Fisk, University College; Geoffrey Dowson Gripper, Epsom College; Ernest Alphonse Hardy, St. Paul's School; Frank Cecil Harrison, Sheffield University; Ifan Septimus James, University College; Gerald Patrick Kidd, St. Thomas's Hospital; James Arthur Liley and Neville Hood Linzee, London Hospital; Samuel Mallinick, Halle and London Hospital; Henry Wingate Malthy, St. Bartholomew's Hospital; Donald Samuel Eccles Milligan. St. Thomas's Hospital; Herbert Guy Moser, St. Bartholomew's Hospital; Charles Frederick Newman, Birmingham University; Maurice Pearson, Birkbeck College; Ernest Noble Perham, University College; John Precopoulos, Charing Cross Hospital; Hoel Parry Price, Guy's Hospital; Charles Reginald Reckitt, London Hospital; Charles Young Roberts, Birkbeck College; Laurence Cecil Sebastian Roche, St. Thomas's Hospital; George Francis Rowcroft, St. Bartholomew's Hospital; Peter de Safforie Smith, Bristol University; Cecil Spurling Staddon and William Fletcher Stiell, St. Thomas's Hospital; Harold Bourne Taylor, St. Mary's Hospital; Ambrose Huntington Warde, St. Thomas's Hospital; and Geoffrey Legh Wilkinson, Birmingham University.

Physics.—Percy William Lavers Andrew, Brighton Technical College; Edward Victor Briscoe, St. Mary's Hospital; David Trevor Evans, University College, Cardiff; Cyril James Gozney Exley, Leeds University; Moustafa Fahmy, Cairo and London Hospital; Douglas Vernon Halstead, Guy's Hospital; Annesley George Lennon-Brown, Westminster Hospital and King's College; James Stuart Leslie, London Hospital; Aubrey Thompson Madin, Birmingham Municipal Technical School; Noel Heathcote Scton Maelzar, Guy's Hospital; George Stanley Mitchell, Westminster Hospital and King's College; Edgar Stanley Rowhotham, Charing Cross Hospital; Noel Humphrey Wykeham Saw, Guy's Hospital; Arthur Dighton Stammers, London Hospital; William Henry Arthur Douglas Sutton, Guy's Hospital; John Aylmer Tippet, St. Thomas's Hospital; Walter Aslatt Turner, Hartley College, Southampton; and William Ernest Wade, University College, Cardiff.

Chemistry.—William Guy Embleton Allen, St. Bartholomew's Hospital; Robert Edmund Barry Denny, London Hospital; Herman Gerald Dresing, Guy's Hospital; Frederick Ernest Feilden, Middlesex Hospital; William Henry Harris, St. Bartholomew's Hospital; Kenneth Edwin King and Harry Millett, Guy's Hospital; Henry Felix Mullan, London Hospital; and Kenneth Montague Nelson, St. Mary's Hospital.

Biology.—Percy William Barnden and Joseph Herbert Bayley, London Hospital; Mahmud Baynmi, Cairo and London Hospital; Alfred Allwright Brown, Birkbeck College; Arthur Charles Oakley Brown, Birmingham University; Ernest Ivon Davies, University College, Cardiff; Leonard Snowden Dehenham, St. Paul's School; James Douglas Dimock, Sheffield University; Herman Gerald Dresing, Guy's Hospital; Frederick Ernest Feilden, John Fox-Russell, and George Cowley Gell, Middlesex Hospital; Kenneth James Menteith Graham, St. Mary's Hospital; James Alfred Gregory, Manchester University; John Vaughan Griffith, Liverpool University; Geoffrey Dowson Gripper, Epsom College; William Henry Harris, St. Bartholomew's Hospital; Frank Cecil Harrison, Sheffield University; Joseph Adrian Hart, London Hospital; John Robert John, University College, Cardiff; Kenneth Edwin King, Guy's Hospital; Alexander Joseph Vincent McDonnell, James McDonnell, and William Dundas McRae, London Hospital; Fritz Julian Messer, L.D.S. Eng., Guy's Hospital; William Hubert Milligan, St. Thomas's Hospital; Charles Frederick Newman, Birmingham University; Thomas Melville Payne, University College, Cardiff; Maurice Pearson, Birkbeck College; Harold Dobson Pickles, Leeds University; John Precopoulos and Edgar Stanley Rowhotham, Charing Cross Hospital; Jaffir Rumjabn, Liverpool University; Abdel Rahman Sami, Cairo and King's College; Helier Laing Smith, Charing Cross Hospital; William Fletcher Stiell, St. Thomas's Hospital; Harold Bourne Taylor, St. Mary's Hospital; Gordon Stuart Terry, Bristol University; William Ernest Wade, University College, Cardiff; and Geoffrey Legh Wilkinson, Birmingham University.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—F. H. W. Brewer (Section I.), St. Bartholomew's Hospital; J. M. Burke (Sections I. and II.) and C. S. Foster (Sections I. and II.), Middlesex Hospital; W. J. G. Gayton (Section I.), London Hospital; M. S. Jevons (Section I.), Royal Free Hospital; J. K. Nariman (Section I.), Bombay and St. Mary's Hospital; A. H. Rich (Sections I. and II.), University College Hospital; and F. C. V. Thompson (Sections I. and II.), Guy's Hospital.

Medicine.—A. Cordon (Section I.), Birmingham; M. S. Jevons (Section II.) and H. M. Jones (Section II.), Royal Free Hospital; J. K. Nariman (Section II.), Bombay and St. Mary's Hospital; C. Pyper (Section II.), Leiden and University College Hospital; and R. Rowlands (Sections I. and II.), Glasgow and Westminster Hospital.

Forensic Medicine.—G. J. F. Elphick, St. Mary's Hospital; C. W. Hayward, Birmingham; M. S. Jevons, Royal Free Hospital; F. G. Norbury, Glasgow; and A. McL. Pickup, Birmingham.

Midwifery.—J. Ellison, Cambridge and St. George's Hospital; C. B. Hawthorne, Cambridge and Birmingham; R. G. Maglione, Manchester; F. G. Norbury, Glasgow; W. E. North-Smith, Durham and St. Mary's Hospital; and C. B. Welsby, London Hospital.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—J. M. Burke, C. S. Foster, H. M. Jones, W. E. North-Smith, C. Pyper, A. H. Rich, R. Rowlands, and F. C. V. Thompson.

UNIVERSITY OF LONDON.—At examinations held recently the following candidates were successful:—

M.D. EXAMINATION.

Medicine.—Marmaduke Bannister, Victoria University of Manchester; Bertram Henry Barton, B.S., St. Bartholomew's Hospital; James Cameron, University of Edinburgh; Ernest Cutcliffe Hadley, B.S., University of Birmingham; Charles Edward K. Herapath, B.S., University of Bristol; J. E. Lane-Claypon, D.Sc., B.S., London (Royal Free Hospital) School of Medicine for Women; Edmund Garvin Mack, B.S., University College Hospital; John Parkinson, B.S., London Hospital; Philip Rees, B.Sc., Charing Cross Hospital; and Latimer James Short, B.S., University of Bristol and University College Hospital.

Pathology.—John Athelstan Braxton Hicks, B.S., Westminster Hospital.

Mental Diseases and Psychology.—Archibald Thomas William Forrester, B.S., St. Bartholomew's Hospital.

Midwifery and Diseases of Women.—Alice Marian Benham, B.S., and Rhoda Hicks Butler, B.S., London (Royal Free Hospital) School of Medicine for Women; Thomas Charles Clare, B.S., University of Birmingham; Davis Woodcock Daniels, B.S., St. Mary's Hospital (University medal); Eleanor Davies-Colley, B.S., London (Royal Free Hospital) School of Medicine for Women; Ernest E. Tallent Nuthall, B.S., St. Thomas's Hospital; and Frederick George Sergeant, B.S., University College Hospital.

State Medicine.—Albert H. Godwin Burton, B.S., Guy's Hospital; James Alexander Milne, B.S., London Hospital; Austin T. Nankivell, B.S., King's College and St. Bartholomew's Hospital (University medal); Frederick Augustus Sharpe, B.S., Guy's Hospital; Clare Oswald Stallybrass, B.S., University of Liverpool; and Cuthbert Gerald Welch, B.S., University College and London Hospital.

Tropical Medicine.—J. McFarlane W. Pollard, B.S., Guy's Hospital; and Herbert James Walton, St. Bartholomew's Hospital and London School of Tropical Medicine (University medal).

M.S. EXAMINATION.

Edwin Thomas Harries Davies, M.D., St. Mary's Hospital.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

VICTORIA UNIVERSITY OF MANCHESTER.—The following have satisfied the examiners:—

FINAL M.B. AND CH.B. EXAMINATION.

A. E. Ainscow, Estelle I. E. Atkinson, §Rupert Briercliffe, G. T. Cregan, Caleb Davies, T. E. Dickinson, Gertrude H. Geiler, †§R. C. Hutchinson, R. B. Jackson, W. Hoyle Parkinson, *‡§W. A. Sneath, W. B. Wamsley, and William Wright.

Obstetrics.—A. W. Gaye, W. Howarth Parkinson, Alexander Reid, J. B. Scott, and Gordon Whitehead.

Obstetrics and Medicine.—J. R. Rigg.

Forensic Medicine and Toxicology.—C. E. Butterworth, K. D. Bean, A. H. Holmes, L. W. Howlett, W. H. Laslett, Jane C. Miller, Manfred Moritz, Lovell Moss, G. E. Sawdon, William Stirling, J. S. B. Stopford, G. K. Thompson, and William Warburton.

* First Class Honours. † Second Class Honours.
‡ Distinction in Medicine. § Distinction in Obstetrics.
University Prize in Medicine awarded to A. G. Bryce.

THIRD M.B. EXAMINATION.

General Pathology and Morbid Anatomy.—C. T. G. Bird, James Leach, T. W. Martin, H. G. Peake, W. J. A. Quine, and C. M. Stallard.

Pharmacology and Therapeutics.—F. S. Bedale, R. B. Berry, A. G. Bryce, L. T. Challenor, John Cowan, G. C. Dixon, Geoffrey Fildes, C. W. Fort, Edgar Grey, George Jackson, D. S. Jones, James Leach, J. A. Lees, A. H. Macklin, Mabel E. May, P. H. Midgley, T. H. Oliver, L. W. Sparrow, R. P. Stewart, C. F. White, A. G. Wilkinson, H. D. Willis, S. A. Winstanley, W. H. Wood, and H. C. Wright.

Hygiene.—F. S. Bedale, R. B. Berry, C. T. G. Bird, A. G. Bryce, L. T. Challenor, John Cowan, G. C. Dixon, Geoffrey Fildes, C. W. Fort, Edgar Grey, George Jackson, D. S. Jones, James Leach, J. A. Lees, A. H. Macklin, Mabel E. May, P. H. Midgley, T. H. Oliver, L. W. Sparrow, R. P. Stewart, C. F. White, A. G. Wilkinson, H. D. Willis, S. A. Winstanley, W. H. Wood, and H. C. Wright.

FIRST M.B. EXAMINATION.

Part III. Organic Chemistry and Bio-Chemistry.—Lily Allan, W. R. Blore, James Brooks, J. E. Brooks, Basil Browning, Frank Chadwick, William Christopher, J. W. Craw, N. H. Davison, O. M. de Jong, A. T. Gibb, William Halliwell, K. G. Haworth, J. R. Jagger, J. D. Kenyon, E. A. Linell, Clara A. Lomas, Kamil Maximus, A. S. Paterson, W. A. Rogerson, J. R. B. Russell, J. R. Slack, E. H. Walker and Henry Wilson.

First B.D.S. Examination.—Arthur Coupe.

Diploma in Dentistry (Final Examination).—Vernon Ditcham, S. I. Fillingham, W. H. Maden, F. B. Preston, and Norman Vickers.

Dental Prosthetics and Operative Dentistry.—Wilfrid Jackson and L. W. Ward.

Diploma in Public Health.—J. D. Buchanan, Thomas Burrell, Mildred M. L. Cathels, S. J. Clegg, J. B. Ferguson, Frederick Hall, Reginald Holmes, A. B. McMaster, J. S. Manson, Agnes H. Nicoll, A. H. Norris, Frank Webb, Winifred F. Wigglesworth, and F. E. Wynne.

Degree of B.Sc. in Public Health.—Alexander Grant.

UNIVERSITY OF BRISTOL.—At examinations held recently the following candidates were successful:—

FINAL EXAMINATION FOR THE DEGREES OF M.B., CH.B.

Charles William James Brasher, Arthur Launcelot Flemming, Vivian Bartley Green-Armytage, William Wilfrid King, Leonard Augustine Moore, Leonard Newsom Morris, Frederick Cecil Nichols, and John William Taylor.

Part I.—Stuart Hardy Kingston.

SECOND EXAMINATION FOR THE DEGREES OF M.B., CH.B.

Bartholomew Gidley Derry and Adolph Gottlob Hieber.

SECOND EXAMINATION FOR THE DEGREE OF B.D.S.

Reginald Hugh Basker, John Wesley Gilbert, and Edwin Joseph Handford.

N.B.—These lists are issued subject to confirmation by Council.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following candidates have passed the primary part of the Fellowship examination:—

H. J. Cotter, J. O'B. Hodnett, A. A. McConnell, M.B., B.Ch., W. Pearson, M.D., B.Ch., S. B. Surti, L.M. & S. University, Bombay, I. M. Swanepoel, and Miss K. Wall.

The following candidates have passed the Final examination and have been admitted Fellows of the College:—

V. J. McAllister, M.B., B.Ch., A. E. S. Martin, L.R.C.P. & S. Irel., H. S. Meade, L.R.C.P. & S. Irel., E. Montgomery, L.R.C.P. & S. Irel., and W. Pearson, M.D., B.Ch. Dub.

UNIVERSITY OF EDINBURGH.—The following degrees in Medicine and Surgery were conferred on July 22nd:—

Doctor of Medicine.—‡Andrew Russell Bearn, ‡Roderick Alan Campbell, Samuel Gordon Corner, Crawford Smith Crichton, Cornelis Hildebrand Derksen, ‡Robert James Dick, ‡Mackenzie Douglas, James Dunbar Brunton James Dundas, ‡Andrew Leslie Dykes, Andrew Fleming, ‡William Edward Foggie, Stephen Forrest, ‡Noel Constable Forsyth, William Douglas Forsyth, Mark Stewart Fraser, †Robert Skeoch Frew, Thomas Gardner, Jessie Handyside Gellatly, †George Herbert Rae Gibson, Henry Joseph Glover, ‡Alexander Stewart Gordon, ‡William Lennox Gordon, ‡Peter Gorrie, James Gibson Graham, Ian Mount Grant, Frederick George Harper, Richard Cartwright Jameson, †Robert Hillhouse Jamieson, William Wilton Johns, †Thomas Arnold Johnston, John Elisha Kuhne, ‡Henry Ruthven Lawrence, Sydney Buxton Legge, William Lilico, *George Carmichael Low, Thomas Lyon, *William Kelman Macdonald, John Eddie Mackenzie, ‡Rory Eric M'Laren, ‡James Neil M'Laughlin, ‡Alexander Church Brodie M'Murtrie, ‡John Mathewson, Hugh James More, Reginald Herbert Morrison, ‡William Cuthbert Morton, ‡Robert Esmond Moyes, Ernest Muir, ‡John George Patrick Murray (Major I.M.S.), William David Osler, John Harold Peek, ‡Edward Lawrence Phillips, William Edward Reynolds, ‡Robert Macdonald Robertson, *William M'Donald Scott, Edward Swan Simpson, Ernald Drybrough Smith, †Robert Abraham Logan van Someren, ‡William Sinclair Stevenson, Henry Martyn Stumbles, †Herbert Francis Lechmere Taylor, John Cook Tennant, ‡Lewis Hay Frederick Thatcher, Edward George Thomas, George Ryan Twomey, Abraham Andrew Walbrugh, ‡George Frederick Charles Wallis, *William Halliday Welsh, †Herbert Lindesay Watson Wemyss, Joseph Richard Williams, ‡Arthur Gurney Yates, and *James Young.

Master of Surgery.—†John Fraser.

* Awarded gold medals for their theses.
† Highly commended for their theses.
‡ Commended for their theses.

Bachelor of Medicine and Master in Surgery.—William Brand.

Bachelor of Medicine and Bachelor of Surgery.—†Peter Allan, †Robert Marshall Allan, *Gordon Francis Bell, Oliver Henry Blacklay, Grahame Jackson Boal, Henry Robins Borcherds, Charles John George Bourhill, †James Cooper Brash, Francis Stanislaus Brennan, George Selby Brock, *John Falconer Brown, George Robert Bruce, Joseph Le Fleming Coy Burrow, George Douglas Cairns, Ernest Hugh Cameron, Andrew Campbell, Walter Waddell Carlow, George Jamieson Carr, Walter Duncanson Chambers, Andrew Cochrane, Josias Dancel, William Darlington, Lucy Evelyn Davies, Jemima Brown Dickie, †Mathew Robertson Drennan, †John Drummond, Isabella Galloway Emslie, Wilfred John Feltham, Eion Lamont Ferguson, François Petrus Fouché, † Francis Richard Fraser, Cromwell Gamble, Annie Carr Greenop, Edward Burton Gunson, Eben Stuart Burt Hamilton, David Stanger Harvey, William Robert Clayton Heslop, Dirk van Velden Hoffman, John Honeyford, Alexander Hood, Arthur Joseph Gordon Hunter, John Hunter, Gideon Johannes Joubert, Jal Cursetji Jehangir Khambatta, James St. Pierre Knight, Li a Kurz, Eric Christison Lang, David Torquil Macleod Large, *Robert Sharp Lawson, Janet Leiper, Joseph John Levin, Lionel Arthur Lewis, John Percy Litt, John Moffat Logie, †David Murray Lyon, William Campbell Lyons, William Grant M'Afee, John Cameron MacCallum, Keith Buchanan MacGlashan, Æmilius Clayton Mackay, John M'Phail Mackinnon, Philip Whitside Maclagan, Kenneth Alexander Maclean, Mary Macmillan, William M'Naughton, Duncan Frederick Macrae, Norman Fleetwood Mann, Vilcourt Pierre Momion, Benjamin Branford Morgan, Archibald Alexander Morison, Duncan Metcalfe Morison, Malcolm M'Lean Morrison, Oliver Armand James Needham Muriset, William Paterson Murray, Harry Grattan Guinness Nelson, Pierre Johann Olivier, Henry Forbes Panton, Dora Elizabeth Patrerson, William Calder Paton, James Forrest Penman, Abraham Zadok Philips, Leopold Thomas Poole, Allan Horatio Porter, Samuel Percy Palmer Proctor, Stephen Horatio Pugh, Nicholas Purcell, Alexander William Rattrie, William Douglas Reid, David Turnbull Richardson, Andrew Graham Ritchie, James Robertson, Lizzie Rose, William Russell, Thomas M'Call Sellar, William Alexander Shafto, Daisy

Laddiard Shawyer, Fraser M'Ewen Sinclair, David Revell Bedell Sivright, Karl Frederick Sonntag, George Henderson Stevenson, James David Grahame Stewart, James Taylor, Harry Campbell Todd, William Alexander Todd, John James Tough, †Claude Bartley Tudehope, Robert Catherwood Wallace, Arthur Macgregor Warwick, Joseph Cunningham Watson, William Grant Waugh, William Leekie Webster, Henry James Gordon Wells, Stephen Harold Wilkinson, and Guy Alfred Wyon.

* Passed with First Class Honours.

† Passed with Second Class Honours.

Diploma in Tropical Medicine and Hygiene.—John Scott, M.B., Ch.B. (with distinction), and Adam White, M.B., Ch.B.

LONDON SCHOOL OF TROPICAL MEDICINE.—The following students have successfully passed the examination held at the end of the thirty-third session, May to July:—

*A. Connal, M.D. (Colonial Service); *R. Seheult, M.D. Edin. (Colonial Serviee); *H. L. Duko, B.A., M.B., B.C. (Colonial Service); *W. V. M. Koch, M.D. (Colonial Service); *H. Falk, Captain, I.M.S., M.B. Camb.; C. L. Eyles, M.B., Ch.B. Edin. (Colonial Service); F. L. Boag, M.B., Ch.B. Manch. (Colonial Service); M. Y. Young, M.B., Ch.B.; J. F. Leys, M.D. Pennsylvania (U.S. Navy); R. H. S. Marshall, M.R.C.S., L.R.C.P.; G. C. M. Davies, L.R.C.P. Edin., L.S.A. Lond. (Colonial Service); José F. de Pazos, M.D. Cuba; G. Hoyos Robledo, M.D. Colombia.

* With distinction.

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. Ernst Hagenbach-Merian has been recognised as *privat-docent* of Surgery.—*Berlin:* Dr. Herzog, *privat-docent* of Ophthalmology, and Dr. G. Finder, *privat-docent* of Laryngology, have been granted the title of Professor.—*Bonn:* Dr. Fröhlich has been recognised as *privat-docent* of Physiology.—*Budapest:* Dr. Ludwig Nekam has been appointed Professor of Dermatology. Dr. Adolf Anodi, *privat-docent* of Laryngology and Rhinology, has been promoted to an Extraordinary Professorship.—*Copenhagen:* Dr. M. Tscherning has been appointed Professor of Ophthalmology.—*Genoa:* Dr. Alberico Benedicenti of Messina has been appointed Professor of Materia Medica and Pharmacology.—*Göttingen:* Professor Jensen of Breslau has been appointed Professor of Physiology in succession to Dr. Verworn. Professor Jenckel is leaving as he has been appointed Surgeon-in-chief of the Bremen Hospital.—*Heidelberg:* Dr. Max Wilms, Professor in Basle, has accepted the chair of Clinical Surgery. Dr. Wagenmann, Professor in Jena, has been appointed to the chair of Ophthalmology in succession to Professor Leber.—*Innsbruck:* The chair of Medical Chemistry being now about to become vacant on account of Professor Löbisch's retirement, the following names have been decided upon by the medical faculty to whom to offer the post: (1) Dr. Richard von Zeynek of Prague; (2) Dr. Fritz Pregl of Gratz and Dr. Otto Ritter von Fürth of Vienna; and (3) Dr. Richard Burian of the Zoological Station in Naples. Dr. Gustav Bayer has been recognised as *privat-docent* of General and Experimental Pathology.—*Leipsic:* Professor Curschmann's successor in the chair of Medicine has now been definitely appointed in the person of Professor von Strümpell of Vienna. He is no stranger to Leipsic, as he was Director of the Medical Polyclinic and Extraordinary Professor there up to 1886.—*Lille:* Dr. Descomps has been appointed (after *concours*) *professeur agrégé* of Anatomy and Embryology.—*Naples:* Dr. Nicola Di Giovane has been recognised as *privat-docent* of Internal Pathology.—*Odessa:* Dr. A. A. Bogomoletz has been recognised as *privat-docent* of General Pathology.—*Philadelphia (Medico-Chirurgical College):* Dr. George E. Pfahler has been appointed Professor of Radiology, and Dr. John M. Swan Adjunct Professor of Medicine.—*Prague (German University):* Dr. Anton Wölfler, a former assistant of Professor Billroth in Vienna, whose classes were attended by many English and American students, has been obliged by ill-health to retire from the duties of his chair. He is 60 years of age.—*Rostock:* Dr. Martius, Professor of Medicine, has been elected Rector for the next year.—*St. Louis:* Dr. Orville H. Brown has been appointed Adjunct Professor of Physiology, Dr. Guthrie McConnell Adjunct Professor of Pathological Anatomy, and Dr. Jules M. Brady Adjunct Professor of Children's Diseases.—*St. Petersburg (Military Medico-Chirurgical Academy):* Dr. Chistovich, Professor of Bacteriology, has been appointed Professor of Clinical Medicine in succession to the late Professor S. Bolkin.—*Vienna:* Dr. Franz Erben of Prague has been recognised as *privat-docent* of Medicine, and Dr. O. Kahler as *privat-docent* of Laryngology and Rhinology.—*Würzburg:* Professor Kretz of Prague has been appointed to the chair of Pathological Anatomy, in succession to Professor Borst. Dr. Wessely, *privat-docent* of Ophthalmology, has been promoted to an Extraordinary Professorship.

UNITED KINGDOM POLICE SURGEONS' ASSOCIATION.—The following two resolutions were passed at the annual meeting of this association held on July 28th:—

1. The United Kingdom Police Surgeons' Association desires to draw the attention of the Home Secretary to the inadequate provision of ambulances in the public service within the Metropolitan Police district of London.

2. That the honorary secretary be instructed to send a letter to the Home Secretary embodying the above resolution, also a copy to the Commissioner of Police for his information.

THE POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.—A special general meeting of this association was held at 429, Strand, W.C., on July 29th. All Poor-law medical officers had been invited to be present and Surgeon-General G. J. H. Evatt, C.B., was in the chair. Among those who were present were Mr. G. Jackson (Plymouth), Dr. A. Drury (Halifax), Mr. C. Biddle (Merthyr Tydfil), Mr. D. B. Balding (Royston), Mr. Walter Smith (London), Mr. W. Holder (Hull), and Mr. T. Carey Barlow (London). Dr. F. G. Crookshank, President of the Association of Medical Officers of Health, and Mr. F. E. Fremantle, medical officer of health of the county of Herts, were also present. The honorary secretary read the minutes of the annual meeting at Halifax. With some slight alteration they were confirmed, and duly signed by the chairman. The meeting then entered upon the consideration of the resolutions which had been adjourned from the meeting at Halifax, and which were published in THE LANCET of July 23rd. They were taken seriatim. There was some difference of opinion with regard to the first resolution, which declared "that it is not desirable that there should be a 'break-up' of the present Poor-law system," and "that proper reform of existing institutions would be better for the welfare of the sick poor and the good of the nation." Mr. Holder strongly objected to it, and several others who were in favour of the principle of the resolution thought it inadvisable to stereotype it as the policy of the association. After considerable discussion it was decided to withdraw altogether the first resolution. The same course was taken in the case of the fourth resolution, which declared "that there are no logical grounds for drawing any distinction between medical and other relief when granted by the State." Although most of those present were in perfect agreement with the principle of the resolution, it was considered inadvisable in the opinion of some to put it forward, seeing that the franchise had been granted to the recipients of medical relief, and was not likely to be withdrawn. With the exception of these two all the other resolutions were almost unanimously carried as they stood before with the exception of a verbal alteration in the seventh. The meeting separated with a vote of thanks to the honorary secretary for his work on behalf of the Poor-law Medical Service of England and Wales.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Midwives Bill.

THE Midwives Bill has passed its third reading in the House of Lords. Some drafting amendments were made on the final stage. It has still to be considered by the House of Commons, but that consideration must be postponed until the reassembling of Parliament in November.

The Autumn Recess.

Parliament has adjourned until Tuesday, Nov. 15th. The principal piece of legislation with which it has yet to deal this year is the Finance Bill. Although political considerations have been mainly responsible for its postponement until the end of the year, the fact that the holidays commence at the beginning of August is a source of personal satisfaction to Members. Last year Parliament sat through November without a break, and a General Election has intervened. Accordingly, a period for recuperation is not now unwelcome. Before the House separated the Royal Assent was intimated to two batches of Bills passed this session. These include the Glasgow University (Chair of Clinical Medicine and Chair of Clinical Surgery) Order Confirmation Act and St. Mungo College Order Confirmation Act.

HOUSE OF COMMONS.

WEDNESDAY, JULY 27TH.

Bleached Flour.

Mr. LONSDALE asked the President of the Local Government Board whether he had received the report of the inspector who was directed to investigate the effects of the bleaching of flour by chemical processes, and whether legislation would be necessary to enable him to protect the

public from being supplied with impure or adulterated flour.—Mr. BURNS replied: The inquiry is still proceeding and I am not yet in a position to make any statement as to whether legislation will be necessary.

Mr. LONSDALE: Is the right honourable gentleman aware that some manufacturing chemists are openly offering phosphate of lime to millers for the purpose of this adulteration?

Mr. BURNS: I am aware of something like that, and I am anxious to make the report and investigation as complete as possible.

Mr. BOWLES: Will the right honourable gentleman take steps to make it known that the whitest flours are the worst and least digestible?

No reply was given.

Borax as a Meat Preservative.

Mr. HUNT asked the President of the Local Government Board whether, in view of the fact that it was a criminal offence in America to use borax as a preservative of meat, he proposed to take steps to prevent the importation into this country of meat in which borax had been used as a preservative.—Mr. BURNS replied: In pursuance of the Public Health (Foreign Meat) Regulations, 1908, certain meats, such as tongue, tripe, and kidneys, which were formerly imported in pickle containing large quantities of borax, have ceased to be imported, and I do not at present think it necessary to take any further steps in the matter.

Mr. HUNT: Is the right honourable gentleman aware that the chief of the Bureau of Animal Industries in America stated in his report that meat for England might be preserved in borax if it was made under special rules and specially labelled.—Mr. BURNS: Under the regulations under the Food Act which this House passed in the year 1907 that condition is dealt with.

The Importation of American Meat.

Mr. HUNT asked the President of the Local Government Board whether he was aware that in 1907 over 90,000 carcasses of cattle and pigs from which tumours and abscesses, including cancerous tumours, had been cut out were stamped by the United States Government as sound, wholesome, and healthful for human food; and what steps he proposed to take to preserve our people from consuming without knowing it this diseased American meat.—Mr. BURNS (replying to this and two other questions) said: The figures which the honourable Member gives appear to be taken from the annual reports of the United States Bureau of Animal Industry, but I have no means of verifying them. Under the Public Health (Unsound Food) Regulations, 1908, the medical officer of health is empowered to seize any article of food which is unsound, unwholesome, or unfit for human consumption. This officer has similar power in regard to home-killed meat.

Mr. HUNT: Is the right honourable gentleman aware that under the American regulations of 1908 American meat is allowed to be stamped so long as the cancerous and other diseased parts are cut out? Does he know anything about that?

Mr. BURNS: Yes, whatever the Americans may do or stamp, no meat that answers to the description given by the honourable Member is allowed to be landed in this country under the Act of 1908.

Mr. HUNT: May I ask the right honourable gentleman whether his experts can tell whether, when the carcasses are sent over here, the diseased parts are cut out?

Mr. BURNS: In many cases they can, and we are now taking steps to prevent any possibility of what the honourable Member suggests occurring at all.

Dirty Flock Bedding.

Lord ALEXANDER THYNNE asked the President of the Local Government Board whether it was the intention of His Majesty's Government to introduce at an early date a non-contentious Bill dealing with the question of dirty flock and loathsome bedding which had recently formed the subject of representations to the Local Government Board.—Mr. BURNS answered: I trust it may be possible to introduce a Bill dealing with this subject at an early date.

Lord ALEXANDER THYNNE: Are we to understand that it will be in the autumn session?—Mr. BURNS: That depends upon circumstances which I cannot control.

THURSDAY, JULY 28TH.

Alleged Death from Anthrax.

Sir FRANCIS CHANNING asked the Secretary of State for the Home Department whether he had now received the report of his inspector or medical officer as to the circumstances attending the death of Thomas Forman from anthrax at Wellingborough; whether he would circulate it as a Parliamentary paper; and whether the investigation had suggested any further precautions which might be taken to reduce the risks of contracting anthrax in the handling of hides.—Mr. CHURCHILL wrote in reply: The report is not yet completed. When I receive it I will communicate with my honourable friend.

St. Mary's Hospital Bacteriological Department.

Mr. LYNCH asked the Chancellor of the Exchequer whether any portion of the grant to universities might be made available to the direct encouragement of scientific research; and whether, in particular, in view of the high character of original research carried out at St. Mary's Hospital bacteriological department, and in view also of the acknowledged importance of those results in combating tuberculosis, he would take steps to ensure the removal of the financial embarrassment which threatened to impede the work of that institution.—Mr. LLOYD GEORGE (by written answer) replied: The grant made annually by Parliament in aid of university colleges is distributed on the recommendation of the Advisory Committee, and the Committee has always paid special attention to the post-graduate and research work of colleges applying for a share in the grant. I am not aware of the circumstances of the bacteriological department of St. Mary's Hospital to which the honourable Member refers, but any institution which desires to participate in the grant, and which is prepared to satisfy the conditions laid down in the Treasury Minute of June 3rd, 1909, should make application in the first instance to the Advisory Committee.

The Royal College of Surgeons, Ireland.

Mr. LONG asked the Chancellor of the Exchequer whether his attention had been directed to the report of the Departmental Committee appointed to inquire into the claims of the Scottish universities for additional assistance from the public revenues; and whether, in considering the recommendations made in that report, he would also give favourable consideration to the claim which was pressed upon the Government when the Irish Universities Act, 1908, was under discussion in this House, and which had since been renewed in correspondence with the Irish executive in favour of an annual grant of £5000 to the Royal College of Surgeons, Ireland.—Mr. LLOYD GEORGE wrote in reply: The report to which the right honourable Member refers has been before the Treasury. I shall be prepared to give careful consideration to any representations on behalf of the Royal College of Surgeons, Ireland, which my right honourable friend the Chief Secretary may think fit to make to me on the subject.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BEESLY, LEWIS, F.R.C.S. Edin., has been appointed Assistant Surgeon to Chalmers Hospital, Edinburgh, and Lecturer on Surgery to the School of Medicine for Women, Edinburgh.

BOWEN, O. H., M.R.C.S., L.R.C.P. Lond., has been appointed Junior Resident Medical Officer at the London Temperance Hospital.

BROWNE CHARLES ROBERT, M.D., B.Ch., B.A.O. Dub., has been appointed Honorary Surgeon to the St. John Ambulance Brigade at Falmouth, Cornwall.

DU PREEZ, JAMES J., M.B., Ch.B. Aberd., has been appointed Resident Surgeon at Aberdeen Royal Infirmary.

DWYER, FREDERICK CONWAY, M.D. Dub., F.R.C.S.Irel., has been appointed Visiting Surgeon to the Richmond, Whitworth, and Hardwicke Hospitals, Dublin.

FLETCHER, JAMES, M.D., D.P.H. Aberd., has been appointed Lecturer in Infectious Diseases in the University of Manchester.

JOHNSON, J. ANDERTON, M.B., Ch.B. Vict. & Liverp., has been appointed District Medical Officer and Public Vaccinator to the Parish of St. Mary, Islington.

JONES, THOMAS HENRY, M.D., C.M Edin., D.P.H. Cantab., has been appointed Medical Officer of Health for the County of Surrey.

LOWRY, JAMES ARTHUR, M.D. R.U.I., has been appointed Medical Superintendent of the Surrey County Lunatic Asylum, Brookwood.

MACLENNAN, ALEXANDER, M.B., M.S. Glasg., has been appointed Honorary Consulting Surgeon to the Royal Infirmary, Stirling.

NICOL, PATRICK, M.B., Ch.B., D.P.H. Aberd., has been appointed Assistant School Medical Officer to the County Council of Aberdeenshire.

SEATON, EDWARD C., M.D. Lond., F.R.C.P. Lond., has been appointed Consulting Medical Officer of Health to the Surrey County Council.

SEMPLE, ROBERT, M.B., Ch.B. Aberd., has been appointed Resident Surgeon and Physician at Aberdeen Royal Infirmary.

SMITH, HAROLD EDGAR, M.B., Ch.B. Aberd., has been appointed Resident Surgeon and Physician at Aberdeen Royal Infirmary.

STOKER, Sir THORNLEY, M.D. Q.U.I., F.R.C.S. Irel., has been appointed Consulting Surgeon to the Richmond, Whitworth, and Hardwicke Hospitals, Dublin.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BEDFORD COUNTY HOSPITAL.—House Physician. Salary £60 per annum, with apartments, board, and washing.

BOURNEMOUTH, ROYAL NATIONAL SANATORIUM.—Resident Medical Officer. Salary £10 per month, with board, residence, and washing.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Two Assistant House Surgeons unmarried. Salary £60 and £50 per annum respectively, with apartments, board, and laundry.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar. Also Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

CAMBRIDGE, CAMBRIDGESHIRE, &C., LUNATIC ASYLUM, Fulbourn.—Second Assistant Medical Officer, unmarried. Salary £120 per annum, with board, lodging, and attendance.

CARMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, laundry, &c.

CHELTENHAM GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £75 per annum, with board and lodging.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Physician to Out-patients. Salary 40 guineas per annum.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 per annum, with board, apartments, and laundry.

DORCHESTER, COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £140 per annum, with board, &c.

DURBAN, NATAL, CORPORATION PUBLIC HEALTH DEPARTMENT.—Medical Officer for Municipal Tuberculosis Bureau. Salary £600 per annum.

EDMONTON UNION INFIRMARY, Bridport-road, Upper Edmonton.—Resident Assistant Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and washing.

FRENCH HOSPITAL, 172, Shaftesbury-avenue, W.C.—Resident Medical Officer, unmarried. Salary £100 per annum, with full board and laundry.

GUEST HOSPITAL, Dudley.—Assistant House Surgeon for six months. Salary £75 per annum, with residence, board, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HEREFORD, HEREFORDSHIRE GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, apartments, and washing.

HULL, ROYAL INFIRMARY.—Two Casualty House Surgeons. Salary £80 per annum, with board and lodging.

LINCOLN GENERAL DISPENSARY.—Resident Junior Medical Officer, unmarried. Salary £175 per annum, with apartments, fire, and lighting.

MACCLESFIELD GENERAL INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board and residence.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—House Surgeon. Also Assistant House Surgeon. Salaries £100 and £60 respectively, with board and residence.

MANCHESTER, ANCOATS HOSPITAL.—Honorary Physician.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Assistant Medical Officer and Pathologist. Salary £60 per annum.

MEDICAL DEPARTMENT OF THE NAVY, London, S.W.—Dental Surgeon for duty with the Naval Forces in the United Kingdom. Salary £1 per diem.

MIDDLESEX HOSPITAL.—Assistant Anæsthetist. Salary £40 per annum.

NORFOLK AND NORWICH HOSPITAL, Norwich.—Honorary Pathologist and Bacteriologist.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—House Surgeon, unmarried, for six months. Also Junior House Surgeon, unmarried, for six months. Salary in each case at rate of £80 per annum, with board, &c.

REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130, rising to £150 per annum, with board, lodging, washing, &c.

ROCHDALE INFIRMARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

ROXBURGH AND SELKIRK COUNTY COMMITTEES ON SECONDARY EDUCATION.—School Medical Inspector. Salary £300 per annum with out-of-pocket expenses.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Bridge-road, S.E.—Junior Resident Medical Officer. Salary at rate of £50 per annum, with board and washing.

SALISBURY, FISHERTON HOUSE ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, washing, and attendance.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.

SHEFFIELD ROYAL INFIRMARY.—Seventh Resident Medical Officer. Salary £60 per annum, with board and residence.

SHREWSBURY, SALOP INFIRMARY (THE COUNTY HOSPITAL).—House Physician. Salary at rate of £70 per annum, with board and apartments.

SUNDERLAND, MONKWEARMOUTH AND SOUTHWICK HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board and apartments.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board and lodging.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with apartments and rations.

Births, Marriages, and Deaths.

BIRTHS.

COCKBURN.—On July 31st, at 15, Castlebar-road, Ealing, the wife of Robert P. Cockburn, M.D., of a son.

HUNT.—On July 30th, at 3, Goldsmid-road, Brighton, the wife of Ernest Rivaz Hunt, M.A., M.D. Cantab., of a son.

MATHESON.—On July 21st, at "Kintail," Butler-road, Harrow, to F. M. Matheson, M.R.C.S., L.R.C.P., and Mrs. Matheson, a son.

SPARKS.—On July 25th, at Farningham House, Whitley Bay, the wife of Dr. J. P. Sparks, of a daughter.

MARRIAGES.

BROTHERSTON—SMITH.—At Garrarie, Whithorn, on August 3rd, by the Rev. John Gordon, William Brotherston, Writer to the Signet, Edinburgh, and Margaret Merry Smith, M.B., Ch.B., D.P.H.

SEARLE—ALBAN.—On July 30th, at St. Mary's Church, Vincent-square, London, Charles Frederick Searle, B.A., M.B., B.C. Cantab., to Annie Alban, daughter of the late Rev. Evan Alban, Vicar of Lledrod, Cardiganshire.

DEATHS.

FAIRBANK.—On August 1st, at Porchester-terrace, Hyde Park, W., Robert Stephens Fairbank, M.R.C.S. Eng., L.S.A.

TRITTON.—On July 26th, at Umzinto, Natal, South Africa, William Parsons Tritton, M.D., M.R.C.S. Eng., L.S.A. Lond.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

"QUIDQUID DELIRANT REGES."

EXCESS, in whatever direction, invites, and generally incurs, its Nemesis. Such is the moral to be deduced from Dr. Angelo S. Rappoport's monograph, entitled "Mad Majesties" (London: Greening and Co., one vol., 16s. net), in which he maintains that "most of the dynastic families of Europe are tainted with the hereditary vices of degeneracy, idiocy, imbecility, and insanity." Excess of authority, indeed, amounting to absolute irresponsibility, reacts injuriously on all its wielders, and not in the sphere of civil government only. Much lower in the social scale, John Stuart Mill has, in his essay on "Liberty," indicated its deteriorating effect on the commoner as well as on the feudal lord or the emperor or monarch—the whole thesis, by the way, having been anticipated by Lord Byron in the memorable stanza inspired by Suetonius:—

> "When Nero perished by the justest doom
> That ever the destroyer yet destroyed,
> Amid the roar of liberated Rome,
> Of nations freed and the world overjoyed,
> One hand, unseen, strewed flowers upon his tomb;
> Perhaps the kindness of a heart not void
> Of gratitude for service done, *when Power*
> *Had left the wretch one uncorrupted hour.*"

The progressive decline of the Cæsarean Dynasty, evinced in the paranoia of a Caligula, a Claudius, and a Nero, and in the long line of Emperors that, with occasional lucid intervals in the Flavii and the Antonines, gives so sombre a tone to the earlier chapters of Gibbon, furnishes instances in point, instances which Dr. Rappoport supplements, in great detail, from subsequent history. Excessive intermarriage comes in as a concurrent cause of the mental decline in question—"breeding in and in" (as it used to be called) bringing also its Nemesis on more than one royal house. Dr. Rappoport draws a lurid picture of the demeuted mother of the Emperor Charles V., whose own intellect was far from maintaining its equilibrium—witness his "Cloister Life," as depicted for us in the late Sir William Stirling Maxwell's fascinating volume. Further confirmation may be amply drawn from the records of the same royal family, to cite only Don Carlos, grandson of the Emperor Charles and son of that Philip II. who, as husband of Mary Tudor, has a peculiar interest for the English student of history. Of Don Carlos, who died comparatively young but none too soon for his long-suffering Spanish subjects, we are told: "A shoemaker having sent the Prince a pair of boots with narrow legs, Don Carlos went into a fit of fury, struck Don Manuel (who had ordered them) on the mouth and rang violently for an attendant, whom, not answering quickly enough, the Prince threw out of the window into the moat below. The other servants, frightened at the noise, all fled. Thereupon he ordered the boots to be cut up into small pieces, cooked, and sent over to the shoemaker for him to eat." Another instance is furnished by Christian VII of Denmark, husband of our own George III.'s sister, Caroline Matilda, whose story is not the least tragic in Dr. Rappoport's series. Christian's upbringing under a brutal guardian so perverted his mind, none too strong to begin with, that he was no sooner of age than he ceased to observe the ordinary decencies of life, posing as the buffoon even on State occasions, as in the anecdote familiar to every reader of Macaulay, who tells us that when the Royal Ambassador from Naples appeared at Court King Christian played leap-frog over his back, much to the consternation of the dignified envoy. When on a visit to his British brother-in-law in 1767 he lost no opportunity of giving King George the slip, repairing in disguise to houses of ill-fame in the lowest quarters of London, in one of which, King of Denmark as he was, he nearly came to blows with an Irishman jealous of his Majesty's attentions to a paramour. Dr. Rappoport's *bête noire* in his *chronique scandaleuse* is, however, the "Hooligan Czar" (as he calls him), Ivan the Terrible, whose bloodthirsty instincts revelled in massacres of his own liege subjects on a scale not surpassed by that most odious of Roman Emperors Caracalla. About the beginning of the nineteenth century no fewer than six of the European crowned heads were mentally deranged and incapable of governing! To this sombre march-past of "strangely-visited" royalties there were, however, exceptions among the junior scions, whose exemption from the hereditary taint was due to what Dr. Rappoport might have pointed out as a counter-active to the same—to wit, devotion to a humane and humanising profession. Conspicuous among these may be mentioned Duke Karl Theodor of the House of Bavaria, who, having graduated in medicine, after a sedulous course of study at the schools of Munich and Vienna, became a specialist in ophthalmic surgery, practising among the poor, and aided by his noble helpmate, earning the gratitude of thousands, till his return every autumn to his château on the Tegern

See from ambulance service in the Tyrol was a veritable triumph—the whole countryside embarking on the lake in a fleet of boats and welcoming him and his consort back to their residence with acclamations far more cordial and far more moving than any that ever greeted Roman Emperor on his progress down the Sacred Way.

POLICE SURGEONS AND FEES.

AN application, with much interest and importance underlying it, was made at the Portsmouth police court on August 2nd by Dr. Lysander Maybury, surgeon to the police. A prisoner charged with drunkenness when arrested summoned Dr. Maybury, who thoroughly examined him and came to the conclusion that he was in a fit state to have charge of a truck. As a result of this evidence the man was discharged. Before giving his evidence, however, Dr. Maybury applied that his fee of 10*s.* 6*d.*, which money belonging to the prisoner was in possession of the police, should be paid to him. He explained that a prisoner was a perfectly free agent and could send for a dozen doctors if he chose to pay them or if they liked to come without being paid. In this case the prisoner sent for him, not as the police surgeon but as a private practitioner who had more knowledge of such cases by reason of the appointment. Had the police summoned him his salary as police surgeon would have covered his attendance. However, the police had nothing to do with this case, as he attended at the prisoner's summons, and he asked that he should be paid his fee. The prisoner in question said he sent for Dr. Maybury, and was quite willing that his fee should be paid from the money he had. The bench made an order accordingly, but the chief constable (Mr. A. T. Davies) said he could not pay without the authority of the Watch Committee, under whose instructions he had to act.—The Chairman of the Bench (Colonel Lanyon Owen): The Watch Committee is subservient to this court. We have to administer the law, and order this fee to be paid.—Dr. Maybury: Will you order that it be paid to-day?—Colonel Owen: Certainly.—This closed the incident.

SUNIC INTENSIFIER SCREENS.

To the Editor of THE LANCET.

SIR,—Referring to your issue of July 30th, in which you kindly inserted a notice of our exhibit at the recent British Medical Association's Exhibition, we notice that you state that the Sunic intensifier screens reduce the exposures required under ordinary circumstances by about one-twentieth. We enclose herewith a copy of our latest leaflet, in which you will notice that we claim that the Sunic intensifier screens reduce the exposure by about 95 per cent.—that is to say, to one-twentieth of what is required under ordinary circumstances.

As the misstatement will probably produce an erroneous impression of this appliance we should esteem it a favour if you could see your way to insert a notice correcting your report.

We are, Sir, yours faithfully,

W. WATSON AND SONS, LIMITED.

High Holborn, W.C., August 2nd, 1910.

*** We regret the error.—ED. L.

HEALTH AND HOSPITALS IN MALTA.

THE Lieutenant-Governor of Malta, Sir E. M. Merewether, K.C.V.O., C.M.G., reporting on the affairs of the colony for the year ending March 31st, 1910, states that the civil population is estimated at 215,879, there having been an increase during the year of 2991. The death-rate in 1909–10 was 22·57 per 1000, as against 23·4 in the previous year. The birth-rate was 36·07 per 1000, as against 38·22. There were 2 deaths from diphtheria, 71 from enteric fever, 6 each from erysipelas and febrile puerperal diseases, 4 from influenza, 53 from Mediterranean fever, 1 from small-pox, 194 from tuberculous phthisis, and 20 from whooping-cough. A satisfactory decrease in the number of cases of diphtheria is attributed mainly to the promptitude with which measures are taken under the sanitary laws to isolate patients, prevent contacts, and otherwise stamp out the disease in any locality where cases occur. There was also a considerable drop in the incidence of influenza, while there was fortunately no recurrence of the epidemic of measles which marked the year 1908-09. Whooping-cough was accountable for no less than 654 cases with 20 deaths, as compared with 73 cases and only three deaths in 1908-09. Enteric fever was responsible for 71 deaths out of 549 cases, as compared with 30 deaths out of 137 cases in the previous year. This was mainly due to an outbreak which occurred during February and March, 1910, and at one time threatened to assume alarming proportions, but which fortunately rapidly subsided owing to the measures taken by the Government. The death-rate among children continues to be excessive. The number of deaths of children under 12 months was 1883, or 242 per 1000 births, while the number of those who died before reaching the age of five years was 2532, or 325·16 per 1000 births. This excessive infant mortality is due mainly to neglect or ignorance, or both, on the part of the mothers of the most elementary rules with regard to the feeding, clothing, and cleanliness of children of tender age. A disease which is of very frequent occurrence amongst infants, owing to improper feeding, is enteritis, 10,407 children having died from that disease in the past ten years. The total number of persons admitted into the hospitals and maintained in the other charitable institutions of Malta and Goze was 7309, as against 6982 in 1908-09. In addition to these, 118,582 persons were attended by the district medical officers at the Government dispensaries or at their own homes, as against 116,059 in the previous year.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

CONGRESSES are now getting so numerous that we have thought that a diary like the one printed below might be of service to our readers. With that idea we shall repeat it occasionally, with any necessary additions or subtractions. The following Congresses, Conferences, and Exhibitions are announced for 1910:—

August 4th–10th (Brussels).—International Congress of Legal Medicine.
" 21st–26th (Brussels).—International Home Education Congress.
" 31st (Sheffield).—British Association for the Advancement of Science.
Sept. 5th–10th (Brighton).—Congress of the Royal Sanitary Institute.
" 10th–14th (Brussels).—Second International Congress on Occupational Diseases.
" 13th–15th (Brussels).—International Congress on Radiology and Electricity.
" 18th–24th (Königsberg).—Eighty-second Congress of German Scientists and Medical Men.
" 22nd–27th (Toulouse).—Sixth French Congress of Gynæcology, Obstetrics, and Pædiatrics.
" 22nd–28th (St. Petersburg).—Fifth International Congress of Obstetries and Gynæcology.
" 27th–30th (Vienna).—Eighth International Physiological Congress.
Oct. 1st–5th (Paris).—Second International Conference for the Study of Cancer.
" 3rd–7th (London).—Sixth London Medical Exhibition.
" 3rd–7th (Berlin).—International Congress on the Care of the Insane.
" 4th–8th (Brussels).—Second International Congress of Alimentary Hygiene.
" 13th–15th (Paris).—Eleventh French Congress of Medicine.
" 16th–22nd (Barcelona).—First International Spanish Congress of Tuberculosis.

In 1911:—
May–October (Dresden).—International Hygiene Exhibition.
July (Birmingham).—British Medical Association.
August or September (Berlin).—Third International Laryngo-Rhinological Congress.
September (Brussels).—Exhibition of Fractures.
October (Cologne).—International Congress of Criminal Anthropology.

In 1912:—
September (Washington, D.C.).—Fifteenth International Congress of Hygiene and Demography.

In 1913 the only fixture so far is in London, where the Seventeenth International Congress of Medicine will take place.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon: Patbological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Dr. G. Stewart: Practical Medicine.

TUESDAY.—10 A.M.,: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture: Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Mr. Armour.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. Davis: The Aural Complications in Measles and Scarlet Fever; Results; Treatment.

FRIDAY.—10 A.M., Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—2 P.M., Clinical Demonstration: Dr. Wall: Diseases of the Lungs.

TUESDAY.—2 P.M., Clinical Demonstration: Dr. Grünbaum: Diseases of the Kidneys.

WEDNESDAY.—2 P.M., Clinical Demonstration: Dr. Hutchison: Diseases of the Digestive System and Children's Diseases

THURSDAY.—2 P.M., Clinical Demonstration: Dr. T. Thompson: Diseases of the Nervous System.

FRIDAY.—2 P.M., Clinical Demonstration: Dr. L. Smith: Diseases of the Heart and Vessels.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (10th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (11th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

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SATURDAY (13th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 3rd, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
July 28	29·20	S.W.	0·01	118	76	59	60	64	Cloudy
,, 29	29·63	S.W.	0·03	122	69	60	57	61	Cloudy
,, 30	29·83	S.	...	103	69	56	57	63	Fine
,, 31	29·70	S.W.	...	115	73	56	58	62	Cloudy
Aug. 1	29·79	S.	0·01	125	70	56	59	63	Fine
,, 2	29·67	S.W.	0·14	119	67	56	58	62	Cloudy
,, 3	29·78	S.W.	0·01	122	70	55	57	61	Cloudy

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A Lecture

ON

FIBROMA, SARCOMA, AND FIBROMYOMA OF THE ABDOMINAL WALL.

Delivered at St. Bartholomew's Hospital on June 8th, 1910,

BY C. B. LOCKWOOD, F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL.

GENTLEMEN,—I lecture to-day upon some instances of fibroma, sarcoma, and fibromyoma of the abdominal wall. These tumours must be very rare. Over a very long period I have met with seven. I suppose they comprise about ½ per cent. of abdominal tumours, omitting ruptures. I have seen very few references to them in literature. But it is better that I should lecture to you upon them rather than upon diseases which you have frequent opportunities of observing for yourselves. Once a fibroma was met with in a man; all the rest occurred in females.

TOPOGRAPHY.

They are all situated on the front abdominal wall. Only two were found to the left of the middle line, the remaining five being upon the right side. I do not know that this fact has any particular significance, but I noted it as rather strange. Perhaps in a larger series the numbers might be altered. The anatomical situation is a point, as you will see presently, of some importance, and ought to be more accurately noted than has hitherto been done by myself. As a rule the tumours are situated in the aponeurotic structures, but not always. Here is one in the back of the sheath of the rectus; another in the lower part of the right semilunar line; one in the upper part of the right semilunar line; one in the front of the sheath of the rectus; one in the conjoined tendon of the internal oblique and transversalis; another in the substance of the external oblique muscle above the eleventh costal cartilage; and finally, one consisting of fibrous tissue with unstriped fibres in the left inguinal canal, and, in my opinion, in the round ligament of the uterus.

The anatomical situation of these tumours ought to be noted, because some are spindle-celled sarcomata which return after removal and ultimately kill the patient. To successfully extirpate a spindle-celled sarcoma it is necessary to make a very wide removal of the muscle in which it is growing. Presently I shall point out to you that it would be better to remove the whole muscle in which the sarcoma was growing. This is not possible in the case of the abdominal muscles. But if you know in which muscle it is growing you can make a very wide removal of that particular muscle. I regret not to have had more definite information as to the exact muscle in which some of these tumours grew. With such information better operations might have been done.

MORBID ANATOMY.

To the naked eye these tumours have the ordinary characters of the fibrous structures of the body. Perhaps they may look a little redder, but there is nothing distinctive in their naked-eye appearances. Some of them are like the gizzard of a fowl in shape, in colour, and in consistence. But there is another point in the morbid anatomy to which you must pay attention. Some have a capsule. I show you some specimens of it. The presence of a capsule implies innocency. Microscopical sections of these encapsuled tumours show that they are composed of fibrous tissue. I believe that the encapsuled tumours do not return after removal. But there are others which have no capsule. It is true that they have well-marked outlines, but at some part, usually along the course of the fibres of the muscle in which they are growing, they are extending very widely. When these tumours are microscopically examined they consist of fibrous tissue, with the addition of spindle-shaped cells; in other words, they are spindle-celled sarcomata, one of the most dangerous forms of sarcomata which you will meet with—dangerous because the sarcoma recurs after removal. Obviously, when removing one of these tumours of the abdominal wall the presence or absence of a capsule is of great importance. When there is a capsule the tumour can be shelled out, and it should not grow again. But if there be no capsule the greatest possible care must be taken to make a wide removal; and, I would add, to watch the patient very closely afterwards. During the course of your operation it is wise to examine microscopically portions of the tissues removed, to see whether you are removing tumour or fibrous tissue. I have told you that the naked-eye characters of these tumours approximate closely to the naked-eye characters of the aponeurotic structures of the abdominal wall.

ETIOLOGY.

As regards the etiology, there is nothing to suggest that these tumours are of developmental origin. Fibrous nodules, even bony nodules, occur in the abdominal walls, and I have met with them in the semilunar lines. There is reason to suppose that they are embryological structures and attempts at the formation of abdominal ribs. And, as you are aware, where such developments take place, pathological events also supervene. But observe that these tumours are situated almost anywhere in the front of the abdomen: over the costal cartilages in the semilunar lines, in the front of the sheath of the rectus, in the back sheath, and so on. There is very little evidence to show that they are caused by anything which has been applied to the body. One young woman volunteered the information that two years before the tumour appeared she had had a severe blow in that position. I do not think it is right altogether to ignore this history of a blow or an injury. An injury results usually in the extravasation of blood. Extravasation of blood brings about inflammation, and inflammation brings about tissue changes, and these tissue changes may bring about cell multiplication, and this cell multiplication may run wild and result in the formation of a tumour. Quite a common sequence of events in the tongue is the application of some irritant which causes the tongue to inflame; then the proliferation of the epithelium until a lump is formed; then the epithelium grows along lymph spaces and lymphatics, and onwards into the neighbouring lymphatic glands. At that stage you would diagnose an epithelioma of the tongue. I cannot help believing that in the breast a blow is sometimes the preliminary to the formation of carcinoma, because a blow results in the extravasation of blood; an extravasation of blood inflames the breast tissue, and the result is a chronic mastitis. The epithelium of the acini or of the ducts proliferates, just as the epithelium of the tongue does, and goes into the lymph spaces and onwards into the lymphatic glands. Seen at that stage, you would say that the patient had carcinoma of the breast. It is conceivable to me that a similar course of events might lead to the proliferation of the connective tissue cells of the abdominal wall, and to the production of a fibroma, or even of a sarcoma. There is no evidence to show that these tumours are ever due to anything introduced into the body. But, again, I would not draw too wide inferences from the absence of evidence on this point. Certainly, things introduced into the body can produce tumours of considerable size. The spirochæta pallida introduced into the body can cause gummata, which have over and over again been mistaken for sarcomata. So that if any of you attempt to investigate the production of sarcomata you should not, I venture to suggest, ignore those possibilities.

CLINICAL HISTORY.

With regard to the clinical history of these tumours, the patient usually says that they are painless, and certainly they are not tender to the touch. The fibromata are of long duration; they take years to grow. In the case of a man with one behind the sheath of the right rectus there is a history of 14 years, and others, I see, had histories measured by years. The growth of sarcomata, on the other hand, is measured by months. So that an accurate clinical history throws some light on the nature of the tumour and the course which it might pursue. I suppose that if a fibroma was left alone it would continue to grow slowly; after the lapse of years it might calcify, but this is purely speculation on my part. Sarcomata will continue steadily to increase in size, and I believe they may attain a considerable size. One of the few cases which I have met with is one recorded by an American surgeon. This sarcoma of the abdominal wall was described by Dr. Alexander Johnson. He removed a spindle-celled sarcoma from the abdominal wall of a woman; it had been growing two years, he says, in spite of internal and external applications. It measured at the time

of the operation 8 inches in length by 6 inches in breadth, which, of course, betokens a tumour of considerable size. He goes on to mention another case which he had seen, in which the spindle-celled sarcoma had undergone a change which is so common in malignant growths—namely, degeneration and ulceration. Sarcomata growing elsewhere, especially those in the limbs, undergo the same degeneration and ulceration. Not infrequently the ulcer becomes infected and the patient dies from septicæmia. I suppose that these sarcomata of the abdominal wall, if left alone, would lead, as sarcomata in other parts do, to dissemination, and that growth would be found in the lungs, in the osseous system, in the liver, or in other abdominal organs.

DIAGNOSIS.

When a hard tumour is felt in the front of the abdomen the question at once arises whether it is inside or outside the abdomen. You may think that that is a very easy question to answer. But I remember showing a patient with a fibroma in the left conjoint tendon to my colleagues, and there were great differences of opinion upon this point. Most thought it was inside the abdomen. Before the operation the patient had been treated with castor oil, because it was thought that the tumour might have been inside the abdomen and inside the sigmoid flexure, and therefore might have been a hard fæcal lump. The treatment had no effect upon it. During the consultation it was suggested that it was a tumour in the sigmoid flexure—that is to say, a carcinoma. Others suggested that it might be a growth connected with the pelvic organs, a small ovarian tumour, or a subperitoneal fibroid. So that the diagnosis of these tumours may not be at all easy.

As regards their position in the abdominal wall, you may, in a difficult case, be able to satisfy your mind upon that point by putting the muscle into action. If the tumour is situated underneath the muscle it would of course disappear and be hidden when the muscular fibres are contracted. A tumour in the muscle would under such circumstances remain where it was. However, inasmuch as one of these tumours was situated at the back of the sheath of the rectus, it disappeared, too, when the rectus was put into action. One patient had a fibroma in the right semilunar line, close to McBurney's point. That was thought by some to be an appendicular tumour. Indeed, the diagnosis was not cleared up until the operation. The fibromyoma of large size in the left inguinal canal, and reaching from the anterior superior spine of the ilium as far as the crest of the pubis, was difficult to diagnose. It was so immoveable that it seemed to be growing from the pelvis. I cannot help thinking that someone had thought that because we found an operation scar five inches long over the front of the tumour it had been exposed and a portion removed and had been assumed to be a sarcoma. Perhaps the operator thought it was too firmly fixed for her to undertake its removal. I prepared to tie the external iliac vessels, and provided saws and bone forceps, because it might be necessary to remove a portion of the pelvis. However, the tumour was extracted without any particular difficulty. The crest of the pubis was taken away so as to remove as much as possible of the tissue in which it was growing. Until the permanent histological specimens had been seen I thought it might be, after all, a sarcoma.

The following is an error in diagnosis. A man had a hard painless tumour in the middle of the right rectus abdominis, opposite the eighth costal cartilage. Its outlines could be felt very distinctly, and it was thought to be fibroma or sarcoma of the abdominal wall. However, it was a chronic abscess with very thick walls. The pus in the abscess was sterile, and the pathologist had never been able to ascertain the cause of it. On another occasion I mistook a cyst in the substance of the rectus for a fibroma. A man had a small firm tumour in the middle right rectus abdominis muscle about two inches below the level of the umbilicus. It was known to be in the rectus because when the muscle was put into action we could feel the tumour as easily as before. However, it was a cyst with walls about one-sixth of an inch thick and composed of fibrous tissue. It contained clear yellow fluid. Its origin has never been ascertained. The fluid did not contain hooklets and the histological examination of the cyst wall gave no information.

SURGICAL TREATMENT.

The surgical treatment of these tumours of the abdominal wall depends upon their pathological characters. An encapsulated tumour may be removed from its capsule, especially when you know that the tumour consists of fibrous tissue. But if there is no capsule and if the tumour is growing along one of the abdominal muscles then the removal becomes a matter of greater difficulty. I have already said that the ideal method of removing a sarcoma of muscle would be to take away the whole muscle from beginning to end. But I have already said that this is not possible in the case of abdominal muscles. Nevertheless, I am quite sure that the wider the margin you give these sarcomata the better. A patient in Lucas Ward had had a sarcoma removed from the upper part of the right semilunar line. It grew again nine months after the operation. I made a very wide removal. A few months elapsed and then the unfortunate patient had a recurrence. I made my first attempt on Sept. 22nd, 1908, and the second on Dec. 2nd, 1909. A very wide operation was done for the removal of the nodules. The abdominal cavity had to be freely opened. Mr. E. Shaw was present at the operation, and examined the pieces taken away until normal tissues were met with. A further attempt has since been made. In my very limited experience these sarcomata were confined to the abdominal wall. This is a very important point, because if they were to attack the abdominal viscera, the possibilities of removal would be more remote. But although in this last instance I had to remove a large piece of abdominal wall, I was able to do it because the growth had not extended into the liver, or the colon, or the underlying intestines.

RECURRENCE.

I speak of recurrence. What does a recurrence mean? Offhand, I should say recurrence meant that the surgeon had left some piece behind to go on growing. This may not be quite true, because once I removed a tumour, which was said to be a fibroma, from the external oblique muscle, where it overlies the eleventh costal cartilage. Two years later a spindle-celled sarcoma was removed from the front sheath of the right rectus muscle, some distance from the site of the original operation. I was able to remove the front sheath of the rectus, and some of its fibres, and bring the very large gap together. The patient recovered and had a satisfactory abdominal wall, but I never heard whether the tumour grew again. This does not suggest that a piece of the first tumour had been left behind and gone on growing, but rather that the patient had a new growth of more severe type a little way from the old tumour. During the operation the neighbouring lymphatic glands ought to be taken into consideration. I do not know what you are taught now, but I was once taught that sarcomata spread by the blood stream and not by the lymphatics. I hope that is now an exploded superstition. Over and over again, in cases of sarcoma, I have removed lymphatic glands with sarcoma in them. When I removed that large fibromyoma the glands in Scarpa's triangle were enlarged; they were removed, but contained no growth. Also the glands along the course of the external iliac artery were enlarged, and I divided the deep epigastric vessels and removed them, but they had no growth in them. But I did not trust the lymphatic glands. I suppose the ideal method of removing sarcoma in muscle would be to remove the whole muscle and its lymphatic glands. But there I am brought up against a wall of blank ignorance on my part. I do not know the lymphatics into which a particular muscle drains. I have looked into that excellent book of Poirier's and into Bartel's with scant success. We may suppose that a muscle like the sartorius drains itself into the glands of the groin. But how do I know that they do not pass into the pelvis and open into the pelvic glands? Thus removing a sarcoma of the sartorius it is possible that growth might be left in the retrocrural glands.

If any gentleman here wants a subject for anatomical investigation I am sure he would be repaid by investigating the course of the lymphatics of individual muscles. I as a practical surgeon want to know it. Doubtless these sarcomata spread by way of the circulation, but I have no knowledge of that in connexion with sarcomata of the abdominal wall.

CASE 1. *Fibroma, anterior sheath of rectus.*—A Jewess, aged 15 years. A tumour had been growing for two years. It was situated on the anterior sheath of the right rectus about its middle and opposite the eighth costal cartilage. It was removed by division of the sheath, which was afterwards closed by three buried silk sutures. Microscopical examination showed that the tumour was a fibroma. The tumour was removed on August 7th, 1897, and we have been unable to

ascertain whether it recurred, although Mr. Abrahams has searched the hospital records.

CASE 2. *Fibroma, left conjoint tendon.*—A young woman, age about 25 years. The tumour felt as if it was in the inner part of the left iliac fossa, and the patient was treated with castor oil to see whether it might not be a fæcal accumulation. She was shown at surgical consultations, and the case led to considerable difference of opinion. It seemed impossible to decide whether the tumour was situated in the abdominal wall or inside the abdomen; and if inside, whether it was connected with the intestine or with the pelvic organs. An exploration showed that it was an encapsuled tumour outside the peritoneum and in the conjoint tendon of the internal oblique and transversalis. To make sure of a complete removal a portion of the crest of the pubis was removed. The abdominal wall was closed in layers with buried silk sutures. Seen at a later date the result was perfect. Microscopical examination showed that the tumour was a fibroma.

CASE 3. *Fibroma of the abdominal wall.*—A woman, aged 24 years. There is some uncertainty about the microscopical diagnosis of this case—whether it was a fibroma or a fibrosarcoma. The tumour was situated in the right semilunar line near McBurney's point. The question of it being an appendicular swelling arose, but at the operation it was found to be entirely in the abdominal wall. Nothing is known about the subsequent history.

CASE 4. *Fibroma of the abdominal wall.*—This is the only instance of a fibrous tumour occurring in a man. His age was 32 years. A lump had grown in the right rectus abdominis at about on a level of the anterior superior spine of the ilium. It is said to have been growing for 14 years. At the operation it was found between the right rectus abdominis and its posterior sheath and was easily shelled out. The microscopical examination showed that it was a fibroma.

CASE 5. *Fibrosarcoma of the abdominal wall.*—This patient was operated upon on Jan. 26th, 1896, at the Great Northern Central Hospital. She was about 30 years of age. The tumour was situated amidst the fibres of the external oblique muscle and upon the eleventh costal cartilage, so that there was no difficulty in ascertaining that it was in the abdominal wall. It was considered to be a fibroma, but 22 months later a tumour was again found in the abdominal wall, in the front sheath of the rectus on a level with the eleventh costal cartilage. This new tumour was removed without opening the abdominal cavity. A large gap was left in the front sheath of the rectus, and was closed with about one dozen buried silk sutures. The patient made a good recovery, but nothing has been heard of a subsequent history. The microscopical examination showed the tumour to be spindle-celled sarcoma.

CASE 6. *Fibrosarcoma of the abdominal wall.*—A female, aged 20 years. There was a history of a blow upon the abdomen in 1904. In 1906 a tumour appeared in the right semilunar line above the level of the umbilicus. This was removed abroad, but nine months afterwards a recurrence took place. On Sept. 22nd, 1908, the scar of the former operation reached from the ninth costal cartilage 5 inches downwards and had in it an irregular tumour. At the operation the whole of the scar together with the tumour and a margin of healthy abdominal wall was removed. The abdominal cavity was opened; the gap was closed by displacing the right rectus abdominis outwards. On Dec. 2nd, 1909, the patient returned with two nodules in the scar. One was situated over the costal cartilage. It was freely taken away, together with the ninth costal cartilage and parts of the ribs. To remove the nodule in the lower part of the scar, the peritoneal cavity was opened and a considerable part of the abdominal wall was taken away. During the operation Mr. E. Shaw made sections of the tumour, and had this not been done some growth would undoubtedly have been left behind. The growth was a spindle-celled sarcoma.[1]

CASE 7. *Fibromyoma of the abdominal wall.*—A married woman, aged 33 years, noticed a lump in the left groin about November, 1908. A year later this tumour was explored, but was not removed. In January, 1909, it had attained considerable size; it was oval in shape, and its long axis reached from the left anterior superior iliac spine to the crest of the pubis; a scar 4 inches in length ran along its centre. It was exposed by cutting the aponeurotic fibres of the external oblique muscle; it was thought to occupy the inguinal canal. It was shelled out without much difficulty, but was attached to the crest of the pubis, which was removed together with the tumour. The glands in Scarpa's triangle were enlarged and were therefore removed, but they contained no growth. Also some of the lymphatic glands along the external iliac artery were enlarged. To reach these the epigastric artery and veins were divided. After they had been removed it was found that they contained no growth. The large gap in the abdominal wall could only be partially closed, so that after the wound had healed *per primam* a suitable truss was fitted. The tumour was a fibromyoma, and, in my opinion, had originated in the left round ligament of the uterus.

CASE 8. *Cyst of the abdominal wall.*—A man, aged about 30 years, had a hard elongated tumour at the outer edge of the right rectus a little below the level of the umbilicus. By some this tumour was thought to be appendicular, but it could be felt when the rectus muscle was in action, just as well as when the muscle was relaxed. It proved to be a cyst 3 inches long and 1 inch in diameter in the midst of the muscular fibres of the rectus. Its walls were about one-fifth of an inch thick and composed of fibrous tissue. It contained clear yellow fluid. This fluid contained no hooklets. The pathological examination threw no light whatever upon the origin of this curious cyst, which before the operation I had mistaken for a fibroma or fibrosarcoma of the abdominal wall.

CASE 9. *Abscess of the abdominal wall, mistaken for fibroma.*—A man, aged 23 years, had a hard tumour at about the middle of the right rectus abdominis on a level with the eighth costal cartilage. This had been mistaken for a solid tumour. It contained about half an ounce of pus surrounded by hard inflammatory tissues. The pus was sterile, but the cause of the abscess was not ascertained.

I have to thank Mr. Adolphe Abrahams for having kindly obtained these notes.

[1] A fourth removal was done in July, 1910.

A Clinical Lecture

ON

ACUTE LARYNGEAL DYSPNŒA IN CHILDREN.

Delivered at St. George's Hospital

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GENTLEMEN,—I have elected to discuss this subject to-day because the various conditions in which laryngeal obstruction occurs are often found to be rather confusing, and because a clear idea of the causation of these conditions is of very considerable practical and clinical importance. I have selected for consideration only cases of obstruction of the entry of air through the larynx in children, because this symptom is relatively common in childhood and because, by confining my remarks to children, I hope to be able to lay before you a clear picture of these various conditions.

One reason why laryngeal obstruction is commoner among children is that the lumen of the glottis is not only absolutely but relatively small for the needs of the organism. This is well illustrated by cases of abductor paralysis of the vocal cord. When one vocal cord is paralysed in this way, and this is a common result of pressure on the left recurrent laryngeal nerve, the affected cord lies motionless in the middle line and only one-half of the glottis is available for respiration on abduction of the healthy moveable cord; but in the adult this is amply sufficient for quiet respiration, and dyspnœa only occurs on exertion, whereas in the child unilateral abductor paralysis produces marked and even urgent dyspnœa. The principal reason, however, why laryngeal obstruction is so much more common in children is that the tendency to spasm of the glottis is far greater in the early years of life, when the nervous system is most sensitive and the reflexes most active. Indeed, spasm is a most important factor in nearly all forms of laryngeal obstruction, as is shown by the intermittent character of the dyspnœa, even where the obstruction is obviously largely mechanical, as in cases of tumours or of foreign bodies in the larynx.

SOME POINTS IN DIAGNOSIS.

Before discussing the causation of the various forms of obstruction, a few words may be said on the diagnosis of laryngeal dyspnœa generally and its differentiation from obstruction situated lower down in the trachea. In cases of laryngeal obstruction there is well-marked inspiratory stridor, while expiration is comparatively easy; this is owing to the shape both of the glottis and of the upper laryngeal aperture which have somewhat the effect of a valve and obstruct the downward more than the upward passage of the air. Again, when the obstruction is within the larynx the organ is forced distinctly downwards with each inspiration, and this "laryngeal excursion" is an important sign of stenosis in this region, for it does not occur when the obstruction is situated elsewhere. The head is thrown back in order to open up the laryngeal region, and the voice is affected unless the stenosis is purely due to spasm of the cords or to abductor paralysis. On the contary, in cases of tracheal stenosis, the stridor is heard during expiration as well as inspiration; there is no laryngeal excursion; the patient sits with the head bent forwards so as not to stretch, and therefore narrow, the trachea; and there is no hoarseness, although the voice is necessarily weak and breathless.

CAUSES OF LARYNGEAL DYSPNŒA.

The causes of laryngeal dyspnœa range from a pure reflex spasm of the glottis, as when the larynx is touched with a probe, to simple mechanical obstruction, as where the lumen is completely blocked by a lump of meat. But the large majority of cases lie intermediately between these two extremes, and are due partly to spasm and partly to

mechanical reduction in the size of the lumen. When spasm occurs all the laryngeal muscles probably contract, but, the adductors being far the stronger, the result is closure of the glottis. This spasm is a reflex act, and may be produced experimentally by stimulating the centripetal fibres of the vagus; the reflex spasm so produced is always bilateral, and clinically spasm always affects both cords together.

In trying to make clear the various conditions in which larnygeal dyspnœa occurs in children, we can arrange them into three groups: (1) pure spasm; (2) acute laryngeal affections; and (3) chronic laryngeal obstructions; but I will deal to-day only with the first two.

1. PURE SPASM.

By pure spasm, I mean reflex spasmodic closure of a larynx which is perfectly healthy and normal, the stimulus which originates the reflex being situated in another part of the body. Such reflex spasms occur in adults in unstable conditions of the nervous system, as in hysteria and neurasthenia, but, as I have already remarked, children are especially susceptible.

Laryngismus stridulus is a spasmodic affection which occurs in children, usually between the ages of six months and two years. The necessary predisposing cause is a morbid excitability of the nervous system, and the child is always in an ill-nourished and unhealthy condition, and is frequently the subject of rickets; the exciting cause of the reflex may be situated in the alimentary tract and be an overloaded stomach, gastritis, or worms, or in the pharynx, and be due to the presence of adenoid vegetations. The attack begins with a few short noisy inspirations, followed by complete cessation of breathing, and ends with a loud crowing inspiration. During the apnœic stage signs of asphyxia become apparent, and there are often also carpopedal contractions. In the apnœic stage the spasm is so tight as to allow no air to enter, and the most severe cases are occasionally, though very rarely, fatal. Nurses call the attacks "passion-fits" or "holding the breath"; they vary much in frequency and may recur several times in a day. In the intervals between the attacks there is no abnormality of any kind to be detected and no hoarseness or cough such as is present in other forms of laryngeal spasm.

2. ACUTE LARYNGEAL AFFECTIONS.

The acute laryngeal affections which may produce dyspnœa are, with the exception of foreign body, local inflammatory conditions. The stenosis is the result partly of spasm and partly of mechanical obstruction. The three principal forms are laryngitis stridula, œdematous laryngitis, and laryngeal diphtheria.

Laryngitis stridula is often confused with laryngismus stridulus. The former is, like the latter, a spasm of the larynx, but differs in that the exciting cause of the reflex is situated within the larynx and is, in fact, a simple catarrhal laryngitis. The affection is therefore a catarrhal laryngitis in which spasm of the glottis is a marked feature, and it may well be called "spasmodic laryngitis." The predisposing nervous excitability is not so marked a feature as in laryngismus stridulus, but as every child with a laryngeal catarrh does not get spasm it is to be presumed that it exists in some degree; there is no doubt that the presence of adenoids increases the irritability of the throat and is an important factor in the production of the spasm. The onset is that of an ordinary catarrh which spreads to the throat accompanied by slight fever, cough, and hoarseness. Then, usually during the night, after a fit of coughing the spasm comes on with inspiratory stridor, retraction of the epigastrium and lower ribs, and the signs of asphyxiation which persist until death appears imminent, when the spasm finally relaxes. More than one attack may occur during the night but seldom in the day, though the spasm usually recurs for one or two nights but nearly always with dimishing severity. In the intervals and during the day the little patient is hoarse and has the ordinary symptoms of catarrh, and this serves to distinguish the case from one of laryngismus stridulus, in which there are no laryngeal symptoms between the attacks of spasm. The spasms of laryngitis stridula are not so short and sharp as those of the purely spasmodic affection and, though alarming, are practically never fatal; the stridulous breathing usually continues for several minutes, which may be contrasted with the two or three noisy inspirations of laryngismus, and there is rarely a completely apnœic stage in which the spasm is too tight to allow any air to pass, as in the so-called "silent" cases of laryngismus.

Œdematous laryngitis.—Acute inflammation of the larynx may rapidly give rise to sufficient œdema to obstruct the entry of air. This is not a frequent result of simple catarrhal laryngitis, though it is far commoner in children than in adults, and for this reason laryngitis in young people should never be looked on as a trivial ailment. The term, sometimes used, "œdema of the glottis" is a misnomer, for the cords themselves contain no loose subepithelial tissue and cannot be the subject of acute œdema. The swelling is usually situated at the upper aperture of the larynx, especially on the arytenoids and aryteno-epiglottidean folds, but it sometimes occurs in the subglottic region. The symptoms are those of a catarrh, generally severe, with decided constitutional disturbance, in which dyspnœa ensues with more or less rapidity. If spasm be present as well, the dyspnœa is to some extent paroxysmal, but the intermissions are far from complete, and the dyspnœa tends rapidly to become continuous.

Laryngeal diphtheria will only be discussed as a cause of dyspnœa, as a full consideration of the disease would be out of place in this lecture. It is much more apt to invade the larynx in young children than in adults; but this extension is now far less common than it was before the general and early use of antitoxin, for it may be said that if a sufficient dose has been administered before the larynx has been implicated this organ will not subsequently become affected. It should always be remembered that the deposit may be primary in the larynx, although this is very rare. The early symptoms are hoarseness and cough, the latter loud and ringing at first, but becoming later hoarse and "croupy." When laryngeal obstruction comes on it is at first largely spasmodic and paroxysmal in character, with intervals of quiescence. It is generally worse in the night and gradually becomes continuous.

Although formation of membrane is usually due to the diphtheria bacillus, there is now no doubt that a membranous exudation may also be caused by other organisms, especially the streptococcus, either as a primary affection or as a complication of the specific fevers, such as scarlet fever. Non-diphtheritic *membranous laryngitis* occurs especially in children between the ages of two and eight years, and it is generally primary in the larynx. It begins as a catarrhal laryngitis, but a loud ringing cough soon appears and is followed by spasm, and the temperature rises to 102° or 103° F. The attacks of dyspnœa come on at night, and the symptoms often abate somewhat towards morning, to recur more severely on the following evening, so that the severest stage may not be reached for two or three nights. As in all these affections, spasm predominates at first, but later the dyspnœa becomes continuous. The prognosis of non-diphtheritic membranous laryngitis is graver than that of true diphtheria since the introduction of antitoxin.

In the diagnosis of these acute affections it must be remembered that in all of them spasm plays an important part in the causation of the dyspnœa and that the spasm is never continuous but always paroxysmal and intermittent. Therefore, when the affection is purely spasmodic, as in laryngismus stridulus, the patient is perfectly free from symptoms between the attacks and has neither dyspnœa, hoarseness, nor fever. The dyspnœa of laryngitis stridula is also entirely due to spasm and is completely intermittent, but during the intermissions symptoms of catarrh remain and there are hoarseness and some rise of temperature. The spasms are, however, very alarming to the little patient's friends and cause grave anxiety in the mind of the medical attendant lest the disease develop a more dangerous form. If the dyspnœa ceases to be intermittent and remains marked between the exacerbations, it is certain that more serious disease is present, such as œdema, diphtheria, or non-diphtheritic membranous laryngitis. The larynx cannot always be examined in a young child with urgent dyspnœa, but if it is possible a very rapid inspection is sufficient to show the greyish-white membrane lying on an inflamed and reddened mucosa. Children seldom cough out any membrane before tracheotomy has been performed. In diphtheria the fauces are nearly always first affected and the diagnosis is therefore rarely in doubt. In primary cases the enlargement of the cervical glands, albuminuria, the asthenic character of the fever, and the small rapid pulse will help to distinguish diphtheria from œdematous laryngitis Non-membranous

laryngitis can only be differentiated from diphtheria with certainty by bacteriological examination, though the disease is more often primary in the larynx and the fever is generally higher and of a more sthenic type.

OTHER CAUSES OF ACUTE DYSPNŒA.

There are two other important causes of acute dyspnœa in children—namely, acute retro-pharyngeal abscess and foreign body. The former arises from infection of the post-pharyngeal lymphatic glands which are well developed in childhood and atrophy in later life, and should be distinguished from the chronic form of abscess due to spinal caries. The symptoms are those of acute fever of rapid onset, with severe dyspnœa and often hoarseness and croupy cough, but there are usually also pain and difficulty on swallowing, with regurgitation through the nose and swelling of the glands in the neck; the rounded fluctuating swelling on the posterior pharyngeal wall can be readily seen or felt. These cases do well after free incision through the pharyngeal wall with the head in the dependent position to avoid entrance of pus into the lungs, whereas the chronic abscess should be opened by incision through the neck to obviate infection of the tuberculous material by organisms from the mouth and throat.

It should never be forgotten that dyspnœa coming on suddenly without obvious cause may be due to the entrance of a foreign body into the larynx or trachea. A large mass lodged in the larynx or in the pharynx above the laryngeal aperture causes complete obstruction to respiration and rapid death if not removed; but a small body in the larynx excites spasm and a violent attack of dyspnœa which, though it may prove fatal, generally passes off and the symptoms are then some degree of hoarseness or aphonia depending on the size and position of the foreign body, cough, and occasional attacks of spasm which come on suddenly and irregularly and are often induced by any movement. The symptoms of a foreign body in the trachea are very similar; as long as it remains fixed the symptoms are slight, consisting chiefly of discomfort and perhaps some respiratory stridor, but as soon as it shifts its position it causes cough and is driven up against the glottis and sets up a fresh spasm. In this way the substance may be ejected, but usually the cords close too quickly for it and it remains in the trachea or falls into a bronchus and becomes impacted. The later results of inflammation of the larynx, air tubes, and lungs I will not now discuss.

TREATMENT.

The treatment of spasm must be considered under two heads, that of treatment during the paroxysm and that of preventive treatment between the attacks. The spasm of laryngismus stridulus is very short and sharp and there is little time to put the child into a hot bath and pour cold water on to the head, as has been recommended. The quickest and surest way to relieve the spasm is to hook the epiglottis forward with the finger, a manipulation which can easily be taught to the mother or nurse. The spasm also may cease on stimulating the conjunctiva by touching it with the finger or on tickling the nasal mucous membrane with a feather. The inhalation of amyl nitrite may be tried and can be quickly employed by means of breakable glass capsules. A fatal result is extremely rare. In the preventive treatment overloading of the stomach must be carefully avoided, regular action of the bowels ensured, and all gastro-intestinal irritation prevented, while a course of rhubarb and soda or magnesia is indicated; a change of air to a higher locality, or even to the top of the house, is very beneficial; and rickets, if present, must be treated. It has already been said that adenoids are a powerful source of irritation and their removal in children predisposed to laryngismus is an essential part of the treatment. As a sedative, if the attacks are frequent and severe, small doses of bromide may be prescribed or, better, the liquid extract of grindelia in 10-minim doses in milk every three or four hours.

The spasm of laryngitis stridula is neither so acute nor so transient as that of laryngismus and can usually be allayed by the induction of vomiting. Ipecacuanha is the most useful emetic for the purpose, as its expectorant action is of value in the treatment of the accompanying laryngitis; drachm doses of the wine or 5 grains of the powdered root may be given every half hour to a child of 2 years of age until vomiting occurs. A combination of ipecacuanha and tartar emetic may act better than either drug alone, and Whitla recommends 10 minims each of vinum antimoniale, vinum ipecacuanhæ, and syrupus scillæ every 15 minutes until vomiting occurs for a child 1 year old. When the spasms are severe nitrite of amyl may be tried, or nitro-glycerine gr. $\frac{1}{100}$ every three hours, and sometimes belladonna is of value. For the rest, the treatment is that of the laryngitis, the child being kept in bed in a warm, well-ventilated room and the ipecacuanha mixture continued every three hours after the cessation of the spasm. The dyspnœa is likely to recur on the next few nights but with diminishing severity; if it lasts longer a nourishing diet and tonic treatment are indicated. Children subject to laryngeal spasm nearly always suffer from adenoids and these should be removed after the laryngitis has subsided. If the laryngitis grows worse and the dyspnœa becomes continuous and severe you may be sure that œdema is occurring or membrane forming in the larynx. An attempt should then be made to inspect the larynx, and this is frequently possible even in very small children, as a rapid glimpse is sufficient to show the swollen upper aperture or the whitish membranous deposit; failing this the part should be quickly palpated with the finger. If œdema be present leeching may be tried, one or more being applied over the manubrium sterni rather than to the neck, so that the bleeding may be arrested, if necessary, by pressure. An ice-bag to the neck is hardly permissible in very young children, but may be applied with caution in older cases for not more than about three hours, and a spray of adrenalin may be used, but too much time must not be spent on these palliative measures, for children are quickly exhausted by dyspnœa and collapse with great rapidity. If the upper aperture can be felt to be swollen it should be freely scarified with a guarded curved bistoury guided by the left forefinger on the affected part. This often gives rapid relief, but if it is insufficient, or if the swelling is out of reach in the subglottic region, tracheotomy or intubation must be performed without delay; I believe that the former operation is most suitable for these cases, and the opening should be fairly low, for the subglottic swelling may extend for some distance down the trachea.

I need only refer to the treatment of the laryngeal symptoms of diphtheria; here emetics should in general be avoided as depressing, but if dyspnœa is marked in an early stage while the strength is well maintained an emetic dose of ipecacuanha will often do good. Intubation or tracheotomy should not be long delayed, especially as the heart is already weakened by the toxins of the disease. I have not time to discuss the relative advantages of these two operations, but will only remark that intubation is of great value in the treatment of diphtheria in institutions where medical aid is always within reach, and that it appears from statistics to be the safer operation for children under five years of age, though this is very probably merely because it is often performed at an earlier stage than tracheotomy. If the latter is preferred a fairly low tracheotomy is advisable, both because the membrane may extend down the trachea and because the low operation is less irritating to the larynx and less often gives trouble in removal of the tube. The tube must be dispensed with as early as possible, for the longer the little patient becomes accustomed to it the more difficult it is to take it out. Two to four days is now usually sufficient for a case of diphtheria when antitoxin has been given; a fenestrated tube should first be inserted and kept closed for some time with a cork in order to make quite sure that respiration is unobstructed. The treatment of non-diphtheritic membranous laryngitis is on similar lines and antitoxin must be given owing to the impossibility of at once excluding diphtheria. Calomel is much recommended; 1 or 2 grains every three hours until the bowels have acted freely and then three or four times day in combination with iron.

CHICHESTER INFIRMARY.—The reconstruction of Chichester Infirmary has been agreed upon as a memorial to King Edward. To this end Mr. William James has given £10,000, as has been announced. Mr. James Buchanan, High Sheriff of Sussex, has subscribed 1000 guineas, and the Duke of Norfolk and the Duke of Richmond and Gordon £200 each. The total cost of the scheme has been put at £20,000.

AN AID TO DIAGNOSIS IN MALIGNANT DISEASE.

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IN a previous paper on the subject of the alterations in the composition of the urine in malignant disease[1] I gave in full the account of my investigations on the urine of cancer patients. I found that the nitrogenous output of the urine was decreased in cancer, even where the patient was taking a fairly substantial diet; that the urea was diminished proportionately with the total nitrogen, both urea and total nitrogen being diminished to a greater extent than the uric acid, which was in many cases of normal amount. The chlorides and phosphates I found to be excreted in quantities below normal, the reduction in phosphatic excretion being much greater proportionately than that of the uric acid, or of the total nitrogen of the urine. The sodium excretion was also diminished, and to a greater extent than could be accounted for by its retention as sodium chloride. In addition to these facts, I found that in many cases the urine was neutral, and commonly even alkaline, and that the alkaline phosphates were in excess of the acid salts in several cases tested.

All these facts suggested the strong probability that the phosphates were being retained in the body as the alkaline salts, probably of sodium. This belief was strengthened by the statement by Benjamin Moore and others that the alkalinity of the blood is slightly increased in cancer. The fact that the phosphates of sodium are soluble salts points to the possibility of their being retained in the tissue fluids, but wherever in the body this retention be and whether it exists or no there are certain important facts which cannot be overlooked—viz., that the phosphates are practically always reduced in the urine in cancer, whereas the uric acid does not show any constant proportionate reduction. The ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is thus almost always low and tends to diminish as the disease progresses.

These points suggested to me that an examination of the urine and a determination of this ratio might prove very useful in the diagnosis of obscure cases of malignant disease. I have therefore performed examinations of the urine in a number of cases; 25 of these were undoubted cancer cases, many of them confirmed by microscopical examination after death or removal of the growth by operation. Nine out of these 25 cases were examined several times during the course of the disease, 6 being followed up to the time of their death, the largest number of examinations of one case being 10, and the smallest 2. Of the other cases, 15 were surgical, all but one being taken from the surgical wards of the Manchester Royal Infirmary, and the remainder were chosen from the medical wards of the Manchester Infirmary, while the cancer cases, with the exception of 5, were taken from the Manchester Christie Hospital for Cancer. For purposes of comparison, one normal case was examined six times, and the cases of hernia, varix, fractures, &c., may be considered for my purpose to be normal individuals.

The diets taken will be found stated in the tables. Common diet in the case of a male or female patient consists of the following:—*Breakfast:* A pint of tea or coffee, 4 ounces of bread, half an ounce of butter, and in many cases an egg. *Lunch:* Half a pint of milk. *Dinner:* 4 ounces of beef or mutton for a male and 3 ounces for a female patient, 4 ounces of bread, 8 ounces of potatoes, and milk pudding or custard. *Tea:* The same as breakfast. *Supper:* Half a pint of milk.

Thus it will be seen that of the non-malignant cases 18 were on a common diet, and 4 on milk, slop, or fish diets, whereas of the malignant cases estimated once, 10 were on common and 6 on fluid or largely fluid diet. Of the cases where several estimations were made during the course of the disease, in Case I.B 6 of the estimations were made while the patient was on a meat diet, while for the remaining 4 she was taking soup instead of meat. In Case II.B the patient was taking a good meat diet throughout, while in Case III.B 2 estimations were made on a fish diet, 3 on a meat diet, and on 2 occasions soup was taken. In Case IV.B a meat diet was taken during both estimations, while in Case V.B, during 4 estimations a soup diet was taken, and for the last 3 practically a milk diet. Case VI.B took first a soup and then a minced-meat diet, Case VII.B a soup diet throughout, Case VIII.B a meat diet, and Case IX.B a farinaceous diet, with the addition of 5 ounces of soup. Case X.B was a normal individual, and the observations were taken on a normal diet for a healthy person.

As regards the quantity of urine passed, it is too variable to require note, and we shall not discuss it. The uric acid of the urine normally amounts to an average of 0·5 gramme, but the excretion of hospital patients who are bedridden is proportionately lower than this amount. Thus of the 18 non-malignant cases on common diet, 3 were above 0·5 gramme, 2 between 0·4 and 0·5 gramme, 3 between 0·3 and 0·4 gramme, 8 between 0·2 and 0·3 gramme, and 2 below 0·2 gramme. The average output of uric acid for all these 18 cases was thus 0·333 gramme, 8 out of 18, or 4/9ths, being above 0·3 gramme.

Comparing the foregoing with the malignant cases on the same diet, 10 in number, in which altogether 11 estimations were made, 2 were above 0·6 gramme, none between 0·5 and 0·6 gramme, 3 between 0·4 and 0·5 gramme, 3 between 0·3 and 0·4 gramme, 3 between 0·2 and 0·3 gramme, and none below 0·2 gramme. The average of the 10 cases was thus 0·445 gramme, and while in the non-malignant cases we found only 8 out of 18, or 4/9ths of the cases, with an output of uric acid above 0·3 gramme, in the malignant cases 8 out of 10, or 4/5ths, show an output above 0. 3 gramme. Also, while the average output of the 18 non-malignant cases is 0·333 gramme, that of the malignant cases is 0·445 gramme.

Turning now to the cases on a more or less fluid diet, in the 4 non-malignant cases 5 estimations were made. Of these 1 is between 0·3 and 0·4 gramme, 2 are between 0·2 and 0·3 gramme, and 2 between 0·1 and 0·2 gramme, the average output being 0·224 gramme of uric acid per day, only 1/5th being above 0·3 gramme.

In the 6 malignant cases on a similar diet the uric acid excretion is in 1 case between 0·6 and 0·7 gramme, in 1 between 0·5 and 0·6 gramme, in 1 between 0·4 and 0·5 gramme, in 2 cases between 0·3 and 0·4 gramme, and in 1 case between 0·1 and 0·2 gramme. The average of the 6 cases is thus 0·383 gramme, as compared with 0·224 gramme in the non-malignant cases; and whereas in the non-malignant cases only 1/5th shows an output above 0·3 gramme in the malignant cases no less than 5/6ths exceed this amount.

The figures just quoted show clearly that in malignant disease the output of uric acid is greater than in ordinary hospital patients under similar conditions.

Let us now turn to the phosphates. Of the 18 non-malignant cases on common diet 1 shows a phosphate excretion of just above 3 grammes, 7 show excretions of between 2 and 3 grammes, 9 between 1 and 2 grammes, and 1 below 1 gramme. The average excretion for the 18 cases is thus 1·78 grammes, and 17 out of the 18 have an output above 1 gramme.

The malignant cases, 10 in number, on a similar diet show the following results, 11 estimations being made. No case shows a phosphate output above 2 grammes, 5 cases are between 1 and 2 grammes, and 6 are below 1 gramme. The average of the 11 estimations of the 10 cases is thus 1·07 grammes, 6 out of 11 having an output below 1 gramme.

In those patients on an almost entirely fluid diet five estimations were made on 4 non-malignant cases, the result being that 1 case showed a phosphate output above 2 grammes and 4 cases a phosphate output of between 1 and 2 grammes, the average of the five estimations of the 4 cases being 1·734 grammes, all showing an excretion above 1 gramme.

Of the 6 malignant cases on a similar diet, 2 were between 1 and 2 grammes, and 4 were below 1 gramme, the average excretion of the 6 cases being 0·993 gramme, 2/3rds showing an excretion less than 1 gramme.

These figures show definitely that the excretion of phosphates is decreased in patients suffering from malignant disease as compared with ordinary hospital patients on the same diet.

Let us now consider the ratios of $\frac{\text{phosphates}}{\text{uric acid}}$ in the 18 non-malignant cases on a common diet. 1 shows a ratio of

[1] Medical Chronicle, August and September, 1909.

SERIES A.

Malignant and Non-malignant Cases Examined Once.

Case.	Age.	Sex.	Urine.	Uric acid.	Phosphates.	Ratio.*	Disease.	Diet.
			c.c.	gramme.	grammes.			
1 (*a*)	46	M.	1700	0·398	0·884	2·22	Carcinoma pylori.	Common diet.
1 (*b*)			1110	0·274	1·08	3·94	After operation.	,,
2	48	F.	480	0·304	0·87	2·85	Scirrhus of the breast (after operation).	,,
3	—	M.	1000	0·277	1·65	5·95	Amyotrophic lateral sclerosis.	,,
4	23	M.	1060	0·391	2·12	5·42	Hernia.	,,
5	—	M.	1080	0·255	1·7	6·66	Fracture of the tibia and fibula.	,,
6	34	M.	1790	0·256	2·5	9·76	,, ,,	,,
7	31	M.	880	0·274	1·21	4·41	Hernia (after operation).	,,
8	22	M.	1470	0·366	2·1	5·73	Varix (after operation).	,,
9	20	F.	870	0·541	2·44	4·51	Fracture of the os calcis.	,,
10	—	M.	560	0·180	1·053	5·84	Hernia.	,,
11	—	M.	1200	0·434	2·232	5·14	,,	,,
12	15	M.	690	0·254	1·518	5·97	Genu valgum.	,,
13	—	F.	790	0·603	1·706	2·83	Scirrhus of the breast (after operation).	,,
14	—	F.	800	0·258	1·18	4·57	Right inguinal hernia.	,,
15	—	F.	740	0·233	1·203	5·16	Double inguinal hernia.	,,
16	—	F.	1200	0·528	3·024	5·73	Disseminated sclerosis.	,,
17	—	F.	510	0·192	0·714	3·72	,, ,,	,,
18	60	M.	1110	0·148	0·976	6·6	Epithelioma of the tongue (after operation).	Milk, 6 pints; 2 eggs; beef-tea, 1 pint.
19	16	M.	880	0·256	0·986	3·81	Sarcoma of the naso-pharynx (after operation).	Milk, 3 pints; bread; beef-tea, 1 pint.
20	—	F.	740	0·255	1·362	5·34	Gastric ulcer.	Milk, 4 pints.
21	35	F.	1020	0·302	1·938	6·42	,,	Fish; B and B†; milk and milk pudding.
22	36	M.	1760	0·194	1·619	8·3	,,	Milk and custard.
23 (*a*)	42	M.	1360	0·155	2·176	14·0	? Abdominal carcinoma.	Milk.
23 (*b*)			1160	0·214	1·577	7·37	(Found none malignant.)	Milk; fish; beef-tea.
24	35	M.	900	0·556	2·286	4·1	Gastric ulcer (after operation).	Common diet.
25	18	F.	750	0·213	1·065	5·0	Neurasthenia.	,,
26	—	F.	1200	0·319	1·584	4 96	Fracture of the fibula.	,,
27	—	M.	900	0·473	2·52	5·33	Goitre.	,,
28	57	M.	1050	0·402	1·591	3·96	Epithelioma of the pharynx.	,,
29	73	F.	570	0·479	0·741	1·54	Scirrhus of the breast.	,,
30	37	M.	1780	0·415	1·468	3·54	Epithelioma of the tongue.	Milk and milk pudding; soup; egg.
31	40	M.	1170	0·570	0·679	1·19	Rodent ulcer of the face.	,,
32	58	M.	680	0·291	0·639	2·19	Epithelioma of the palate.	,,
33	48	M.	1400	0·478	1·134	2·37	Epithelioma of the floor of the mouth.	Common diet.
34	63	F.	1160	0·235	0·47	2·0	Scirrhus of the breast.	,,
35	55	F.	1300	0·283	0·169	0·597	Carcinoma uteri.	,,
36	45	M.	1570	0·659	1·24	1·88	Carcinoma of the stomach.	,,
37	46	F.	1130	0·335	0·821	2·45	Scirrhus of the breast.	,,
38	45	M.	1200	0·621	1·214	1·94	Carcinoma of the œsophagus.	Tea, 2 ounces; milk, 2 pints.
							Normal Cases.	
1	—	M.	1000	0·277	2·12	5·95	Amyotrophic lateral sclerosis.	Common diet.
2	23	M.	1060	0·391	1·65	5·42	Hernia.	,,
3	34	M.	1790	0·256	2·5	9·76	Fracture of the tibia and fibula.	,,
4	—	M.	1080	0·255	1·7	6·66	,, ,,	,,
5	31	M.	880	0·274	1·21	4·41	Hernia (after operation).	,,
6	22	M.	1470	0·366	2·1	5·73	Varix.	,,
7	20	F.	870	0·541	2·44	4·51	Fracture of the os calcis.	,,
8	—	M.	560	0·180	1·053	5·84	Hernia.	,,
9	—	M.	1200	0·434	2·232	5·14	,,	,,
10	15	M.	690	0·254	1·518	5·97	Genu valgum.	,,
11	—	F.	800	0·258	1·18	4·57	Hernia.	,,
12	—	F.	740	0·233	1·203	5·16	,,	,,
13	—	F.	1200	0·528	3·024	5·73	Disseminated sclerosis.	,,
14	—	F.	510	0·192	0·741	3·72	,, ,,	,,
15	35	M.	900	0·556	2·286	4·1	Gastric ulcer.	,,
16	18	F.	750	0·213	1·065	5·0	Neurasthenia.	,,
17	—	F.	1200	0·319	1·584	4·96	Fracture of the tibia and fibula.	,,
18	—	M.	900	0·473	2·52	5·33	Goitre.	,,
Average of 18 cases ...				0·333	1·780	5·432		

* Equals phosphates divided by uric acid.

† B and B=Bread and butter.

SERIES A (*continued*).

Normal Cases on Diets containing Small Quantities of Purin and Larger Quantities of Phosphates, chiefly Fluids.

Case.	Age.	Sex.	Urine.	Uric acid.	Phosphates.	Ratio.*	Disease.	Diet.
			c.c.	gramme.	grammes.			
19	—	F.	740	0·255	1·362	5·34	Gastric ulcer.	Milk, 4 pints.
20	35	F.	1020	0·302	1·938	6·42	,,	Milk, 1 pint; milk pudding; fish; B & B.
21	36	M.	1760	0·194	1·619	8·3	,,	Milk, 4 pints; custard; milk and custard diet for several weeks previous to estimation.
22 (*a*)	42	M.	1360	0·155	2·176	14·0	,,	Milk, 6 pints; milk diet for five weeks prior to estimation.
22 (*b*)			1160	0·214	1·577	7·37	,,	Milk, 1 pint; fish; beef-tea, for 14 days previous to second estimation.
Average of 4 cases ...				0·224	1·734	7·70		
					Malignant Cases.			
1 (*a*)	46	M.	1700	0·398	0·884	2·22	Carcinoma pylori.	Common diet.
1 (*b*)			1110	0·274	1·08	3·94	Same after operation.	,,
2	48	F.	480	0·304	0·870	2·85	Scirrhus of the breast.	,,
3	—	F.	790	0·603	1·706	2·83	,, ,,	,,
4	57	M.	1050	0·402	1·591	3·96	Epithelioma of the pharynx.	,,
5	73	F.	570	0·479	0·741	1·54	Scirrhus of the breast.	,,
6	48	M.	1400	0·478	1·134	2·37	Epithelioma of the floor of the mouth.	,,
7	63	F.	1160	0·235	0·47	2·0	Scirrhus of the breast.	,,
8	55	F.	1300	0·283	0·169	0·597	Carcinoma uteri.	,,
9	45	M.	1570	0·659	1·24	1·88	Carcinoma of the stomach.	,,
10	46	F.	1130	0·335	0·821	2·45	Scirrhus of the breast.	,,
Average of 10 cases ...				0·445	1·070	2·40		
					Malignant Cases on Diets containing Small Quantities of Purin and Larger Quantities of Phosphates, chiefly Fluids.			
11	60	M.	1110	0·148	0·976	6·6	Epithelioma of the tongue (after operation).	Milk, 6 pints; beef-tea, 1 pint; eggs, 2.
12	16	M.	880	0·256	0·986	3·81	Sarcoma of the naso-pharynx.	Milk, 3 pints; beef-tea, 1 pint; bread.
13	37	M.	1780	0·415	1·468	3·54	Epithelioma of the tongue.	Milk, 2½ pints; milk pudding; soup 1 pint; egg; cocoa.
14	40	M.	1170	0·570	0·679	1·19	Rodent ulcer of the face.	Milk, 1 pint; soup, 1 pint; egg; milk pudding.
15	58	M.	680	0·291	0·639	2·19	Epithelioma of the palate.	Milk, 1 pint; soup, 1 pint; egg; milk pudding.
16	45	M.	1200	0·621	1·214	1·94	Epithelioma of the œsophagus.	Tea, 2 ounces; milk, 2 pints.
Average of 6 cases ...				0·383	0·993	2·6		
					Blood Diseases.			
1	—	F.	800	0·271	0·692	2·55	Cyanosis; hæmoglobinæmia.	Common diet.
2	35	F.	630	0·490	0·919	1·87	Spleno-medullary leucocythæmia.	,,
Average of 2 cases ...				0·380	0·805	2·21		

* Equals phosphates divided by uric acid. † B & B = Bread and butter.

9·76, 1 a ratio above 6, 10 are between 5 and 6, 5 between 4 and 5, and 1 is between 3 and 4. The average ratio for the 18 cases is 5·432, and of these 17 out of 18 show ratios above 4, while all are above 3.

In the 10 malignant cases also on common diet, where 11 estimations were made, 2 showed a ratio between 3 and 4, 6 between 2 and 3, 2 between 1 and 2, and 1 below 1. The average ratio is thus 2·4, and of the 11 estimations all show a ratio below 4, only 2 of the 11 being above 3.

Turning now to the cases on an almost fluid diet; of the 5 estimations made in 4 non-malignant cases, 1 shows a ratio of 14, 1 a ratio above 8, 1 a ratio between 7 and 8, 1 between 6 and 7, and 1 between 5 and 6. The average of the 5 estimations is 8·286, and of the 4 cases none shows a ratio less than 5.

Of the 6 malignant cases on a similar diet, in 1 the ratio is above 6, in 2 it is between 3 and 4, in 1 it is between 2 and 3, and in 2 between 1 and 2. The average of the 6 cases is 2·6; only 1 case has a ratio above 4 and only 3 out of 6 a ratio above 3.

Finally, let us consider the cases of malignant disease estimated a number of times in the course of the illness; in these the diet varied somewhat from time to time, as we have seen above. The following results are found:—

Case.	Average uric acid.	Average phosphates.	Average ratio.	No. of estimations.
I.B	0·466 gramme.	0·659 gramme.	1·41	10
II.B	0·266 ,,	0·782 ,,	2·94	5
III.B	0·341 ,,	1·157 grammes.	3·40	7
IV.B	0·322 ,,	0·728 gramme.	2·26	2
V.B	0·416 ,,	0·658 ,,	1·58	7
VI.B	0·446 ,,	0·999 ,,	2·01	2
VII.B	0·340 ,,	0·501 ,,	1·47	3
VIII.B	0·380 ,,	1·083 grammes.	2·85	2
IX.B	0·260 ,,	0·752 gramme.	2·90	2

Average of 9 cases in which 40 estimations were made: Uric acid, 0·359 gramme; phosphates, 0·813 gramme; $\frac{\text{phosphates}}{\text{uric acid}}$ ratio, 2·26. Hence out of the 40 estimations

SERIES B.

Malignant Cases Examined at Intervals during the Course of the Disease.

No.	Age.	Sex.	Urine.	Urie acid.	Phosphates.	Ratio.*	Disease.	Diet.
			e.e.	gramme.	grammes.			
I.B 1	64	F.	1500	0·433	0 857	1·98	Scirrhus of the breast.	(1)† Tea, B & B,‡ bacon; (2) 1 pt. beef-tea, 4 oz. bread, milk pudding; (3) tea, B & B, egg; (4) ½ pt. milk.
2			1150	0·397	0·931	2·35		(1) Cocoa, B & B, ham; (2) 8oz. milk; (3) 1½ oz. beef, potatoes, cabbage, milk pudding, fruit; (4) tea, B & B, egg; (5) ½ pt. milk.
3			1430	0·381	0·908	2·38		Ditto.
4			860	0·607	1·061	1·75		Ditto.
5			800	0·24	0·5	2·08		Ditto.
6			1300	0 468	0 741	1·58		Ditto + 1½ oz. wine.
7			1150	0·504	0·701	1·39		Ditto.
8			1110	0 25	0·255	1·02		(1) Tea, B. & B, bacon; (2) 8 oz. milk; (3)1 pt. soup, bread, milk pudding; (4) tea, B & B, egg; (5) ½ pt. milk, 1½ oz. wine.
9			520	0·483	0·318	0·66		(1) Tea, B & B, ham; (2) ½ pt. milk; (3) 5 oz. soup, bread, milk pudding; (4) tea, B & B; (5) ½ pt. milk, 2 oz. wine.
10			1390	0·902	0·319	0·35		(1) Tea, toast; (2) ½ pt. milk; (3) 6 oz. soup, bread; (4) tea, B & B; (5) 5 oz. milk, 2 oz. wine.
II.B 1	64	F.	1130	0·345	1·492	4·32	Carcinoma of the rectum.	(1) Tea, B & B, bacon; (2) meat, potatoes, cabbage, milk pudding; (3) tea, B & B, egg; (4) 8 oz. soup.
2			1010	0·239	0·828	3·46		Ditto.
3			1000	0·187	0·41	2·19		(1) Tea, B & B, ham; (2) 1 oz. meat, potatoes, cabbage, milk pudding, stewed fruit; (3) tea, B & B, egg; (4) 6 oz. soup.
4			1000	0·262	0·59	2·25		Ditto.
5			1020	0·298	0·591	1·98		Ditto.
III.B 1	38	F.	990	0·371	1·164	3·14	Scirrhus of the breast.	(1) Tea, B & B, bacon; (2) fish, potatoes, milk pudding; (3) tea, B & B, egg; (4) bread and milk.
2			820	0·269	1·23	4·57		(1) Cocoa, B & B, egg; (2) ½ pt. milk; (3) 2½ oz. mutton, potatoes, milk pudding; (4) tea, B & B, jam; (5) ½ pt. milk.
3			1520	0·308	1 011	3 28		Same as (1).
4			1180	0·265	1·309	4 94		(1) Tea, B & B, ham; (2) meat, potatoes, milk pudding; (3) tea, B & B, egg; (4) 6 oz. soup.
5			1650	0·557	1·441	2·59		(1) Tea, B & B, marmalade; (2) vegetables, milk pudding; (3) tea, B & B, egg; (4) 6 oz. of soup.
6			1150	0·345	1.104	3·20		Ditto.
7			1450	0·272	0·841	3·09		(1) Tea, B & B, fish; (2) 5 oz. milk; (3) 2½ oz. mutton, potatoes, cabbage; (4) tea, B & B, egg; (5) 6 oz. soup.
IV.B 1	59	M.	730	0·490	0·755	1·54	Epithelioma menti.	(1) Cocoa, B & B, egg; (2) milk; (3) 2½ oz. mutton, potatoes; (4) cocoa, B & B, jam; (5) milk.
2			1430	0·155	0·702	4·53		Ditto.
V.B 1	60	M.	890	0·504	1·023	2·03	Rodent ulcer of the face.	(1) Tea, B & B, egg; (2) 10 oz. milk; (3) 1 pt. soup, bread, milk pudding; (4) tea, B & B, jam; (5) ½ pt. milk.
2			940	0·208	0·818	3·93		Ditto.
3			900	0·348	0·598	1·72		Ditto.
4			1100	0·463	0·836	1·80		Ditto.
5			950	0·413	0·546	1·32		(1) Tea, B & B; (2) ½ pt. milk; (3) milk pudding; (4) tea, B & B; (5) ½ pt. milk.
6			350	0·394	0·433	1·1		Ditto.
7			450	0·584	0·354	0·61		Ditto.
VI.B 1	70	M.	450	0·375	1·249	3·33	Carcinoma of the colon.	(1) Tea, B & B; (2) ½ pt. milk; (3) ½ pt. soup, bread, milk pudding; (4) tea, B & B; (5) ½ pt. milk.
2			750	0·517	0·75	1·45		(1) Tea, toast; (2) 6 oz. milk; (3) minced meat, potatoes, milk pudding; (4) tea and toast; (5) 6 oz. milk.
VII.B 1	77	M.	530	0·298	0·669	2·24	Epithelioma of the serotum.	(1) Tea, B & B, egg; (2) ½ pt. milk; (3) 5 oz. soup, bread, milk pudding; (4) tea, B & B; (5) ½ pt. milk.
2			780	0·424	1·23	2·9		Ditto.
3			400	0·3	0·605	2·02		Ditto.
VIII.B 1	46	F.	1060	0·378	1·288	3·41	Scirrhus of the breast.	(1) Tea, B & B, bacon; (2) 8 oz. milk; (3) meat, potatoes, cabbage, milk pudding; (4) tea, B & B, jam; (5) bread and milk.
2			510	0·382	0·879	2·3		Ditto.
IX.B 1	71	M.	510	0·323	0·939	2·91	Epithelioma of the tongue.	(1) 8 oz. milk and cornflour; (2) 2 oz. milk; (3) 5 oz. soup, bread, milk pudding; (4) tea, B & B; (5) 1 oz. whiskey.
2			290	0·197	0·565	2·86		Ditto.
X.B 1	—	M.	1700	0·669	3·162	4·75	*Nil.*	(1) Ham and eggs, B & B, coffee; (3) soup, meat, potatoes and vegetables, stewed fruit; (4) tea, B & B; (5) bread and cheese.
2			1790	0·724	3·347	4·63		Ditto.
3			870	0·822	2·74	3·33		Ditto.
4			1900	0·463	2·755	5·95		Ditto.
5			1550	0·587	2·836	4·83		Ditto.
6			1600	0·576	3·152	5·47		Ditto.

* Equals phosphates divided by urie acid.

† (1) = Breakfast; (2) = lunch; (3) = dinner; (4) = tea; (5) = supper.

‡ B & B = Bread and butter.

we obtain the following results. The output of uric acid per day is in 1 case above 0·9 gramme, in 1 between 0·6 and 0·7, in 5 cases between 0·5 and 0·6, in 7 between 0·4 and 0·5, in 13 between 0·3 and 0·4, in 10 between 0·2 and 0·3, and in 3 between 0·1 and 0·2 gramme. Thus the uric acid output exceeds 0·3 gramme in 27 out of 40 estimations—i.e., more than 5/8ths of the observations. The daily output of phosphates is in no case above 2 grammes, in 12 cases it is between 1 and 2 grammes, in 22 between 0·5 and 1 gramme, and in 6 it is under 0·5 gramme—i.e., the phosphate excretion is below 1 gramme per diem in 28 out of 40 cases, or 7 10ths of the estimations. The ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is in no case above 5, in 4 cases it is between 4 and 5, in 8 between 3 and 4, in 13 between 2 and 3, in 12 between 1 and 2, and in 3 below 1—i.e., the ratio is below 4 in 36 out of 40 cases, or 9/10ths of the estimations.

Thus the figures show very conclusively the following points. 1. That the uric acid output in malignant disease is greater than in ordinary hospital patients under similar conditions and taking the same diet. 2. That the phosphate excretion is much lower in malignant than in non-malignant patients under corresponding conditions and taking the same diet, and that it falls with the advance of the disease. 3. That the resulting ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is much lower in malignant cases than in the corresponding controls done in non-malignant patients. Also that this ratio falls throughout the course of the disease, as shown by the B series of cases where several estimations were made at longer or shorter intervals during the progress of the disease. 4. That these conditions are largely, though not absolutely, independent of the particular form of diet, the same changes being noted in malignant patients on any diet as compared with ordinary hospital patients on a similar diet. With diets consisting largely of milk, however, and of little or no meat, lower uric acid figures, often higher phosphates, and in most cases higher ratios are given in malignant and non-malignant patients, than would be the case if the patient were on "common diet."

Case XB of Series B is appended for the sake of comparison. It represents the uric acid and phosphate outputs and the corresponding $\frac{\text{phosphates}}{\text{uric acid}}$ ratios in a healthy individual on a normal diet, 6 estimations being made at intervals. It will be noticed that the phosphates do not show the constant tendency to fall, so marked in the malignant cases, and also that the $\frac{\text{phosphates}}{\text{uric acid}}$ ratio on the whole maintains a high level, being above 4 in every case but one.

What explanation can we give for these results? It would be expected, since in patients who have cancer there is generally a tumour mass undergoing disintegration and a progressive emaciation of the body tissues, that the excretion of uric acid and phosphates would be increased in amount. Now the uric acid behaves as we should expect it would—the excretion is proportionately high but the phosphates are very low. How can this be accounted for? The phosphoric acid of the urine comes from three sources: (*a*) from the nucleo-proteids of the food and tissues, (*b*) from the phosphates taken in with the food, and (*c*) from the phosphorised fats in the body. There are two distinct sources of the uric acid of the urine: there is the exogenous moiety which arises from the purins and nucleo-proteids of the food, and an endogenous moiety which is the result of the breakdown of nucleo-proteids in the tissues. Hence the uric acid and phosphates come largely from the same source, and we should expect their excretion to run more or less parallel. Therefore, if the uric acid be excreted in proportionately high amounts, and if this be not the result of an excessive intake of exogenous purins, we must infer that the phosphates are also being formed in correspondingly increased quantities, and we must search for their ultimate destination, since they are excreted in such small amounts.

I have suggested that the phosphates are possibly retained in the tissue fluids to some extent, and a little consideration will show that there is evidence to support this in the facts above mentioned. It is probable, however, that only a small percentage of the whole amount retained is in the tissue fluids. Thus, having found that the ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is low in cancer and progressively diminishes as the disease runs its course, also that the uric acid is often of normal amount or even above normal in cases of malignant disease, the phosphates being very low and decreasing as the case progresses, it occurred to me that these three data might be of great value as an aid to diagnosis in suspected cases of malignant disease. The estimations are not difficult to perform, the methods are reliable, and these facts, added to the clinical history and possibly the evidence that hydrochloric acid is absent from the gastric juice, would give, in my opinion, a very reliable test as to the presence or absence of malignant disease.

The question of diet, it is true, introduces some difficulty. Thus a patient taking a purely milk diet is consuming a large quantity of inorganic phosphates in the form of calcium phosphate, as well as some organic phosphates, while he is absorbing no purin, since milk is practically purin-free. This causes the uric acid to be much lower, for when a purin-free diet is taken for some time the exogenous purins are gradually drained out of the system, and the uric acid is thus practically entirely from endogenous sources. The output of phosphates, on the other hand, is derived from both exogenous and endogenous sources, since a considerable quantity is being ingested in the milk diet. For these reasons the ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ tends to rise much higher in patients on a milk diet than in those on common diet. But if we compare the malignant cases on a fluid diet with non-malignant patients on a similar diet, we immediately find that the ratio is much lower in the malignant cases. Thus in Case 23*a* of the non-malignant cases, Series A, the ratio is 14, since the patient was on a purin-free diet. In Case 11 of the malignant cases in the same series, also on an almost purin-free diet (except for the beef-tea), it is 6·6. Case 23*b* of the non-malignant series shows the fall after reducing the quantity of milk greatly and adding fish and beef-tea. Thus we can correct for the diet by introducing other substances such as fish where possible and cutting down the milk correspondingly. But this is not all, for we can often form a fairly accurate estimate in such cases where there is a high uric acid figure on a purin-free diet. Thus Cases 13, 14, and 16 of the malignant series would lead us to a diagnosis of malignancy from their high uric acid figures alone, since they are taking very little purin, and the large output of uric acid must there be chiefly derived from endogenous sources, and therefore indicates increased nucleo-proteid metabolism. The excretion of the phosphates often helps also in the diagnosis even in cases where the ratio appears unduly high for a malignant case. Thus Case 11 of malignant cases, Series A, shows a high ratio (6·6), yet the phosphatic excretion is only 0·976 gramme. Now by comparison with the non-malignant cases on a fluid diet we see immediately that this figure is very low, the lowest figure in the 4 non-malignant cases being 1·36 (in Case 19). Thus I wish to emphasise that in examining cases with a view to diagnosis one must consider not only the resultant $\frac{\text{phosphates}}{\text{uric acid}}$ ratio, but also the actual amounts of uric acid and phosphates excreted. The diet must be carefully considered, and where possible the effects of a change of diet on the composition of the urine taken into account.

Another difficulty is illustrated by referring to the two cases given under the head of blood diseases. Here we see results closely resembling, if not identical with, those found in malignant disease. This suggests the possibility of these results being due in some way to the anæmia accompanying cancer. Against this, however, is the fact that one gets typical results of the kind mentioned even in cases which, so far as one can judge, are early. The whole question of their relation to the anæmias requires working out thoroughly, as it may be that there is some common factor underlying both diseases. Cases 21 and 22 of Series A of the non-malignant cases give two instances where the diagnosis was made purely from the urine without having seen the case. Both were diagnosed as non-malignant by this method, while the clinical diagnosis was malignant for Case 21 and gastric ulcer for Case 22. Case 22 was operated on and proved to be a case of gastric ulcer as diagnosed. Case 21 was not operated on, but the diagnosis of malignancy was later

abandoned owing to the great improvement of the patient under treatment, no relapse occurring after three or four months in hospital.

Summary.—From the results obtained and the figures quoted it appears to me that an examination of the urine will prove of great value as an aid to diagnosis in obscure cases of cancer, especially in cancer of the alimentary canal and abdominal organs, which is often difficult to distinguish from such diseases as gastric ulcer, tubercle, gall-stones, &c. In order to apply this test it is necessary to estimate the uric acid and phosphate content of the urine, and to consider the figures separately and then take into account the $\frac{\text{phosphates}}{\text{uric acid}}$ ratio.

The figures quoted have, I consider, established the following facts:—1. That in cases of cancer the uric acid is usually higher than is found in healthy cases under similar conditions. 2. That the output of phosphates in the urine is in the majority of cases of cancer decreased when compared with healthy individuals. 3. That the ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is almost invariably reduced in malignant disease below that found in health, any ratio below 4 being suggestive, especially if it remains low on several occasions, and any ratio below 3 is almost diagnostic of malignant disease or a blood disease, unless, indeed, further work shall prove that the same is found in other conditions.

Finally, I wish it to be understood that this paper is in no sense complete, and is only intended as a preliminary paper. The cases examined point to the conclusions quoted above, but before the value of these facts in diagnosis can be clearly established it will be necessary to determine how far they are true of other forms of cachexia and what their relation may be to the secondary anæmia usually present in malignant disease. I am at present engaged in working out this question, and I hope to publish further details at a later date. Further particulars of many of the facts on which the present paper is based may be found in the article alluded to in footnote 1.

Part of the above work was done in the cancer laboratory of the Manchester Royal Infirmary, owing to the kind permission of the board, and the expenses were partly defrayed by the Cancer Research Fund of that institution.

Wigan.

ON OCCLUDING AND SUBOCCLUDING LIGATURES.

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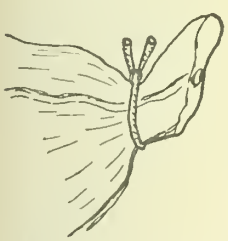
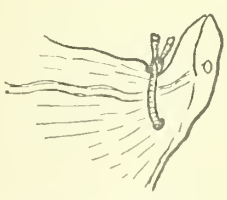
THE application of a ligature in the course of a surgical operation produces in the tissue distal to it a condition of artificial infarction which, like that occurring spontaneously, may be either white or red, depending upon the method of ligature employed. Ligatures, from this point of view, may be divided into two classes. *Occluding ligatures* when every blood channel leading to the distal tissue is included in the ligature (Fig. 1); and *suboccluding ligatures* where, though the main blood-supply is obstructed, yet a tract of tissue capable of establishing capillary anastomosis beyond the ligature is left unincluded in it (Fig. 2).

FIG. 1.



An occluding ligature.

FIG. 2.



A suboccluding ligature.

The distal tissue in the first case is in a true condition of white infarction, being rendered permanently bloodless so long as the ligature holds, and it rapidly undergoes anæmic necrobiosis.

The processes that ensue in the second case can be watched where a suboccluding ligature has been applied in the early stage of a prolonged operation, such as the radical abdominal operation for carcinoma of the cervix after the method of Wertheim, and it is from observations whilst performing this operation that the subject of this paper was first suggested to me.

The first step in the technique of this operation is the application of a ligature round the ovarico-pelvic ligament with its contained ovarian vessels, which is then divided on the uterine side of the ligature. The tissue distal to the ligature as ordinarily applied is obviously suboccluded, but is for the first half-hour or more entirely bloodless. After this period it gradually becomes pink, and at the end of an hour or an hour and a half is deep red or purple and frequently oozing dark-coloured blood, suggesting at first that the ligature is becoming loose. Examination, however, shows that this is not the case, but that the condition is due to the production of an artificial red infarction by establishment of capillary anastomosis through the narrow strip of peritoneum unincluded in the ligature. (Figs. 3 and 4.)

FIG. 3.

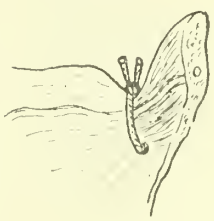


FIG. 4.

The production of an artificial red infarction.

The Differences in Behaviour of White and Red Infarcted Tissue.

The area of a white infarct dead of anæmic necrobiosis and cut off from all vascular communication with the surrounding tissues is singularly non-irritant to the structures in juxtaposition to it, provided that no septic processes have been concerned with its production. Its condition is analogous to that of a sterile foreign body, such as a sequestered extra-uterine fœtus or piece of tissue experimentally implanted. The length of time for which an extra-uterine fœtus in a state of fatty degeneration may remain in the abdomen without giving rise to inflammatory symptoms is well known.

As regards experimental implantations comparison may be drawn with the effects produced by inserting pieces of human carcinoma into the peritoneal cavity of rabbits and guinea-pigs under aseptic precautions. No inflammatory phenomena are excited, and if the implantation be examined six months after its insertion it is found to be surrounded by soft red adhesions strictly limited to its periphery which microscopically show an outer layer of large mononuclear connective tissue cells and an inner layer of multinuclear, almost syncytial giant cells actively invading and destroying it [1]

The same processes occur round areas of white infarction naturally or artificially produced unless so small that vascularisation by adhesions can occur throughout the whole mass before the cells have time to die.

The avascular necrobiotic tissue of a white infarct, then, has very little irritative or chemiotactic properties. Should infection occur inflammatory reaction cannot take place in it, because it contains no living cellular elements, whilst the obstruction that is present at its proximal boundary (embolus, thrombus, or ligature) prevents absorption of bacterial products into the tissues beyond and the general circulation. The process, therefore, is apt to be mild and localised.

The adage that it takes two to make a quarrel may, in this connexion, be adopted to the form that it takes two to form a firm adhesion. As an extreme example may be cited the condition found when a sponge or gauze swab is recovered after long residence in the peritoneum. If no suppuration has occurred it is surrounded by soft vascular adhesions, the cells of which can be shown to have permeated some way into the superficial layers of the porous surface of the foreign body. But the adhesions are very fragile.

[1] Victor Bonney: "The Connective Tissue Changes in Carcinoma," Hunterian Lectures, Royal College of Surgeons of England, and THE LANCET, vol. i., 1908, pp. 1389, 1465, 1535.

It occasionally happens that the surgeon is called upon to remove an ovarian cyst many months or a year or two after extreme torsion of its pedicle. The cyst wall is found completely necrotic and surrounded by soft adhesions, from which it is without the slightest difficulty shelled out. The same phenomenon is seen in sequestered abdominal gestation. The feebleness of the adhesions in such cases is in striking contrast to those met with after, say, salpingitis or appendicitis of only a few weeks' standing. The difference is due to the fact that in the first case cell activity is limited to one adhering surface only, whilst in the other both take part in it.

In red infarction the conditions are very different. The tissue is damaged but not killed, and as the blood leaks into the involved area by capillary anastomosis the partially devitalised vessels passively distend and presently rupture, so that the intervascular stroma becomes infiltrated with blood and the whole mass assumes a purple red colour. Enormous quantities of blood may be lost in this manner, as, for instance, the hæmoptysis of pulmonary embolism, the hæmaturia associated with some renal infarcts, and the profuse intestinal bleeding that results from mesenteric embolism or thrombosis.

Though not produced in the same manner, a similar condition of things is brought about in states of partial strangulation in which the blood-supply is interfered with, but not entirely obstructed, such as the parts distal to a volvulus, the contents of a strangulated hernia, or an ovarian cyst or other tumour that has undergone axial rotation. In either set of cases the partially devitalised blood-sodden tissues distal to the embolus, thrombus, constriction, or twist act as a powerful irritant strongly incentive to bacterial invasion and growth.

The irritant properties of blood in the wrong place—i.e., outside the vessels—are well known, as, for example, the rapidity with which peritonitis is set up round a hæmatocele, and the acute arthritis produced by effusion of blood into a joint. Effused blood, besides being a tissue irritant, is chemiotactic towards bacteria; thus Dudgeon and Sargent have shown that its presence in the peritoneal cavity is soon followed by the appearance of bacteria there. It would appear, therefore, that the peculiar liability of red infarction to set up inflammation is due, in the main, to the abnormal distribution of the blood in its area.

Inflammation occurring, the cells of the infarct itself partake in it, and being already damaged suppuration or inflammatory necrosis is common. Unlike a white infarction, potential channels remain open for the conveyance of toxins or bacteria to the tissues beyond and the general circulation. The symptoms and results of such inflammation are therefore apt to be severe, whilst under circumstances of recovery firm adhesions are formed.

As actual examples of the different behaviour of areas of white and red infarction the following may be cited. Persons dying from cardiac disease often exhibit numerous white infarcts in the spleen or kidneys, the occurrence of which was entirely unsuspected and marked by no symptoms. The organ in which they are situated is not necessarily abnormal in any other respect, and the microscope reveals healthy tissue right up to the edge of the infarct.

The occurrence of red infarction, on the other hand, is associated with marked symptoms. Thus in the lung it gives rise to hæmoptysis and pleurisy, often followed by pneumonia; in the kidney pain and hæmaturia are produced, whilst in the spleen rapid painful enlargement immediately ensues. On examination of the organ affected it is found to be swollen and congested not only in the area of the actual infarct but throughout its whole neighbourhood, pointing to some irritant effect rapidly extending from the region of primary injury. In this connexion I recall assisting a colleague to operate on a tumour the symptoms and signs of which suggested acute torsion of the spleen. On opening the abdomen it was found to be the spleen in a condition of acute swelling and engorgement due to the occurrence of large red infarct therein. It was removed and the patient made an excellent recovery.

Large masses of omentum are frequently ligatured off during the progress of an abdominal section, the "button" of tissue left distal to the ligature being in a state of white infarction, but no symptoms whatever result from the leaving of this necrobiotic tissue in the peritoneal cavity. This is in striking contrast to the acute symptoms immediately produced if a piece of omentum be partially strangled, as, for instance, in a hernia sac. The difference in the two cases is the difference between the condition of the tissues distal to the seats of strangulation. In the former the strangulation is complete and the infarct white, in the latter it is incomplete and the infarct red.

Two years ago I reopened a case of abdominal section for symptoms resembling intestinal obstruction, and found they were due to collateral capillary circulation having become established round a "mattress" ligature placed on a piece of omentum. The tissues distal to the silk were greatly swollen, hæmorrhagic, and adherent.

The application of an encircling ligature to a portion of the intestinal wall in order to control bleeding there produces no symptoms. In a Richter's hernia, on the other hand, the partial strangulation of a portion of the intestinal wall produces all the symptoms of intestinal obstruction.

Some years ago a case came under my observation in which a surgeon inadvertently placed an encircling ligature round a knuckle of intestine. The blood-supply to the intestine and mesentery distal to the ligature was, of course, entirely cut off and the intestine completely and suddenly obstructed, yet the patient lived for four days, *for the first two of which no symptoms at all were manifested.* She finally died from peritonitis without any of the classical signs of intestinal obstruction. Compare this with the instant symptoms produced by volvulus, intussusception, mesenteric thrombosis, or embolism—all conditions in which the state of the parts distal to the twist, constriction, or occluded vessel is analogous to red infarction.

In the operation of salpingo-oöphorectomy or ovariotomy a considerable bulk of tissue is left distal to the ligature, especially if the older fashioned mass ligature in halves is used and the operation clumsily performed; yet providing that asepsis has been maintained, the retention in the abdomen of a large tissue area presently to undergo anæmic necrobiosis produces no symptoms.

Spontaneous torsion of a uterine appendage or an ovarian cyst, on the other hand, is immediately followed by rapid swelling and blood extravasation into the parts distal to the twist, and the symptoms set up are instant and urgent.

As a last example, one may contrast the different symptoms produced by the absolute strangulation of a pile by surgical ligature and the partial strangulation due to spontaneous "nipping" by the anal sphincter.

The Results of Subocculding Ligatures.

Consideration of these facts shows that an area of complete vascular blockage is much less dangerous than one to which the blood-supply is only partially interfered with, and that a mass of tissue in a condition of red infarction is (1) a source of hæmorrhage; (2) a powerful tissue irritant and an incentive to infection; and, therefore (3) is a potent cause of adhesion. A subocculding ligature, inasmuch as it has been shown to produce artificial red infarction of the area distal to it, is a potential cause of all these.

Hæmorrhage.—I have seen several cases of abdominal section reopened for hæmorrhage in which the ligatures were secure and yet the pedicles were the source of the hæmorrhage. In most of these cases hysterectomy had been performed and the pedicles of the ovarian or round ligaments were those at fault. The cause of the disaster was not recognised at the time in any case, the surgeon regarding the occurrence as something of a mystery.

A patient died some days after an operation for a large abdominal tumour with symptoms of high fever and abdominal swelling. Post mortem a large quantity of blood was found in the peritoneal cavity, which had come from the omentum, the ligatured edge of which was extensively infiltrated, but no evidence of a slipped ligature was forthcoming. The prolonged nature and peculiar character of the symptoms and the post-mortem findings pointed most strongly to the establishment of collateral capillary circulation round a subocculding ligature.

Irritation and infection.—Apart, however, from cases in which the oozing was sufficiently free to produce signs of internal hæmorrhage, I have ascertained knowledge of several in which a mass of blood clot formed round the pedicle and subsequently set up local inflammation there. For instance, in 1909 I removed a very large ovarian cyst. The pedicle was broad and was treated by the application of several ligatures in the manner shown in Fig. 8, and at the time of closing the abdominal wound the hæmostasis appeared absolute. She subsequently developed signs of local pelvic

peritonitis with symptoms of partial intestinal obstruction. I reopened the wound and found a mass of blood clot the size of a Tangerine orange surrounding the pedicle. Around it were considerable pelvic peritonitis and adhesions of intestine and omentum. I particularly examined my ligatures and they were all secure, but the tissue distal to them was deeply infiltrated with blood and in a typical condition of red infarction.

The occurrence of some pain and tenderness, with more or less fever and the formation of a definite lump over the site of a piece of ligatured omentum or the pedicle of an ovarian cyst or diseased uterine appendage, must be within the experience of most surgeons. Such symptoms, though usually attributed to the sterility of the ligature material not being absolute, are really due, I strongly believe, to the method of ligature employed.

Adhesions.—Some year or two ago I reopened for intestinal obstruction a patient from whom a pyosalpinx had been removed some three weeks before. The obstruction was due to the omentum, which was very firmly adherent to the stump of the appendage and had so pulled on the transverse colon as to kink it. The stump was still deeply ecchymosed, and the ligatures, which were secure, were of the subocclusing variety.

Cases in which signs of obstruction more or less definite manifest themselves after abdominal operations and subside without the necessity of reopening the wound are not uncommon. A certain proportion are due, I believe, to adhesion of the omentum or bowel to the blood-sodden oozing tissue distal to a subocclusing ligature.

Conclusions.

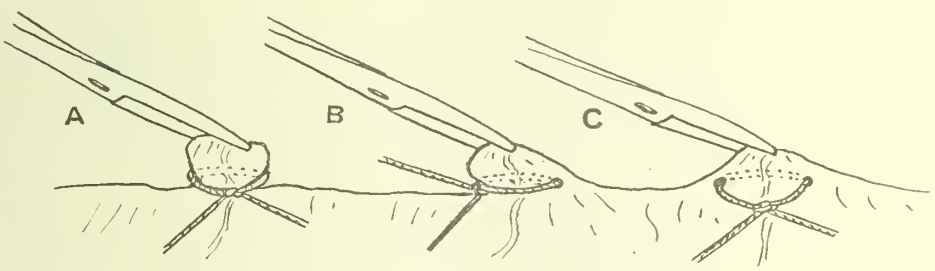
The practical importance of the foregoing remarks, then, is that subocclusing ligatures should be avoided. It may be asked why they are employed at all. The reason is that of security. Thus take the various ways of ligaturing a vessel in the cut edge of a mesentery—say that of the tube or appendix. Method A (Fig. 5), an occluding ligature, is quick, but in certain circumstances insecure. Method B, a subocclusing ligature, takes longer, but is less likely to slip. Method C, also a subocclusing ligature, takes longer still, but is the most secure of all.

This last method, the mattress suture or ligature, is extensively employed in abdomino-pelvic surgery, and is an admirable device both on account of its security and its wide applicability, but it has the disadvantage of only partially occluding the area distal to the ligature. Both Methods B and C can, however, in most cases be converted into occluding ligatures by bringing the ligature back round the hæmostatic forceps and tying it again on the opposite side (Figs. 6 and 7). By this means the advantages of the encircling ligature with its perfect occlusion are combined with the security of the simple transfixion or mattress ligature.

The double transfixion ligature, the classical method of tying the pedicle of an ovarian cyst, is a good example of an occluding ligature; it has, however, the disadvantage of taking a longer time and leaving the puncture hole unsecured. Since the two halves of the pedicle are often straining different ways, this puncture may enlarge and become the source of bleeding. For this reason it has long been the practice both at the Middlesex Hospital and the Chelsea Hospital for Women to reinforce it with a simple encircling ligature tied in the same groove.

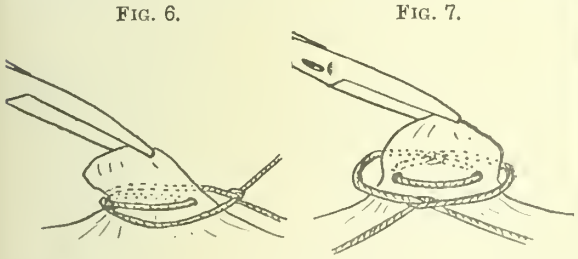
In ligaturing a broad pedicle or a large area of omentum two simple transfixion ligatures with intervening mattress ligatures are often employed (Fig. 8). This is not a good method, for, as pointed out, collateral capillary circulation may be established between the mattress ligatures. If it is used at all a simple encircling ligature should be subsequently applied round the whole mass. This, however, may make a very bulky and ugly pedicle, and in such cases the chain ligature is properly employed (Fig. 9).

FIG. 5.



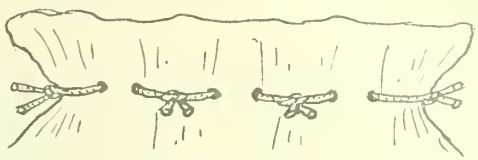
The various ways of ligaturing a vessel in the cut edge of a mesentery. A, An occluding ligature. B and C, Subocclusing ligatures.

FIG. 6. FIG. 7.



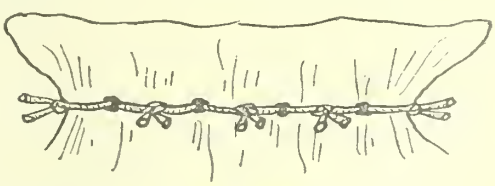
Methods of turning subocclusing into occluding ligatures.

FIG. 8.



Transfixing ligatures with intervening mattress ligatures.

FIG. 9.



Chain ligatures.

Harley-street, W.

RECOGNITION OF PUBLIC SERVICE.—The Halifax county borough council, at a monthly meeting held recently, agreed to advance the salary of Dr. J. T. Neech, medical officer of health, from £500 to £600 per annum, by annual increments of £50. Dr. Neech has been in the service of the corporation for ten years, and this is the first time he has approached the council for an advance, though his work has considerably increased since the time of his appointment. Alderman Hey, J.P., chairman of the health committee, proposing the resolution, eulogised the work of Dr. Neech, alluding to his business as well as his medical ability. Under his guidance financial saving had been effected, and the general health of the borough had improved.

A CASE OF CONGENITAL SPASTIC HYPERTROPHY OF THE PYLORUS.

BY FREDERIC BARKER, M.B., B.S. LOND., L.R.C.P. LOND., M.R.C.S. ENG.,
AND
LEONARD MACKEY, M.D. BIRM., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN (LATELY PATHOLOGIST), THE QUEEN'S HOSPITAL, BIRMINGHAM.

CONGENITAL spastic hypertrophy of the pylorus, or congenital pyloric stenosis, is a disease which has been very fully investigated and written about during the last 15 years. Reviews of the various theories may be found in text-books, while the writings of Miller and Willcox[1] on the gastric ferments and acidity are of much interest. But the publication of occasional cases is perhaps justified on account of the rarity of the condition, and more especially when pathological data are available. The following is the only case which has occurred in nearly three and a half years of busy general practice.

The prospect of recovery, even under the most advantageous circumstances, is not hopeful. Thomson[2] gives 14 recoveries out of 41 (1894–1908), while Still[3] (1909), excluding three observed before the days when special treatment began to be adopted and three lost sight of, gives 19 recoveries out of 36. From his experience he is inclined to think that, if taken in hand early, many, or even a majority, would recover. In the case of poor patients not within easy reach of adequate hospital treatment the disease is probably always fatal.

Clinical Report.—(F. B.)

Family history.—There is nothing remarkable on the father's side. The mother was a healthy primipara aged 24 years; she has a slight stammer, but no other nervous symptom. There is no family history of tubercle or nervous disease. The family is working class and not at all well-to-do. I was present at the birth on Oct. 2nd, 1908, the presentation being the left occipito-anterior. Labour, after full dilatation of the os, was tedious, and under chloroform the head, which was large, was delivered with forceps. The weight of the child two or three days after birth was 9½ pounds.

History of illness.—The child, a male, was healthy until Oct. 26th, when he began to vomit. I saw him at the surgery on the 27th. He had vomited two or three times on the previous day, small amounts at a time. Feeding had been by the breast since birth, but at irregular and too frequent intervals. There was constipation. I advised two-hourly feeds by day and two feeds during the night, and gave pulvis hydrargyri cum cretâ (½ gr.) night and morning. The child looked perfectly healthy. Oct. 29th: The baby was vomiting occasionally, but was looking well. I gave a bismuth and soda mixture, and a grain of calomel at night. Nov. 1st: I saw the child at home. He had manifestly wasted. The mother, without being asked about the vomiting, said that it came up "with a rush" after every feed. Vomiting then occurred from time to time until the next feed. The child was quite quiet. On being lifted from the cradle some partially digested milk was brought up, not very forcibly. He had been fed about two hours previously. Epigastric peristalsis was well marked; it began on the left side of the epigastrium, and passed slowly across the belly and downwards towards the right, ending above and to the right of the umbilicus. I could not be sure that I felt the pylorus, but just for a moment at the close of one of the waves I thought that I did so. (I never could feel it afterwards, the belly-wall on future occasions always being too rigid.) The bowels had acted two days before, following the calomel, but even then the stool was very little. Medicine was taken readily but was always returned. Nothing abnormal was found in the heart and lungs. The urine was said to be more scanty than usual, otherwise micturition was normal.

Nov. 2nd: The stomach was washed out with warm sodium bicarbonate solution (3 grains to the ounce). About 2 ounces of partially digested milk was drawn off. Short feeds every hour were advised. Nov. 3rd: The child had slept much better, only waking once during the night. He vomited fairly frequently. The stomach was washed out with warm bicarbonate solutions (2 grains to the ounce). A good result followed a small simple enema. Epigastric peristalsis was well marked. The temperature was 98·4° F. in the rectum. Nov. 5th: The baby was looking thinner. The stomach was washed out; the bowels were opened with an enema. Nov. 6th: The child had slept better, and had only vomited twice. The stomach was washed out. The weight of the baby was 8½ pounds. Nov. 7th: The stomach was washed out. The boy's hands looked blue. Nov. 8th: The temperature in the rectum was 102·2°. The bowels were not opened. I began giving occasional saline rectal injections. The feeds were to be given every half hour consisting of half an ounce of peptogenised milk-and-water (1 to 2). The child was looking worse. Nov. 9th: The temperature was 98°. The bowels were not opened. Saline per rectum was continued. Nov. 10th: The temperature was 98·2°. The baby vomited two or three times. The bowels were opened once. Nov. 11th: The child vomited three times. The bowels were opened naturally. Nov. 12th: The temperature was 97·8°. The child vomited twice, but very little. The bowels were opened twice naturally, there being nothing remarkable about the stools. The child was not really improving in appearance. Nov. 13th: Vomiting was more frequent. The bowels were opened twice following saline injections. Nov. 14th: The vomiting was worse; the temperature was 98·2°. The baby was put on the following mixture, 1 drachm every four hours: tincture of belladonna, 12 minims; tincture of opium, 2 minims; citrate of potassium, 16 grains; water to 2 ounces. Nov. 15th: Vomiting was frequent. The bowels were opened once naturally. Nov. 16th: There was no vomiting. The baby was sleeping well. He was passing plenty of urine; the bowels had not been opened since yesterday. The pupils were medium and active. He looked rather better. Nov. 19th: The slight improvement was not maintained, and the baby died to-day.

The difficulties of treatment in a cottage, where even the making of whey was looked upon as impossible of accomplishment and where the most trivial details needed constant supervision, can be imagined. I have sometimes thought that under more favourable circumstances this case would have recovered. I was disappointed with lavage, though it had hardly a fair trial, and the dietetic precision which is possible in hospital, and from the results of which we can more safely reason, was impossible here. I wish antispasmodics had been given earlier, though they are not usually very helpful, and citrated milk might have been tried.

Post-mortem Examination.—(F. B.)

A partial examination was allowed, with any further investigations thought desirable. An abdominal section was made 47 hours after death. The body was emaciated, but was not weighed.

The stomach wall was evidently thickened. It was opaque and of pale pink colour, while the small intestines were yellowish and transparent. The large gut was pale and thin-walled and distended with gas. The greater curvature of the stomach was situated just half-way between the xiphoid and the umbilicus. The pylorus was felt to be hypertrophied. After tying off the œsophagus and duodenum the stomach was removed. Its capacity was 2 ounces 1 drachm, and it contained about 2 drachms of mucus and food débris. The mucous membrane was slightly hyperæmic and presented no rugosities. The wall was thickened and had almost a leathery character on handling. (Dr. Mackey negatives this hypertrophy, but I am still inclined to think that the stomach wall was not of normal thickness.) The mucous membrane near the pyloric orifice was more hyperæmic than the rest of the stomach and was considerably puckered. An ordinary director passed quite easily and the canal seemed to be obstructed more by folds of mucous membrane than by a real stenosis. The full capacity was not estimated for fear of damaging the finer structures. The pylorus was, transversely to its axis, of oval shape, and, measured as accurately as possible without cutting across, had in its widest part in the recent state a diameter of 18 millimetres. It was placed in formalin solution, together with a small portion of stomach wall.

[1] Miller and Willcox: Gastric Conditions in Wasted Infants, THE LANCET, vol. ii., 1907, p. 1670.
[2] Thomson: Clinical Examination and Treatment of Sick Children, 1908.
[3] Still: Common Disorders and Diseases of Childhood, 1909.

The peritoneum and mesenteric glands were normal and no gns of tubercle were seen anywhere in the abdomen. The ver, pancreas, kidneys, and suprarenals were apparently rmal.

Pathological Report.—(L. M.)

The pyloric portion of the stomach shows a typical hyperophy; about 2 inches from the pyloric ring the stomach all becomes markedly thickened while the lumen becomes pidly narrowed, so that rather more than the last inch is nverted into a firm cylinder as hard as one's finger and out the same diameter. The hypertrophy ends abruptly at e pyloric valve, presenting a marked contrast with the in wall of the duodenum and showing typical cervix-like rmination.

The specimen was hardened in formalin, passed through cohol and chloroform, and sections embedded in paraffin, a ocess which caused considerable shrinking, for whereas in e recent state its maximum diameter was 18 millimetres it as now only 13 millimetres; consequently the measureents which I subsequently made do not represent the size of e organ during life, it may be usefully mpared with specimens treated in a milar manner.

As the cross-sections ffer somewhat accordg to their distance om the pyloric ring I ade several sections, ch about an eighth of 1 inch from the other, d these were stained d mounted and exained and measured icroscopically. The llowing measurements present an average ade for the different ctions:—

	Mm.
tal diameter	12·15
ickness of wall ...	3·7
idth of longitudinal muscle	0·4
idth of circular muscle	2·2
bmucosa	0·3
ucosa	0·8

As regards the microopic appearance of e section, the muscle ppeared quite healthy d there was no excess fibrous tissue and no vidence of any inflamatory change; the bmucosa and mucosa ow nothing which I cognised as abnormal, xcept that the mucous embrane was thrown into numerous folds by the contraction f the circular muscle (see figure).

Reproduction of photograph of cross-section 15 millimetres from the pyloric ring.

At the time that I examined the sections I knew othing of the dimensions of the normal pylorus in infants, nd was not then acquainted with Still's work on the bject, so in order to get some further information I ade microscopical examinations of the pylorus in all e necropsies on infants under one year at the Queen's nd Maternity Hospitals. Although my experience only xtends to some two dozen cases it has given me more nfidence in approaching the subject, and I know now at there is great variation in what one may regard as e normal thickness of the pyloric wall quite apart from ariations due to the degree of contraction at the time f death. Figures which I have collected show that in e present case the circular muscle is rather more than ouble the normal width, while the longitudinal muscle, e submucosa and mucosa, are not beyond the normal mits.

Another fact of some interest is that in this small number of necropsies I encountered two cases of undoubted pyloric hypertrophy in which there had been no gastric symptoms during life suggesting stenosis. The first case was that of an infant who died at the age of six months from congenital obliteration of the common bile duct, but who had never vomited till within a week of his death. The pylorus was long and firm and in the fresh state measured 1½ inches in diameter, and after embedding its measurements were:—

Total diameter ...	18 × 13 mm.	Circular muscle ...	2·1 mm.
Thickness of wall...	3·8 mm.	Longitudinal muscle	0·8 mm.

The second case was that of an infant of seven months who died from broncho-pneumonia and had never had any gastric symptoms; in this case the pylorus was firm and long, and after hardening measured:—

Total diameter	12·1 mm.	Circular muscle	2·1 mm.
Thickness of wall ...	3·3 mm.	Longitudinal muscle	0·4 mm.

And in this case there was a marked excess of fibrous tissue scattered among the muscle fibres. These cases seem to teach one that hypertrophy alone does not interfere with the functions of the pylorus.

With regard to stenosis the post-mortem evidence appears to me even more difficult of interpretation, for the lumen of the pyloric orifice varies greatly, and in several normal cases it was impossible to insert anything larger than a small probe. This, after all, is only what one might expect, for I take it that during life the normal condition of the pylorus is one of closure, and we ought to expect to find it closed at death, and the circular muscle in a state of contraction. But as long as the muscle appears healthy we may assume that it is capable of relaxing, and as a rule after death a moderate amount of force will enable one to dilate its lumen without in any way damaging the muscle fibres.

It appears to me that in the absence of definite organic changes, such as replacement of muscle by fibrous tissue, it is hardly possible for the pathologist alone to make a diagnosis of hypertrophic *stenosis*. It follows, if this view be taken, that the morbid condition is essentially one of spasm of the pylorus—that is to say, that for some reason the pylorus remains closed through contraction of its circular fibres at times when a normal pylorus should relax, and it is not difficult to imagine that an increase in the amount of circular muscle makes a condition of spasm one of greater evil.

The small portion of the stomach wall was treated in the same way as the pylorus. The total width of its muscular layers was 0·9 millimetre. I do not find that this is beyond the thickness of other stomachs in infants of about the same age. The mucous membrane shows a condition of chronic catarrh, and there appears to be too little mucosa, but how far this is due to post-mortem digestion I cannot say.

NOTE ON A CASE OF ARTIFICIAL PNEUMOTHORAX.

BY DR. W. HOLMBOE,
MEDICAL DIRECTOR OF MESNALIEN SANATORIUM, NORWAY.

THE following interesting case is that of an English medical graduate who was admitted to the sanatorium in the autumn of 1906 under the care of my predecessor, Dr. Sömme, and who allows me to send this note to THE LANCET. On admission there were signs of recent but extensive disease in the left lung, the right lung being then practically normal. During the following two years the patient was treated as an invalid, was largely confined to his bed, had considerable cough and expectoration, and subfebrile temperature. Besides the usual sanatorium treatment, rectal injections of Marmorek's serum and subcutaneous injections of tuberculin (Denys) were tried. The serum was a failure, but some improvement followed the tuberculin injections until the higher doses were reached, when the expectoration became more profuse, and lassitude and weakness followed. The tuberculin treatment was therefore given up. Early in February, 1909, the temperature was still subfebrile and the condition of the lungs was as follows. *Left lung:* Over the whole lung the normal resonance was absent on percussion. Over the second and third intercostal spaces the percussion note was "boxy." Behind there was dulness increasing towards the base. There was deficient air entry over the whole, and after coughing râles were audible everywhere. Over the base behind rhonchi and sibili could also be heard. *Right lung:* There was slight dulness over the apex in front and behind. Over the apex expiration was loud and prolonged. No adventitious sounds could be heard except over a small area at the angle of the scapula, where a few râles were audible.

As practically the whole of the left lung was involved and the prognosis was bad, treatment by compression or by artificial pneumothorax was decided on. Saugman's modification of Forlanini's nitrogen pump was employed. The hollow needle was inserted into the sixth space in the anterior axillary line. The manometric oscillations were well marked, showing a negative pressure of – 14 centimetres water on inspiration and – 6 centimetres on expiration. The eye of the needle was therefore clearly between the two surfaces of the pleura and nowhere else; 180 cubic centimetres of nitrogen were then admitted in three portions. The operation was followed by considerable dyspnœa and a dragging pain which caused a restless night in spite of an injection of morphine. Next day 275 cubic centimetres were injected, after which the pain gradually disappeared, but dyspnœa on the slightest movement remained very severe. The injections were repeated at intervals of two to three days at first. Later, when the pneumothorax became complete, the injections were given at intervals of one to two weeks, and after the treatment had lasted a year an interval of one month was allowed.

On the evening of the day of the first injection the temperature (rectal) rose to 100° F.; it then gradually fell to normal in the course of ten days. After confinement to his bed for three weeks the patient was able to get up and walk, although this caused considerable dyspnœa at first. Later this symptom largely disappeared, and even after a recent injection with a positive intrapleural pressure of 10 centimetres of water on expiration the patient was able to walk briskly on a flat road. The cough and expectoration decreased gradually and had completely disappeared by midsummer. Over the left lung the characteristic signs of a pneumothorax were present. The cardiac dulness was completely lost, and the heart sounds were distant and muffled. The limits of the left pleura extended to about two inches to the right of the middle line in front. The pneumothorax therefore was very extensive and overlapped the left margin of the right lung. The condition of the right lung has improved. A Roentgen photograph shows that the heart is completely displaced over to the right side of the chest where it is embedded in the right lung. The left lung is shown compressed from below upwards and to the right. By its apex it is still adherent to the surrounding structures. It is extraordinary that with the heart so much displaced and the only lung in use compressed by the heart below, by the pneumothorax in front and to the left, and by cicatricial tissue in the apex, the pulse should be as low as 70 and th dyspnœa should follow only considerable exertion.

At the present time the patient is up all day, he h neither cough nor expectoration, his temperature and pu are normal, and his weight is about 20 pounds greater th on admission. He works several hours a day, and in r absence has satisfactorily carried out my duties for seve weeks. In spite of the fact that a private sanatorium adm a great number of cases in an advanced stage of the disea the opportunities for applying this treatment are limited, the disease is generally too extensive in the sounder of t two lungs. Twice pleural adhesions proved a bar to t treatment at the outset. In four cases the sounder of t two lungs was too much involved for any lasting good result, and in four cases excellent results, similar to th described above, were obtained.

Lillehammer, Norway.

A DERMOID CYST OF THE TESTICLE ASSOCIATED WITH A NEW GROWTH.

BY F. J. F. BARRINGTON, F.R.C.S. ENG.,
HOUSE SURGEON TO ST. PETER'S HOSPITAL.

Clinical history.—The patient was aged 42 years, marrie but had no children. He was admitted into St. Peter's Ho pital on account of a swollen right testicle. The rig testicle had always been larger than the left; when a chi the patient remembered it being "pierced" by a medic man. The testicle had been gradually increasing in size f from three to four months. Beyond an aching in the gro when a suspender was not worn there was no pain. He h had two attacks of gonorrhœa, but denied having h syphilis. Before admission he had been treated as an ou patient for from three to four weeks with potassium iodid in this time the swelling became larger owing to th development of a hydrocele.

On admission the vas and cord were normal. There w a solid enlargement of the testicle with a hydrocele of th tunica vaginalis; the epididymis could not be differentiate the swelling was nowhere adherent to the skin. There w no testicular sensation, but slight tenderness on ha pressure. There was no palpable enlargement of the lumb glands. The left testicle appeared normal. The clinic diagnosis rested between tertiary syphilis and a neoplas The testicle was explored by opening the tunica vaginali which contained about 5 ounces of clear, straw-colour fluid. The testicle was found to be swollen and to ha smooth bosses on the surface, which did not appear to b cystic. Orchidectomy was then performed in the usual wa

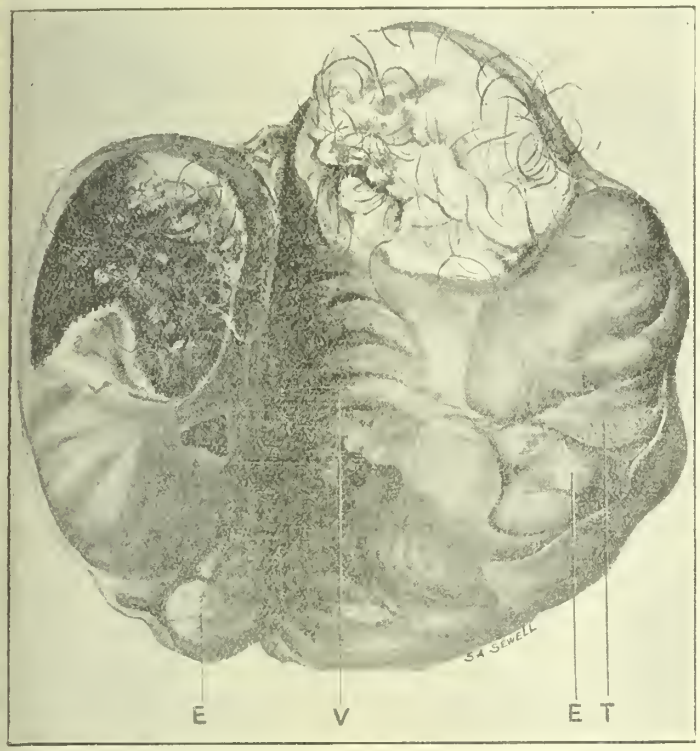
The patient was seen between six and seven months aft the operation; he was then quite well and had no signs local recurrence or secondary deposits in the abdomen.

Macroscopic examination.—The parts removed consist the right testicle, tunica vaginalis, and about 3 centimetr of the spermatic cord (Fig. 1). The parietal layer of th tunica vaginalis has been incised vertically and everted. Th tunica vaginalis is not thickened or congested; its surface quite smooth, and there is no lymph deposited on it. Th visceral layer covers a smooth, slightly bossy, oval swellin measuring 8 by 5 centimetres, and occupying the usu position of the testicle. A vertical section through th swelling shows the following three structures containe within the tunica albuginea, from above downwards: dermoid cyst, a lobulated new growth, and normal testicul substance.

The interior of the cyst measures 2½ by 4 centimetres; is filled with a mixture of hair and white sebaceous débri The hair is fair brown in colour, about the same as that the patient. The interior of the cyst is roughly oval in shap but there are two ridges projecting into it, one runnin transversely round the inner or left half of the cyst below it middle, and the other projecting upwards from the low part of the cyst wall on its right side and running in coronal plane; in the former ridge are some thin plat giving a bony sensation to the point of a metal instrumen There are no structures resembling teeth in the cyst.

The tunica albuginea passes off the cyst wall on to th growth. This is yellow ochre coloured and divided int

Fig. 1.



The contents of the dermoid cyst have been removed on the right side of the specimen. T, Testis. V, Vas. E, E, Epididymis.

obules by trabeculæ running in from the tunica albuginea nd adjacent part of the wall of the dermoid. It appears o be more intimately connected with the wall of the dermoid bove than with the testis below; the latter can e separated from it without cutting, whereas the ormer cannot. On the right side a series of ysts, many of which communicate with each ther, intervene between the tumour and the vall of the dermoid. They contain a mucinous ubstance, and their walls, which have a cartila-inous feel, bear the same relation to the tumour s does that of the dermoid. The cavity of the lermoid has no communication with the cavities f these cysts.

The testis occupies the extreme lower pole of he swelling; it is wedge-shaped, and its section as the appearance of normal testis and measures ½ by 1 centimetres. The lower pole of the pididymis corresponds with the small wedge of ormal testis, but the epididymis only extends bout half-way up the swelling. Above this the unica vaginalis is reflected off the posterior urface of the dermoid up to its upper pole. The ord and vas are normal.

Microscopic structure.—The dermoid cyst has a wall composed of laminæ of fibrous tissue con-ected by areolar tissue in which are a fair umber of vessels. In places there is a con-iderable small round-celled infiltration between he laminæ. The lining epithelium has dis-appeared in some sections; in others it is seen to e a stratified epithelium with sebaceous and weat glands resembling that of skin. It differs rom skin in the following points: (1) Papillæ re very poorly developed and in many places uite absent; (2) the number of sebaceous glands s greater; and (3) the horny layer is almost ompletely absent owing to the premature hedding of the cells.

A vertical section through the projection on the inner wall of the cyst shows it to be a thickening of the dermoid wall. The epithelium of this is thrown into long folds, giving a villous appearance. Sections of one of the hard plates in this ridge, after decalcification, show very dense fibrous tissue with few cells, and do not present any appearance suggesting bone.

The tumour has an alveolar structure (Fig. 2). The stroma varies considerably in amount, and consists of rather dense fibro-areolar tissue. The alveoli vary in structure. On the one hand, an alveolus may consist of a single layer of short columnar cells with large, clear nuclei surrounding a narrow lumen which contains a shrunken mass of secretion staining deeply with hæmatoxylin. On the other, it may be irregular in shape, much larger, without any lumen, and with the peripheral cells only columnar, the inner ones being irregular in shape. In parts the cells have shrunk away from the stroma in hardening. The tumour has no true capsule anywhere; the tunica albuginea shows invasion by tumour cells in the form of strands lying between the fibrous laminæ; this occurs to a less extent in the walls of the dermoid and the mucin-containing cysts.

The stroma of the testis is directly continuous with that of the tumour; in the transitional region it is rather thickened as if from mutual pressure; the alveoli of both testis and tumour are flattened at right angles to the plane of contact. There is a fairly sharp line of separation between the alveoli of the testis and those of the tumour, and no zone containing both exists. The mucin-containing cysts have very dense fibrous walls and a lining epithelium of two or three layers of flattened cells; no goblet-cells can be seen.

Diagnosis.—The dermoid is situated within the tunica albuginea, and is therefore a dermoid of the testicle and not

Fig. 2.

Section of the tumour under a low power.

a dermoid of the scrotum attached to the testicle. The recent increase in size of the swelling was presumably due to the growth of the tumour. The tumour may have arisen (1) from the testicle, in which case the presence of the dermoid is merely a coincidence; (2) from the wall of the dermoid; or (3) from some tissue forming part of a teratoma.

1. The tumours with an alveolar structure occurring in the testicle are carcinoma and endothelioma. The carcinoma arising from the testis is of the spheroidal-celled variety; when the columnar-celled occurs it has arisen in the hypoblast of a teratoma. In endothelioma there are several layers of cells around the lumina, which are either blood or lymph spaces. It therefore seems unlikely that the tumour arose from the testis.

2. The tumour cannot be seen to reach the lining of the dermoid at any point, and the lining is continuous throughout; had it arisen from the lining it would have been a squamous-celled carcinoma. If the tumour arose from some appendage of the dermoid epithelium—e.g., sebaceous or sweat glands—one would expect it to show some signs of its presence within the cyst. Its cells and alveoli have very little resemblance to those of these appendages.

3. The last alternative—that the tumour has arisen in a teratoma from some hypoblastic structure—seems to have fewer arguments against it than the two preceding. It is true that other tissues—e.g., bone, cartilage, nervous tissue, &c.—so often found in testicular teratomata have not been found in the present case, but any examination short of complete destruction of the specimen is necessarily incomplete. The nature of the cysts containing mucinous substance is uncertain; they do not appear to be mere dilatations of the alveoli of the tumour, since no intermediate cysts are present and the fibrous tissue separating their epithelium from the cells of this tumour is as thick as that surrounding other parts of the tumour. The projection into the cavity of the dermoid, which has been described in other cases as having a different structure from the rest of the cyst, is absent in the present case.

In conclusion, I wish to thank Mr. J. G. Pardoe for his kindness in allowing me to publish the case.

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A CASE OF EXTRA-UTERINE PREGNANCY OCCURRING TWICE IN THE SAME PERSON.

BY W. W. STAINTHORPE, M.D., B.S. DURH.

I READ with much interest in THE LANCET of July 9th, p. 101, Dr. G. A. Gordon's report of a case coming to his notice having the above heading. In a somewhat similar case to be described the two facts—(1) of the patient having given birth to a full-term child in the interval between the two extra-uterine pregnancies; and (2) that there was practically no cessation of menstruation in the second extra-uterine pregnancy—warrant me in recording it.

A married woman, aged 32 years, gave birth to a female child in 1900; she enjoyed good health and menstruated regularly until March, 1907, when she noticed the menstrual period lasted one month, during which time she experienced severe colicky pain in the left iliac fossæ, coming on at intervals and lasting in some instances a quarter of an hour and at others two or three hours; as the pain became more severe in character the discharge from the vagina became more profuse. On April 9th she consulted me for what she thought was "colic of the bowels." Upon examination a blood-stained discharge was found coming from the vagina. The os uteri felt soft and patulous, and the body of the uterus felt a little enlarged. In the left fornix a tender swelling of about the size of a small pear, distinctly separate from the uterus, was felt. As the pain during the following ten days became more severe and more continuo the tumour larger in size, and the discharge more copious diagnosed the case to be one of extra-uterine pregnancy, a had the patient removed to the North Ormesby Cotta Hospital, Middlesbrough, under Mr. H. D. Levick, w opened the abdomen next day and removed the distend left Fallopian tube, which upon examination was found contain a tubal pregnancy of some six weeks' duratic The right ovary and tube were normal in appearance, a the uterus was only slightly enlarged. The patient made uneventful recovery.

In February, 1908, the patient became pregnant, and the following October gave birth to a full-time male chi Four months after the child was born the patient me struated normally, and continued to menstruate norma each month until Sept. 13th, 1909, when she noticed th the period was one day later than nsual. On the evening the 14th a severe attack of abdominal colicky pain set i accompanied by violent vomiting of bilious matter. A f hours after the pain commenced a slight sanguineous dischar appeared from the vagina. The patient kept in bed, a on the 14th sent for me after having passed what s thought to be a miscarriage. On examination of the suppos miscarriage I found it to be a complete decidual cast of t uterus. The uterus itself was much enlarged, the os ut was soft and patulous, and in the right fornix could be f a freely moveable mass, very tender to the touch and d tinctly separate from the uterus. Remembering the patien previous history, and the fact that the pain in this instan was of the same character, I came to the conclusion that o had again in all probability to deal with a similar conditi taking place in the right Fallopian tube. This opinion w confirmed a few hours later, when the patient experienc a violent attack of abdominal pain occurring during t effort to pass urine. She became faint, collapsed a pulseless, and appeared to be *in extremis*. As immedia operation was out of the question the treatment resolv itself into the administration of cardiac stimulants hypodermic injection and copious salines per rectum. a few hours the general condition markedly improved a the patient had some refreshing sleep. Twelve hours aft the immediate attack Mr. Levick again operated. Dougla pouch was filled with recent blood-clot, which being clear away brought to view the right Fallopian tube seen to very much distended. No rupture of the tube could found, and as no adhesions existed little difficulty was exp rienced in removing the mass, there being no active hæmo rhage present. On examination of the tube and blood-clo it was found that a tubal abortion had taken place into t abdominal cavity through the abdominal ostium. T patient made an excellent recovery.

Guisborough, Yorks.

THE EFFECT OF RADIUM ON THE HEALTHY TISSUE CELL.

BY G. PERCIVAL MILLS, M.B., B.S. LOND., F.R.C.S. ENG.,
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THIS preliminary note is the result of some experiment work done on the comparative effects of radinm on norm and malignant tissues. The mouse was chosen as a suitab animal in which to study the matter owing to the ease wi which it can be inoculated with carcinoma. Here, howeve only the effect of exposure to radium on the normal boc cells will be dealt with. Since the liver is convenient situated for application, the radinm was applied over th anterior abdominal wall and the subsequent changes in th liver tissue were observed.

The applicator used was one of 500,000 nnits and w guarded by a shield which cut off the α and β rays, whi allowing the more penetrating γ rays to pass through. It w applied for 30 minutes in each case. The mice were kill at varying intervals after exposure and the liver examin microscopically.

The earliest definite change noticed occurred abont o hour after irradiation. The liver cells in this section we more granular than usual, and there were none of the cle glycogen-containing vacuoles which are present in th

rmal mouse liver. Otherwise the liver cells themselves peared normal. The connective tissue elements also showed e early stages of a reaction. This was manifested by the esence of numerous groups of round and spindle cells in e neighbourhood of the veins. There was distinct hyperia, but at this stage there was no *general* increase of the esoblastic cells.

Three hours after irradiation the liver cells were profoundly tered. The protoplasm was deeply granular and the cleus stained very clearly and was considerably swollen. ie latter averaged in diameter fully one-half that of the er cell, whereas in the normal condition it averages from e-quarter to one-third. The whole cell also was slightly creased in size, but not nearly to such an extent as the cleus. The areas of mixed-celled infiltration round the ins were larger and more numerous. They consisted ainly of lymphocytes and spindle cells, but there were casional polymorphonuclear leucocytes. There was here also *general* increase in connective tissue cells throughout the ction. The hyperæmia was intense, but no hæmorrhages ere observed.

Sections taken six hours after irradiation showed that the er cells had become more normal in appearance. The otoplasm was no longer granular, but the nucleus was ll enlarged. The hyperæmia was less, and there was less filtration with connective tissue cells than in the previous ction.

In 24 hours the vast majority of the liver cells appeared rmal. There were, however, scattered about the section a w cells which appeared to have degenerated completely. ith hæmatin and Van Gieson's stain the protoplasm stained dull brown and the nucleus a darker brown, showing no ucture whatever. It is probable that these were cells hich had failed to recover from the condition noted ove.

While these changes were found in the liver generally, ere was in most of the sections a place near the edge where e cells had suffered a greater and permanent change. here was in the sections taken three hours after irradiation mass of liver cells which had completely lost their ucture. The outline of the cell was lost, the nucleus ained a fair structureless brown, and the condition sembled coagulation necrosis. A similar condition was und in the sections examined up to the eighth day after adiation, and in the later ones some signs of organisation the affected part were observed. Presumably this mass necrosed tissue corresponded to the spot immediately er which the radium was applied, and represents the effect the rays at very close range. It is of interest that in no se was any inflammation of the skin observed.

Neglecting this area of intense action, then, the liver may said to have become normal again in three days after adiation. A few areas of infiltration remained near the ins, but as these occurred to a slight extent in some normal vers they could not be considered pathological. Similarly, intervals of five and eight days after irradiation the main ass of the liver appeared to be normal.

In the sections taken 14 and 15 days after irradiation, owever, there were obvious signs that a second or late action was taking place. This was confined to the conective tissue elements and consisted of a marked general filtration of the liver with lymphocytes, connective tissue lls, and a few polymorphonuclear leucocytes, and this to a eater extent than in any of the sections taken during the w days immediately following irradiation. There were so large masses of similar cells clustered round the veins. hese changes were associated with a general hyperæmia. o area of necrotic cells was observed. It would appear that his is the histological basis of the "radium reaction" bserved clinically by radiographers, and it is of interest to ote that it is confined to the connective tissue elements. his late reaction lasts longer than the initial one, for 20 ays after irradiation the liver was still found to be in a milar condition.

Briefly, then, the effect of radium on normal tissues as emplified by mouse liver is a follows: 1. There is a ansient change in the liver cells somewhat resembling cloudy swelling." 2. There is an early inflammatory action lasting a few days. 3. There is a late inflammatory action coming on in about 14 days and lasting much nger.

Birmingham.

Reviews and Notices of Books.

Psycho-therapy. By HUGO MUNSTERBERG, M.D., Ph.D., &c., Professor of Psychology in Harvard University. London: T. Fisher Unwin. 1909. Pp. 401. Price 8*s.* 6*d.* net.

THE useful term psycho-therapy, introduced to indicate the practice of treating the sick by influencing the mental life, even before it was generally accepted by the medical profession, had been seized upon by those whose pleasure and profit it is to exploit the little known, and had too often been used to cover an incongruous blend of mysticism and science. It has been Professor Munsterberg's aim in this present work first to counteract the misunderstandings which prevail on this important matter, and secondly to state a case for the further elaboration of the study of psychology during the process of medical education. There is but little that is new in the methods of psycho-therapy, though we believe the term itself to have been but recently devised; but there is no doubt that the systemizings of the method under scientific auspices, as well as the use of analogous methods by religious and quasi- or pseudo-scientific bodies, have attracted a vast amount of notice to a subject which has, unfortunately, in the past received but the scantiest attention at the hands of our profession. The age in which we live is, perhaps even more than the age of the last generation, one in which philosophic thought lay for the most part in materialistic categories, in a perpetual and very praiseworthy hunt for the connexion between the appearances of our experience and in the profound belief that the perfection of technical civilisation can make life more worth living. The author believes that while the real achievements of the age will leave a permanent mark, that yet there are signs proving the realistic wave to be ebbing and a new period of idealism to be rising. "The aim of the last generation was to explain the world, the aim of the next will be to interpret the world; the one was seeking laws, the other will seek ideals." Psycho-therapy has the two tendencies in its composition; there is something of the naturalistic movement and something of the idealistic, and the mixture results in a confusion which is detrimental. To reduce this confusion to order must be the work immediately before us.

In Part I. of his book Professor Munsterberg sets himself to expound the psychological basis of psycho-therapy. In chapters on Mind and Brain and Psychology and Medicine we have most interesting accounts of that aspect of the borderland between psychology and metaphysics which appeals to a slowly increasing group of philosophers who appear to derive their inspiration from the teaching of Hegel. Our inner life can be looked at from two most opposite standpoints—the purposive and causal, the latter being an abstraction in the realm of psychology from the former, which is immediate and non-psychological. To the physician as such, however, the interest in mental life lies in the aim of producing a certain effect—namely, that of health—and to him the mental life of the whole personality comes in question as belonging to a causal system—that is, to the domain of scientific psychology. It must be remembered also that faith in the processes of psycho-medicine by no means leads to a neglect of other means at our hands. Even as in the past, an unconscious psycho-therapy has been used as an adjuvant to drugs and other physical therapeutic agencies, so now where psycho-therapy is consciously employed other and adjuvant means should not be neglected. Herein lies at least one of the errors of those unscientific bodies which practise psycho-therapy on a vast scale; the psycho-therapeutic process is relied upon to do that which in our

present state of knowledge the drug or the knife or other physical agency alone can effect.

The second part deals with the practical work of psycho-therapy, its general and special methods. The task of the physician does not begin with his curative methods, and, as in other branches of medicine, preliminary diagnosis has to be made and perceptions and associations, reactions and expressions have to be examined with as much care as have the urine and the blood in other classes of disease. The diagnosis being as accurately established as is possible, the appropriate psycho-therapeutic measure has to be selected, for it is to be distinctly understood that in this, as in every mode of therapy, treatment cannot be invariably carried out in a schematic way after a rigid pattern. With a few vague words of encouragement, or with a routine of tricks of suggestion very little will be effected, for subtle adjustment to personal needs and individual conditions is necessary in every case where the psychical factor is to play an important part. It is one of the surest tests of psycho-therapeutic skill to select for any one case the appropriate means of cure. This platitude needs emphasis, for it too often happens that psycho-therapy, as understood in this country, spells "rest-cure" and nothing more. In the chapter on special methods many useful lines of treatment are indicated, the methods for the most part being those which have long been practised, but not under the present nomenclature. An account of the psycho-analytic method of treatment is given.

Professor Munsterberg delivers himself with commendable emphasis on the subject of education. Much of our present civilisation leads the average man and woman to a superficiality which undermines sound mental life, and we are apt to look with something of contempt at the older fashions in which the demands of authority and discipline controlled the education of the child. We eulogise the principle of following the paths of our true interest, meaning thereby the paths of least resistance. Study becomes play, and while the child learns a hundred things, he does not learn the most important one, to do his duty. "He who has never learned obedience can never become his own master, and whoever is not his own master through all his life lacks the mental soundness and mental balance which a harmonious life demands."

This work may be read with advantage by the metaphysician, the psychologist, and the physician, but we above all wish that it could be brought to the notice of that large and increasing class of superficially informed persons who obscure truth in a multitude of crude notions, expressed in high-sounding but vague, and often quite meaningless, expressions. From this class are recruited those who gape at the tricks of charlatanism and ignore even the obvious facts of everyday life. But this class will not read a book which makes them think.

Ashton's Gynecology: A Text-book on the Practice of Gynecology. By W. EASTERLY ASHTON, M.D., LL.D., Professor of Gynæcology in the Medico-Chirurgical College, Philadelphia. New (4th) edition. With 1058 original line drawings. London: W. B. Saunders Company. Pp. 1099. Price 27*s.* 6*d.* net.

IT is interesting and instructive to notice that this work has run through four editions in a comparatively short space of time. It represents to our mind what we may term a study text-book, written, that is to say, rather from the theoretical than the practical point of view. Yet at the same time we must mention that the study has not been the pathological laboratory, far from it, for the work contains very little pathology, and the illustrations are all essentially diagrammatic. For example, there is not a single drawing of the actual macroscopic or microscopic appearances of any one specimen. If, however, we refer to the title we see tha it is a text-book on the Practice of Gynecology, but how th Practice or Art can be divorced with any advantage from th Science of the subject we fail to see.

Still, of its kind the book is a very fair sample. It i complete enough as far as it goes, though many of th illustrations savour a little too much of the instrumen maker's catalogue, which emphasises the feeling that th principle of the work is wrong, and this is a pity because i contains a great deal of very useful information classifie in a regular and orderly manner. It is of considerabl size and yet we could mention several books, from which although only a quarter the size, the student woul obtain a good deal more and fuller knowledge. In th present edition the author has added a considerabl amount of new matter. The section dealing with the ba effects of tight lacing has been revised and the accoun of the treatment of constipation by exercises amended Dr. Ashton does not accept Crile's theory of the causatio of surgical shock, and quotes with approval the views c Boise and Henderson, maintaining that we do not ye entirely understand the nature of this condition. In th treatment of acute suppurative peritonitis Fowler's postur is described and Murphy's method of continuous proctoclysis

Dr. Ashton counsels immediate operation in all case of tubal abortion or rupture of a tubal pregnancy, a least so we conclude, although the sentence "Surgeon practically agree in cases of rupture of tubal abortion" is no very clear and no real distinction is made between cases c tubal abortion and of tubal rupture, two very different con ditions and often calling for different treatment. There ar still surgeons, at any rate in this country, who are not con vinced that every case of tubal abortion requires immediat operation, and, indeed, the decision depends to a large exten upon the social condition of the patient and her surround ings. The fact that, as the author says truly, there are 9 chances of the hæmorrhage stopping against five of its causin death is a strong argument, not only against undue haste, bu in cases of tubal abortion with moderate hæmorrhage agains operating at all.

There is a great deal of useful writing in this book an we regret that we cannot commend it entirely, but althoug it is described by one reviewer as "a volume of sterlin merit in every detail" we cannot do so. Its chief defects in our opinion, are that its pathology is exceedingly frag mentary and that the illustrations, although very numerous are mainly imaginary and diagrammatic and carry no convic tion to the reader. At the same time, the book has bee appreciated by those for whom it was written, and that is commendation.

The Principles of Hygiene: A Practical Manual for Students Physicians, and Health Officers. By D. H. BERGEY A.M., M.D, Assistant Professor of Bacteriology, Univer sity of Pennsylvania. Illustrated. Third edition thoroughly revised and enlarged. London and Phil adelphia: W. B. Saunders Company. 1909. Pp. 555 Price 13*s.* net.

THE fact that this book has reached its third edition is i itself the best testimony to its popularity with the medica profession in America, and it is intended more for the genera medical practitioner than the medical officer of health o the student for the diploma of public health. The autho states in his first preface that no attempt has been made t treat the subject in an exhaustive manner, the general prin ciples upon which the health officer and the physician wor in their respective capacities in relation to the public healt being alone furnished. The book is, therefore, not suite to the needs of the future medical officer of health, an it cannot be considered in the light of a text-book fo

alth students. But viewed from the standpoint of its ore general scope the work contains much which is of terest, and the fact that the references are mainly nerican affords to the English reader an insight into a le of public health and preventive medicine with which ost of us on this side of the Atlantic are not familiar.

In discussing the influence of race as a predisposing cause disease Dr. Bergey states that the Jews are more liable to seases of the nervous system and less liable to tuberculous fections than others in America, while the death-rate nong the children of Irish mothers from tuberculosis is eater than among children of German mothers. Conversely, ie death-rate amongst children of German parentage is eater from Bright's disease than amongst the children of ish mothers. In the chapter on water purification there are me interesting observations on mechanical filters, which e used in several parts of the United States, and we learn at the life insurance companies are indirectly making for tter water-supplies by asking increased rates if the water polluted; while as regards quantity of water the fire rates e augmented if the supply is regarded as insufficient. r. Bergey tells us, on the basis, apparently, of American servations, that chlorine and bromine are not capable of erilising water when applied on a large scale, and he adds at ozone is the only agent which has so far yielded tisfactory results.

The "50 dairy rules" of the Bureau of Animal Industry, hich are reproduced, are drawn up in a direct fashion, and ey are, we think, better suited for common use than most the regulations made use of in this country. Chapters on hool, military, and naval hygiene find a place in this volume, t these are in each case very brief. With respect to epi-emiology, some of the statements would rather puzzle the nglish reader. For example, we are told that "diseases like nall-pox, measles, and scarlet fever are transmissible by irect contact, and diseases like typhoid fever are usually ansmissible by indirect contact." As illustrating the value isolation and disinfection in scarlet fever in Michigan ring the five years 1886–90, a chart is furnished purporting illustrate the large average number of cases out of 366 tbreaks which occurred when isolation and disinfection were eglected, as compared with the lower average of 361 out-reaks in which isolation and disinfection were enforced, and milar figures are given for diphtheria; but we must confess at we should like to know more of the manner in which ie averages were made up. The port medical officer of ealth will find in this book the quarantine laws of the nited States *in extenso*, and these should prove of interest. ut Dr. Bergey has not, we fear, made himself very familiar ither with English epidemiology or administration, since e furnishes a table purporting to establish the value of otification in this country which covers the period 1871–90, rranged in five-yearly periods, and he observes that while iere was a decline in the death-rate from all causes from 871–75 to 1886–90 of only 14·5 per cent., there was a ecline of 39·2 per cent. in the death-rate from the total ymotic diseases and a decline of 64 per cent. in the death-ate from notifiable diseases during the same period, "show-ng the great value of notification in infectious diseases," otification having, he says, "been in force since the adop-on of the Public Health Act, 1875." Our readers will, herefore, understand why we cannot recommend the volume or the use of students in this country, although for those who are able to discriminate there is much useful information n the work.

LIBRARY TABLE.

Experimental Pharmacology: a Laboratory Guide for the Study of the Physiological Action of Drugs. By CHARLES WILSON GREENE, Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Third edition, revised. With 37 new illustrations. Philadelphia: P. Blakiston's Son and Co. 1909. Pp. 76. Price $1.00 net.—Having regard to the views of the author that instruction in pharmacology should be based "on a rigid course of required laboratory experiments," and that "the student in the subject should be given every opportunity to observe for himself the changes produced by a drug in the activities of a tissue, of an organ, and of an entire organism," Professor Greene has gradually evolved the present list of experiments which may be performed by students in the University of Missouri. The drugs selected are alcohol, ether, chloroform, chloral hydrate, opium series, caffeine, strychnine, cocaine, quinine, atropine, scopolamine, nicotine, curare, pilocarpine, physostigmine, aconite, veratrine, digitalis, ergot, suprarenal gland, nitroglycerine and nitrites, carbolic acid, and salts of potash, calcium, and barium. The experiments are arranged much on the same type throughout, with modifications according to the action of the drug to be studied. Taking alcohol as a type, to which five pages are devoted, the following gives the list of experiments to be done to show the effects of alcohol on (1) the frog—injection into dorsal lymph sac; (2) ventricular muscle; (3) frog's heart; (4) isolated mammalian heart; (5) work of gastrocnemius muscle; (6) voluntary human muscle (demonstration); (7) circulatory and respiratory system of mammals; and (8) reaction time of reflex frog. To ether and chloroform nine pages are given, and the experiments to be done (nine for ether and nine for chloroform) are somewhat like those detailed under alcohol, but having regard to the specific actions of these drugs, experiments with respect to their action on the irritability of muscle and nerve, on blood pressure, and on the germination of seeds and yeast are introduced. In caffeine an experiment on diuresis in a mammal is described. In the text there are some references to the *American Journal of Physiology* for further details of the experiments, and in a short appendix an account is given of physiological solutions, how to anæsthetise a dog, cat, rabbit, or guinea-pig, the preparation of the ventricular muscle, and allied phenomena. There are a large number of tracings which are well done. Obviously such a programme with the restrictions at present in force could not be carried out in this country. This little work will prove useful to teachers of pharmacology, but it cannot take the place of a text-book on pharmacology. It is what it pretends to be—a "guide," and of course only within a limited range.

Indian Plants and Drugs, with their Medical Properties and Uses. By K. M. NADKARNI, Member of the Paris Chemical Society. Madras: Norton and Co. Pp. 450.—The writer of this book states that his object in presenting it to the medical profession is to introduce to their notice the therapeutical properties of the numerous remedial drugs and agents of indigenous origin met with in India. He also intends the work for use by the "educated public in general," so as to initiate a knowledge of indigenous drugs and remedies, either procurable at a nominal price in all Indian bazaars or at the mere cost of collection from the roadsides or gardens in their immediate neighbourhood. An index of diseases and their suggested remedies is given at the end of the book to help the reader to select the particular remedy for the ailment under consideration. In the body of the book the Indian plants and drugs are arranged in alphabetical order in accordance with their Latin nomenclature, and are thus readily available, the natural orders are stated, and the corresponding names of the plants or drugs is given in English, Sanskrit, Hindustani, Bengalee, Telungu, Tamil, Canarese, and Malayalum, which should be of great assistance to local native practitioners in India. The habitat, properties, uses, and native Indian preparations are all fully described. The compilation appears

a useful one, made with intelligence; the type is clear and the printing good—particularly good for India. As, however, the author tells us the work is meant for distribution amongst the general public, we must take exception to the inclusion of certain mischievous advertisements at the end of the book, notably those recommending certain remedies for the treatment of syphilis and of gonorrhœa in both sexes, and others of drugs which excite sexual appetite and "restore lost manhood." Such advertisements should not occur.

A Synopsis of the British Pharmacopœia, 1898. Compiled by H. WIPPELL GADD. Seventh edition. London: Baillière, Tindall, and Cox. 1910.—This little pocket-book is full of useful data, a fact which has called for a seventh edition. It bears evidence of very careful compilation, and certain analytical factors which are included will afford the pharmacist some useful information. The work of reference to official preparations, to their characters and dose, is made easy by the clearness of the text, by the general observations, and by the uniform tabulation of the facts. An important departure is the addition of the new poisons schedule (Poisons and Pharmacy Act, 1908) at the end of the book, with the clauses of which, of course, it is essential pharmacists should be familiar.

JOURNALS AND MAGAZINES.

Proceedings of the Royal Society of Medicine.—The May and June numbers of the Proceedings contain a large number of interesting contributions, to which we wish to call somewhat belated attention. Among the contents of the May issue we may note first Dr. F. Langmead's paper on Eighty Consecutive Cases of Wasting Infants Fed on Undiluted Citrated Milk. This method of modifying milk was first advocated by Sir Almroth E. Wright in THE LANCET of July 22nd, 1893, p. 194. Dr. Langmead does not find this method suitable for infants below a fortnight old, and for those above he uses 2 gr. sodium citrate in watery solution to every ounce of milk. Dr. Langmead records that "he expected to meet with children for whom citrated milk seemed unsuitable, but so far he had not done so." In the Clinical Section Mr. Charters J. Symonds records a case of Rodent Ulcer Successfully Treated by Radium, although, "while the skin has recovered, there is still active disease in the deeper parts." In the discussion of this and other papers on radium treatment some doubts were expressed as to the possibility of radium beneficially acting upon malignant tumours. In the Electro-Therapeutical Section Dr. A. Howard Pirie records some cases of Treatment of Hodgkin's Disease by X Rays, the glands treated being reduced to their normal size and "the red blood corpuscles and the lymphocytes increased, while the large mononuclears have decreased." Mr. C. Thurstan Holland and other speakers in the discussion quoted cases in which the glands had improved under X ray treatment, but in which the patients had nevertheless eventually died. In young people X ray treatment seemed to have more permanent results. Dr. J. Edward Squire's paper in the Medical Section gives the results of 15 years' records at the Mount Vernon Hospital on Hospital Infection of Tuberculosis. The staff at this hospital are systematically examined on entering and on leaving, and the examinations having been made by Dr. Squire himself constitute a continuous record. The conclusion arrived at after a careful and exact analysis is that "the risk of tuberculous infection, even in a hospital for consumptives, appears to constitute a very slight danger." In the Neurological Section, Two Cases of a Nervous Disease of Undetermined Nature occurring in a Brother and Sister are recorded by Dr. Guy E. M. Wood and Dr. S. A. K. Wilson. The cases appeared to be a family disease of a degenerative nature. Dr. Henry Jellett, in the Obstetrical and Gynæcological Section, considers The Pla of Cæsarean Section in the Treatment of Placenta Prævi and comes to the conclusion that there is no place for this pr cedure as a treatment, the existing methods being sufficie Dr. R. Ackerley has a valuable paper in the Odontologi Section on the Condition of the Month in 1000 Consecut Cases of Chronic Disease. Among the 1000 cases of we to-do people more than 1 in 5 showed a foul mouth. T cases were of the type usually seen at the spas—suffer from various forms of dyspepsia, affections of the stoma and bowels, rheumatism, gout, rheumatoid arthritis, arter sclerosis, and neurasthenia. Dr. Ackerley attributes a co siderable proportion of this chronic illness to neglected o sepsis, defective teeth, and defective mastication, a pleads for a thorough-going treatment of the mouth all cases. In the June number of the Proceedings we m call attention to the papers on Lupus in the Dermatologi Section by Dr. S. E. Dore, Sir Malcolm Morris, Dr. Wilfr S. Fox with Sir Malcolm Morris, and Dr. J. H. Sequei The papers describe interesting cases for differential di gnosis, a case of lupus with epithelioma, and one with scle dactyly. In the Proceedings for May Mr. Herbert Till records a case of a Portion of Mutton Bone removed fro the Right Bronchus ten days after it had lodged there, a in the Proceedings for June a case of Removal of a Pen from the Œsophagus 13 days after it had been swallowed. M Frederick J. McCann in the same number notes a successf case of Eclampsia Gravidarum treated by Cæsarean Sectio and considers the applicability of Cæsarean section in th condition. The discussion disclosed a considerable divergen of view. In the Odontological Section the report of th Honorary Curator (Mr. J. F. Colyer) is given, and recor the transference of the museum from 20, Hanover-square the Royal College of Surgeons. The Curator is in want specimens, and appeals particularly for odontomes, anomalo shaped teeth, and skulls illustrating irregularity of the teet

New Inventions.

A NEW FACE-SCREEN.

THE accompanying drawings represent a shield for th mouth and nose which Messrs. Down Bros. have made for m It is very simple in construction, being extremely light an consisting of a framework of plated copper upon which a laye of batiste is stretched. The frame can also be made aluminium. At the upper end are two curved wire ear-piec (Fig. 1); in the alternative model (Fig. 2) these latter a replaced by loops made of elastic, which are more convenien for nurses. The whole shield is sterilisable to any extent an

FIG. 1.

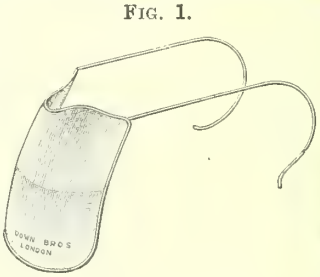

FIG. 2.

can be used for the following purposes, viz.: (1) examina tion of the mouth, nose, larynx, &c.; (2) for all operations especially those on the mouth, nose, and larynx, such a removal of tonsils and adenoids, tracheotomy, &c.; an (3) for changing tracheotomy tubes in diphtheria, &c.

There is no doubt that doctors and nurses run great risk of infection when examining and operating on many parts o the body, and this shield not only protects them to a very large extent, but also protects the patient from any secre tion or breath from the mouth or nose of the doctor or nurse

It is quite comfortable and can be worn for hours without any inconvenience. I hope that this little shield will supply a much-needed want, and I shall be glad to receive any criticisms.

WILLIAM IBBOTSON, M.R.C.S., L.R.C.P. Lond.
London Throat Hospital, W.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

OLIVE OIL (B AND G BRAND).

(CHALIÉ, RICHARDS, HOLDSWORTH AND CO., 4, PALL MALL EAST, LONDON, S.W.)

THIS oil is shipped by a well-known house in Bordeaux which sends to this country both oil and wine. Apart from the absence of substitutes or adulterants, it is desirable, particularly for dietetic purposes, that olive oil should contain a minimum of free fatty acids. An acid olive oil is very distasteful to the palate and may easily give rise to nausea and dyspeptic conditions. We have examined salad oils containing an objectionable quantity of free fatty acid, and the amount in commercially bad samples may exceed 20 per cent. We found in the B and G brand olive oil 1 per cent. only of free fatty acid. It is scarcely necessary to add, in view of this fact, that the oil possesses a clean, bland, nutty flavour. Physical and chemical tests such as the specific gravity, the iodine absorption, and the temperature test with sulphuric acid showed that the oil is of a very high quality. The use of pure olive oil in dietetics is important, since the substitutes with which it is often mixed are less digestible.

CALSA.

(MESSRS. TORBET, LIMITED, 10, BUSH-LANE, CANNON-STREET, LONDON, E.C.)

We found "calsa" to be a particularly pure specimen of agar-agar. It is suggested for use in what is called the rational treatment of constipation. In assisting in the removal of toxic products from the bowel its administration effects a general improvement of health; morbid conditions depending upon auto-intoxication are said to be removed. There is thus evidence in favour of the use of calsa for administration, not only in mucous colitis, but in severe migraine, asthma, and bronchitis. Calsa does not contain any laxative drug, so that its action is left entirely to its softening effect upon the contents of the bowel and to its absorbing properties. A mild laxative may be added if deemed to be desirable.

PERPETUALE.

(R. W. MILLS AND CO., BOURNE, LINCOLNSHIRE.)

In accordance with the suggestion made recently in our columns that in the treatment of the septic bowel lactic acid might be administered, instead of the organisms which produce it, the above firm have prepared an aerated beverage which we found to contain 0·84 per cent. of anhydrous lactic acid. The statement is made that perpetuale contains 1 per cent. of lactic acid, but as the acid is extremely hygroscopic the difference between the claimed figure and that actually found is no doubt due to water present in the original acid used. The beverage is quite palatable, being pleasantly acid, but it contains some sugar which tempers the acid flavour to some extent. On evaporation a residue was obtained amounting to 9·03 per cent., consisting chiefly of sugar.

DIABETIC FOODS.

(MESSRS. BONTHRON AND CO., 50 AND 52, GLASSHOUSE-STREET, LONDON, W.)

The above well-known manufacturers of diabetic foods make a feature of studying the requirements of those patients who are restricted to certain foods, with the view of offering, as advances are made, as palatable an article as possible. We have recently received from them an assortment of foods, and the results of the analyses impress us with the care of the manufacturers. An excellent biscuit known as the biogene digestive biscuit contains chiefly milk protein, and another biscuit of light bran, known as "biobran drops," should be useful in obesity and constipation. The list includes some shortbreads and chocolate biscuits which closely resemble the ordinary starchy preparations. We found them to contain a negligible quantity of starch. Lastly, we have examined a sample of red currant jelly which in appearance is indistinguishable from the ordinary preparation. It contains glycerine, and the sugar present is due entirely to the fruit employed. We obtained with a solution of it a reduction of Fehling's solution, and by Fischer's reaction the formation of glucosazone.

POM POWDER TOILET SOAP.

(POM, LIMITED, LEEDS-STREET, LIVERPOOL.)

This is a clean, white, impalpable powder, occurring in the form almost of fine dust. It is very convenient to use and readily lathers. On submitting it to analysis it was found to be free from uncombined alkali and to contain a useful vehicle in the form of fine chalk. The soap powder is delicately scented and makes altogether an agreeable and useful article in the toilet.

HAYDEN'S VIBURNUM COMPOUND.

(THOMAS CHRISTY AND CO., 4, 10, AND 12, OLD SWAN-LANE, UPPER THAMES-STREET, LONDON, E.C.)

Virburnum prunifolium has some reputation as an ovarian and uterine anodyne, and has therefore been used in amenorrhœa, menorrhagia, and in obstetrical practice generally. There appear to be different views in regard to its efficacy, some authorities stating that it gives excellent results in the treatment of dysmenorrhœa, after-pains, and ovarian irritation, and commending it in cases where there is a disposition to miscarriage, while others state that experience fails to justify belief in the qualities claimed for it. Hayden's viburnum compound, however, is said to be made from viburnum opulus (Guelder rose), which is regarded as being more effective than viburnum prunifolium. Hayden's compound contains also dioscorea (colic root) and scutellaria lateriflora, described as being useful in neuralgia and convulsive affections. This compound is evidently favourably regarded in American gynæcological practice, and is supplied exclusively to the qualified practitioner to be used under his direction.

THE SIMS FILE FOR AMPOULES.

(AGENCY; SQUIRE AND SONS, 413, OXFORD-STREET, LONDON, W.)

We have given these files a practical trial and we find that they answer their purpose admirably. In making a file mark on the glass ampoule it is important that it should be made clean, so that when the small tube is fractured the fracture shall be completely regular and no splinters produced. We understand that amongst the Continental nations, particularly France and Germany, where the ampoule method of hypodermic medication is largely followed, these files are extensively used. Their shape resembles that of a saw, and the edges are finer than those of a triangular file. They are, moreover, flat and easily packed, and the teeth are cut deep so that the filing quality lasts longer. They are made from a specially selected steel.

MILK FOODS.

(WILTS UNITED DAIRIES, LIMITED, DEVIZES.)

We have on a previous occasion dealt with the products of the above firm in our laboratory, but recently some important changes in regard to the composition of these foods have been brought to our notice, and, so far as our analysis has gone, we consider them improvements. The infants' food, for example, presents a composition closely resembling that of

cow's milk without the water. We are glad to note that it contains a rich proportion of milk fat. The analysis was as follows: moisture, 6·20 per cent.; mineral matter, 5·80 per cent.; protein, 25·57 per cent.; fat, 29·00 per cent.; and milk sugar, 33·43 per cent. We have further examined a preparation called "albiron," which is a useful combination of milk protein with a small quantity of assimilable iron. It is enriched also with phosphates. Protette cocoa is again reinforced with milk protein, and is a dietetic preparation containing all classes of food substances. "Milk diet," again, is a judicious mixture of nutritive elements, including starch and protein, but with a small proportion of fat. The preparations in general give evidence of care in manufacture.

VIROGEN.

(ARTHUR H. COX AND CO., BRIGHTON.)

We have examined virogen and find that the claims made in regard to its composition are correct. It is a compound of soluble milk protein with the glycerophosphates of lime, manganese, &c., a combination which appears to give excellent results in general debility and nervous disorders. The interesting point about our examination was the evidence given of the preparation being not a mere mixture of the constituents enumerated, but a true compound.

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 11th, 1832.

PHTHISIS.—INHALATION OF TANNER'S LIQUID.

There was likewise presented a man with phthisis, to whom no medicine was given, but in whom a trial was made of the inhalation of tanner's liquid. I have perseveringly tried for a year and a half, or more, the inhalation of iodine and the inhalation of chlorine, but I have never seen a case of phthisis cured by either. I have seen great temporary relief afforded, but I have never seen a single cure effected by them any more than by other measures which have been adopted. I have heard of the atmosphere in the neighbourhood of tanners being considered favourable to phthisical patients, and as there are such simple modes now of making patients inhale air impregnated with different things, I thought if a patient were made to breathe through tanner's liquid, and any benefit could be derived from it, that would be a way in which it might be obtained. This man inhaled it, and found a great mitigation of his symptoms—quite as much, nay more than, in cases where I have employed chlorine or iodine; but unfortunately he caught cold, through the windows being open, and it was necessary to treat him antiphlogistically and get rid of the bronchitis. He then inhaled again, became better, and felt a desire to go out.

I have never seen a cure effected by this tanner's liquid, but I have seen a great mitigation of the symptoms, and in chronic bronchitis more than in phthisis. In bronchitis, where the inflammation is not violent, where there is more irritability of the membrane than anything else, and profuse discharge, I have seen great good done by it. It can do no harm where the inflammation is severe. There is a man now in William's Ward with chronic bronchitis, who has experienced great relief from breathing for twenty minutes, three or four times a day, through a hot solution of tanner's liquid. Whether a decoction of oak bark alone would answer an equally good purpose, I do not know: for as the air in the neighbourhood of tanners has been so much praised, I thought it better to order tanner's liquid. It is, however, so offensive in its nature, that some people will not use it at all, especially ladies, and some are made sick by it; but as a means of mitigating phthisis it is likely to be useful; beyond saying this, I dare not speak. I intend, however, to ascertain whether breathing through mere decoction of oak bark, or Peruvian bark, may not be as serviceable.[1]

[1] Excerpt from Clinical Lecture by John Elliotson, M.D., F.R.S., Professor of the Principles and Practice of Medicine in the University of London. Delivered April 16th, 1832.

THE BRITISH MEDICAL ASSOCIATION.

SEVENTY-EIGHTH ANNUAL MEETING IN LONDON.

THE SECTIONS.

MEDICINE.

THURSDAY, JULY 28TH.

President, Dr. R. W. PHILIP (Edinburgh).

Dr. J. F. GOODHART (London) opened a discussion on

The Treatment of Chronic Constipation.

He defined constipation as unnatural delay in the passage of the intestinal contents along the colon. The transit of the small intestine was usually rapid, and delay did not as a rule occur until the cæcum was reached. In replying to the question as to what constitutes delay, he referred to Dr. A. F. Hertz's observations on bismuth meals by means of the X rays, which demonstrated that the passage of the intestinal contents along the colon only occupied some 20 hours after taking the meal; to this there must be added for delay in the collecting chamber a variable time, probably in most people three to four hours, until the call for expulsion comes. Normally, in from 30 to 40 hours after the taking in of a meal by the mouth it is completely evacuated. Constipation, therefore, falls into two groups—constipation of the colon and constipation of the collecting chamber or rectum. The former is an automatio reflex outside the control of the will; the latter is largely aided by voluntary effort, and the trouble comes into being when voluntary effort fails. This form was mostly present in old people, in women of lax habit who had borne children, and in such as had habitually neglected to form good habits. Constipation of the colon was a more intricate and interesting subject, and was in the main a physiological one. Its causes were concerned with the neuro-muscular apparatus of the intestinal wall and with the intestinal contents. The nervous element was a preponderating one, and in this connexion Dr. Goodhart referred to the influence of habit, of the temperament of the subject, and the mental state. Chronic constipation was in many people the result of neglectful irregularity. It was sometimes an evidence of increasing mental derangement of a severe kind. He then gave an interesting account of the physiology of peristalsis, and expressed doubts as to whether it had received its due meed of appreciation. He referred to its constancy, its strength, and its directness of purpose, and pointed out that though for the most part deliberate, it was increased after each meal. He discussed the mechanism of the production of scybala, and stated that they seldom caused intestinal obstruction. He did not attach much importance to kinks and adhesions in this connexion, since peristalsis was adapted to overcome these conditions. In regard to the intestinal contents, he attached great importance to the quality, quantity, and variety of food. The absence of one of the usual meals on any one day might delay the action of the bowels on the next, and he affirmed that to ensure regular action of the bowels the colon must be full. He believed that the colon was a great feeder and that abundant absorption went on in this organ He deprecated the idea that the object of treatment should be to keep the colon empty, for he believed it to be an important organ of nutrition. He ridiculed some of the current ideas in regard to diet, and maintained that in order to ensure regular action adequate intake sufficient to keep the colon full was a necessity. He believed that much of the constipation in women of the upper classes was due to deficient intake of food, and that the constipation of old age was in part due to the necessarily limited diet. Another class was formed by those who ate enough, but imagined themselves constipated and by taking pills actually created an artificial constipation. He also referred to the importance of the colon as an excretory organ and strenuously combated the doctrine of intestinal auto-intoxication, which he described as unsound and baneful. In regard to the treatment of constipation, he was of opinion that not every case needed it. Many people who were habitually constipated were completely healthy when unharassed by aperients. He

strongly attacked what he described as the obsession of the urgency of securing a daily stool, and also the ideas that blocks readily occurred and that the colon was to be regarded as a poison bag. He looked upon the effects of treatment by intestinal antiseptics as very inconclusive. In regard to surgical operations, he affirmed that they were based on unsound principles and were destined to pass into oblivion. When treatment was necessary each case should be carefully considered; bad habits, irregular and insufficient meals should be corrected, and care should be taken to avoid the curse of habitual pill taking. As far as possible the bowels should be left alone to work out their own salvation. The value of massage, salines, and enemata was considered. Dr. Goodhart affirmed that with advancing civilisation aperients would always be with us, but lamented the change from the occasional pill of our forefathers to the excess of the present day.

Professor C. BÄUMLER (Freiburg) also referred to the advances made as a result of physiological work and of the study of bismuth meals by the X rays. It was now possible to see if the stomach emptied itself at the proper time and to follow the movement of the intestinal contents. The position of the transverse colon and of the cæcum revealed by this method was often surprising, since the former was often found well below the umbilicus in health. He pointed out that the transverse colon could be easily felt in normal persons, not too fat, in the recumbent position in the morning, by palpation with a hand on each side of the umbilicus. He referred to the importance of maintaining the sympathetic nervous system in proper condition and tone in order to avoid constipation. For this purpose adequate sleep was a necessity, a cold bath in the morning was of value, and also regular exercise in the open air. It was important to take enough food of a mixed character, including vegetables. He deprecated unnecessary interference, and referred to the great power the organism possessed of correcting deviations from the normal.

Sir JAMES SAWYER (Birmingham), after discussing the constitution of fæces and the part played in their formation by glandular and other secretions, pointed out that the errors of habit, of alvine effort, and of diet which cause constipation were known to us, and by attention to these matters mild cases could be cured without drugs, while even in severe cases these matters were of great value as adjuncts. He laid down three canons in regard to treatment: (1) Do not leave the question of medicine to the patient; (2) do not prescribe drugs until it is certain the cases cannot be cured without them; and (3) employ a conjoined use of adjuvants of the natural methods of alvine relief. He then discussed the part played by certain factors in the production of constipation, including the neglect of the natural impulse, the use of too high lavatory seats, the neglect of the psoas and iliacus muscles, and the habitual abstinence from fruit. After breakfast was the most satisfactory time for evacuation, except in persons with piles, who should accustom themselves to defæcation at night. An effort should be made at the usual time, whether the desire were present or not. The best position for defæcation was the crouching attitude. He urged that slouching, stooping, and sitting in large arm chairs might all interfere with the normal action. He agreed that the best diet was a mixed diet, and insisted on the value of daily bodily exercise. For some cases a pill made of myrrh, Socotrine aloes, and cassia pulp given at bedtime was of great value.

Dr. H. D. ROLLESTON (London) believed that Dr. Goodhart had unduly minimised the bad effects which might result from constipation. The personal equation was of great importance; in exceptional cases no harm resulted, but in other cases they must admit the possibility of intestinal auto-intoxication, and he must register a protest against putting this out of court altogether. He wished to refer to three causes of constipation: First, want of tone of the muscular coats of the intestine, especially one form accompanying the condition of hypothyroidism. The administration of doses of thyroid often cured the constipation. Secondly, constipation due to excess of tone—spastic constipation. In some of these there was a reflex cause in the abdominal cavity, and in these it was often cured by giving belladonna or opium. Thirdly, constipation due to diminished quantity of fluid or to diminished secretion, which should be treated by giving more fluids.

Dr. G. NEWTON PITT (London) said it was striking that the fæces collect in the sigmoid colon and that the rectum was normally empty. It was also noteworthy that in the act of defæcation the descending colon was emptied as well as the sigmoid. He pointed out that intestinal secretions and residues were an important constituent of the fæces, and that bacteria might constitute almost a third of the total quantity. Some patients digested their food with less wear and tear and formed less mucus. The effects of constipation varied enormously in different individuals, and he referred to a man with an action only once in six weeks who was normal in every way. He stated that people with regular habits suffered more from trouble when disturbance occurred. He described the use of paraffin, vaseline, and agar-agar in treatment. He gave details of a case in which the bowels were only opened once in two or three months.

Mr. ARBUTHNOT LANE (London) said that the contention he had against the profession, especially in this country, was that it saw, or imagined it saw, faults or fallacies in anything new, and took no trouble to find out if there was anything true in it. That was his invariable experience. For instance, he remembered that when he originated the now popular operation of the primary resection of a rib for empyema he consulted his revered teacher, Dr. Goodhart, before publishing it in the Guy's Reports of 1882, and Dr. Goodhart objected to the treatment on the ground that the opening up of the cancellated tissue of the ribs would very probably result in the development of pyæmia. If one distinguished as he was even at that time took up such an attitude, what could be expected of the average man? However, the objection proved to be unfounded, and within a very short time it was accepted as the only efficient treatment. Precisely the same attitude towards any new measure still existed. As he (the speaker) knew constipation, it was a symptom, and the most common symptom, of intestinal stasis as affecting the large bowel. By intestinal stasis he meant such a delay of the contents of the intestine in the gastro-intestinal tract, but more particularly in the large bowel, as allowed of the absorption into the circulation of a larger quantity of toxic material than could be dealt with effectually. This delay was brought about by an alteration in the arrangement of the drainage apparatus. In early life it resulted from an abnormal distension of the intestines by too frequent feeding or by the use of unsuitable articles of diet. Later it was produced and accentuated by the erect posture of the trunk. The changes were primarily mechanical and secondarily toxic. The mechanical were: 1. Kinking of the pylorus by the development of a new ligament which attached it and frequently a portion of the transverse colon to the under surface of the liver in front of the transverse fissure and frequently to the cystic duct and gall-bladder, interfering with their normal functioning. 2. A dilatation of the stomach consequent on the kinking of the pylorus. 3. The development of areas of engorgement of the mucous membrane of the first part of the duodenum and of the lesser curvature on either side of the attachment of the acquired ligament. 4. The formation of an ulcer at a later period in these areas of engorgement. The ulcer in the duodenum readily reacted to treatment by rest, while that in the stomach was much more chronic and on that account became infected with cancer germs. 5. The development of a kink in the ileum within two or three inches of its termination. This was associated with a dilatation of the entire small intestine. This dilatation was frequently very marked in the duodenal area of the small bowel. 6. Fixation or kinking of the appendix, producing the several conditions comprised under the term appendicitis. 7. Dilatation of the cæcum, which usually occupied the true pelvis. 8. Kinking of the hepatic and splenic flexures. 9. Occasional kinks of the ascending and transverse colon. 10. The transverse colon was placed in an abnormally low level, part of it frequently lying in the true pelvis in the erect posture. 11. The sigmoid was subject to great variations, with its fixation by acquired bands and mesenteries. If the process was complete the loop was obliterated and was replaced by a short fixed straight narrow tube through which fæces were driven with difficulty. Or the ends of the loop might be fixed and approximated and a condition called volvulus resulted. Or the loop, besides being attached by its extremities, might be interrupted by an intermediate fixation and two so-called volvular arrangements resulted. There were other variations. 12. The development of the adhesions and mesenteries, which fixed the lower part of the sigmoid and

upper part of the rectum, anchored the left ovary and appendix and dragged them out of place. This anchoring resulted in the fixation of the ovary and later in its cystic degeneration. 13. The condition of the rectum varied very greatly. The general tendency was for it to elongate in direct proportion to the fixation of the colon. The more effectually the rest of the large bowel was fixed by adhesions, the greater was the elongation and mobility of this portion of the bowel, and the less capable was it of performing its normal function of transmitting the fæces at a mechanical advantage. 14. At any point of stress in the large intestine areas of abrasion and ulceration of the mucous membrane might occur, which might produce abscesses in the vicinity, especially in the fixed sigmoid or rectum. These areas might later become injected with cancer germs. 15. The stasis in the stomach and in the small intestines produced most definite clinical symptoms. Associated with the latter especially there was a considerable ascent in the level of deleterious organisms in the small bowel, with occasional infection of the biliary and pancreatic drain-pipes, producing gall-stones, pancreatitis, and later cancer of these structures. How great a part was played in the production of gall-stones and pancreatitis by the direct infection of the ducts from the intestine and by the infection of their channels by auto-intoxication was difficult to determine. He had no doubt that one or both factors brought these changes about, and that mechanical interference with the functioning of the gall-bladder and duct by adhesions might facilitate the formation of gall-stones. It was well to remember that the deleterious organisms of the intestine readily migrated through the blood-stream, as, for instance, to the genito-urinary tract, in both sexes, from which they were expelled with the greatest difficulty, while not infrequently they were ineradicable. 16. Constipation was chiefly associated with stasis in the large bowel, and was more marked the lower the area of stasis. In some localities diarrhœa might result from the stasis, or constipation might be replaced by periods of diarrhœa. Or, again, definite infections might result in an inflamed condition of the mucous membrane of an acute or chronic character. Besides the symptoms that resulted from the mechanical interference with the normal functioning of the intestine, those that resulted from auto-intoxication were of vital importance, not only in ageing the individual, but also in reducing the resistance to the entry of organisms of various sorts into the tissues. He need only mention the loss of fat with its innumerable very serious consequences, the mental misery, the complete physical and mental disability, the staining of the skin, the loss of the appetite, the marked alteration in the respiratory and circulatory system, the cold clammy skin, the degenerative changes in the breast which might sooner or latter become infected with cancer, infection of the gums, decay of the teeth, the development of tubercle, rheumatoid arthritis, &c., and all the symptoms which were generally comprised under the term indigestion. Life to these people had no attraction. The symptoms could be relieved by the removal of the factor which determined them. In some cases a gastro-enterostomy, in others the division of the ileal kink, in others the removal of the appendix, in others the division of the ileum and its connexion with the rectum as low as possible, and in others the removal of the large bowel was called for. These operations could be done at a risk which was ridiculously small considering the miserable physical and mental condition of the sufferer, and which would be still further reduced with increasing experience. The relief which was afforded was out of all proportion to the risk. In the year ending June, 1910, he had operated for constipation at Guy's Hospital on 15 patients, dividing the ileum and putting it into the rectum in 4 cases and removing the large bowel as well in 11 cases. He had only lost one, and that through an accident. Whether the English profession liked it or not, they had to face these facts. Thanks to his visit to the United States, the study of intestinal stasis was already in very strong hands, which would deal with it scientifically and effectually, and abuse and misrepresentation could no longer delay progress. While thanking them for their patience in listening to him, he apologised for the necessarily scrappy nature of his communication.

Dr. A. MANTLE (Harrogate) referred to the local effects of constipation, especially a catarrhal inflammation or local colitis produced by the irritation of hard fæces. This catarrhal inflammation was far-reaching in its effects. He maintained that some cases operated on for appendicitis were cases of mucous colitis with spasm at or near the appendix. In regard to auto-intoxication, the organism possessed natural defences, but when these broke down symptoms resulted. The toxins were especially prone to act on two systems—the nervous, leading to neurasthenia, and the circulatory. The poisons also had an affinity for the joints, and some cases of skin disease were due to bowel conditions. The method adopted at Harrogate of washing out the bowel with 30 to 35 ounces of sulphur water to get away the mucus gave good results, while massage, careful diet, and the formation of new habits were employed.

Dr. A. F. HERTZ (London) pointed out the importance of determining what part of the alimentary canal was at fault, and showed lantern slides giving the results of X ray examinations after bismuth meals. On an average the cæcum was reached in 4½ hours, the hepatic flexure in 6½, the splenic flexure in 9, the sigmoid colon in 12, and the junction of the pelvic colon and rectum in 18. He divided cases of constipation into two classes, those in which the delay occurred in the small or large intestine, and those in which the delay was occasioned in the evacuation from the rectum, a condition which he called dyschezia. The first variety could be influenced by diet, massage, and drugs, the second by such measures as re-education, exercises, the squatting position in defæcation, enemata, and suppositories. He showed lantern slides demonstrating the effect of a stimulating as compared with a non-stimulating diet upon the passage of the food through the large intestine. Massage was useful, but it was necessary to employ bismuth and the X rays to determine where it should be applied. Purgatives might hurry on the contents too much and so interfere with nutrition; therefore the smallest quantity that was effective should be given. He quoted some experiments to demonstrate that sodium and magnesium sulphates completely evacuated the large bowel without affecting the passage through the small intestine. The condition of dyschezia was more common than was generally supposed. It was important to attempt to evacuate the bowel even though no desire was felt.

Dr. WILLIAM EWART (London) believed that fulness of the large bowel with fæces was of less importance than fulness with a proper amount of gas. He regarded the cæcum as a compressed air chamber. He pointed out the importance of adequate physical exercise, instancing the comparative rarity of constipation in labouring men and its frequency in women.

Dr. G. HERSCHELL (London) pointed out a simple method of tracing the passage of the food along the intestine where the use of X rays was not practicable; it was by giving 4 or 5 grains of carmine with a test-meal. If no carmine appeared in the motion next morning a small injection should be given. If it washed away carmine the passage through the colon was normal; if not, there was delay in the upper part of the colon. He emphasised the importance of colitis and discussed its production and its diagnosis. He referred to the value of the sigmoidoscope in the diagnosis of constipation.

Dr. J. GUELPA (Paris), whose remarks were read owing to his absence through illness, argued in support of the occurrence of auto-intoxication. One use of purgatives apart from their evacuation effects was to assist in the disintoxication of the organism.

Dr. STUART A. TIDEY (Montreux) stated that constipation was so common as to be universal in conditions of social aggregation. The less gregarious the population was, the less constipation was present. He instanced the rarity of constipation in peasant populations.

Dr. J. HADDON (Hawick) briefly discussed some points in the physiology of digestion, after which Dr. GOODHART replied. In spite of the criticism of his position in regard to auto-intoxication he was still of opinion that its importance was greatly exaggerated.

The Value of Percussion of the Vertebræ in Diagnosis.

Dr. EWART then gave a demonstration on this subject. He used a pleximeter of simple type, modified from Sansom's form of the instrument. He pointed out that every object percussed has its own intrinsic note, and that each vertebra has its own note, which is of value in the diagnosis of disease. He showed the outlines of the normal percussion pictures on the back of a normal subject and demonstrated their significance by means of diagrams. The

second, third, and fourth dorsal vertebræ he called the tracheal vertebræ; they gave a resonant note owing to the underlying trachea. The fifth was dull and had a square patch around it, extending more to the right than the left; this area was of importance since it corresponded to the infra-tracheal glands. The ninth dorsal vertebra was always dull and beneath it the left auricle was situated. The twelfth, being over the liver, and the second lumbar over the pancreas were also always dull. He drew attention to the gastric nucleus of resonance on the left side and to Piorry's nucleus of dulness on the right.

SURGERY.

THURSDAY, JULY 28TH.

President, Sir VICTOR HORSLEY (London).

Instrument for Suturing Broken Bones.

Dr. DEPAGE demonstrated an instrument he had devised for suturing broken bones. The two fragments are first perforated by a drill, which is provided with an eye near the point. As soon as this shows on the other side of the bone it is threaded with a wire, to which is attached a long screw provided with a head at its other end. The drill is withdrawn, drawing the wire and the screw after it. A small nut is then threaded on to the screw, and by means of a special spanner it is screwed down until it presses firmly against the bone, and the excess of the screw is then cut off with a pair of nippers. Dr. Depage showed how the instrument was employed, and so far as could be judged from a short examination of the instrument it seemed to provide a speedy and trustworthy method for uniting the fragments of a fracture.

Professor THEODORE KOCHER (Berne) opened a discussion on

The Surgical Treatment of Exophthalmic Goitre.

He commenced by saying that recent scientific progress had furnished new methods which gave increased exactness both in diagnosis and in prognosis. In diagnosing exophthalmic goitre it was essential that the blood should always be examined, and it was especially important in those cases in which the surgeon was not quite sure whether the symptoms were not due to mere nervous disturbance. He had had the blood examined in 300 cases of exophthalmic goitre and had found such changes as made it possible for the surgeon to be sure of his diagnosis. As a rule, in this disease, with very few exceptions, the number of leucocytes was diminished to a great extent, from 7000 to 3000, or even less. But it was important to note that the diminution was only in the polynuclear cells, which might be as few as 1260 in the cubic millimetre. On the other hand, there was an increase in the lymphocytes, from 20 per cent. to 50 per cent., or even more. This increase was, however, not absolute, but occasionally they might be 2000 to 5000 per cubic millimetre. This change in the composition of the blood had been confirmed by several writers, and it had become very valuable, especially in doubtful cases. The prognosis was also benefited by this discovery, for it was known that after operation the blood altered and soon became normal. Analogous changes in the blood might occur in other diseases, as in some goitres, but there was a difference. In myxœdema the leucocytes increased in number and there might even be a leucocytosis. The theory had been put forward that lymphocytosis was only a nerve reaction, and it was suggested that it was due to the action of the vagus. There had been a great tendency to associate with Graves's disease all cases of hyperthyrosis, but this was wrong, for hyperthyrosis might occur in other conditions, as at puberty, during pregnancy, and after some of the infective diseases enlargement and over-action of the thyroid gland might occur. In Graves's disease the proportion of red corpuscles and of hæmoglobin was unchanged, but there was a definite alteration in the coagulability of the blood. The rate of coagulability was much slower and the intensity of the clot was also much less. On the other hand, in myxœdema the rate of coagulability was much greater and the clot was more intense. Similar changes of the blood, both as to the leucocytes and as to the coagulability, could be induced artificially by injecting thyroidin or thyroid extract, or administering one of them by the mouth. Iodine, too, when administered was followed by similar blood changes, but iodine did not produce this change if the thyroid gland had been previously removed, so it was clearly only through the thyroid gland that iodine had this effect. In myxœdema iodine never produced such an effect. If iodine was given in large doses in nervous patients suffering from goitre a good opportunity was afforded of studying Graves's disease arising on the basis of ordinary goitre; but Graves's disease could not arise if no thyroid was present, however much iodine were given. But if thyroidin were administered the symptoms of Graves's disease were produced. All these observations supported the theory that in Graves's disease there was an excessive action of the thyroid gland. Experiment had shown that it was possible to influence, through the nervous system, the action of the thyroid gland. If the superior laryngeal nerve were cut, and the peripheral end were stimulated, the secretion of the thyroid gland increased. It was probable that nervous impulses arising from mental emotion also could increase the action of the thyroid, so that Graves's disease might aptly be called a "diarrhœa of the thyroid." It was possible that the beneficial effect of ligature of the thyroid artery might be in part due to the division at the same time of some secretory nerves, for the effect was much more marked if the whole superior peduncle on both sides were divided. If we acted on the idea that the symptoms of Graves's disease were due to excessive action on the part of the gland, caused by irritation of the nervous system, it would be important to remove all sources of irritation. Rest in every form was what must be insisted upon. The patient should do nothing, and the surgeon also should do nothing. It was of extreme importance that no iodine should be given; its administration might give rise to severe symptoms, especially if the patient was much predisposed. Diet was important, for the food should not contain substances rich in iodine. Care should also be taken that the patients were not sent to the seaside, where they nearly always got worse. He had seen patients with Graves's disease who had visited the seaside and had come back emaciated and in an extremely nervous state. Care should also be taken with patients who had swelling of the thyroid gland after passing through an infectious disease, for they were in a condition to develop Graves's disease. All these remedial measures, however, were not sufficient in most cases to cure exophthalmic goitre, for changes occurred in other organs—the heart muscle, the kidneys, and the pancreas. With the affection of the pancreas glycosuria often occurred. As to the surgical treatment, there were practically two measures which might be undertaken—either the influence of the nervous system might be more or less completely cut off or partial excision might be done. It was of extreme importance that all the organs of the body should be examined for organic change before the more severe operation on the gland was undertaken. Up to the present he had operated on 4394 cases of disease of the thyroid gland, and of these there were 469 cases of Graves's disease. But as several of these cases needed more than one operation there were 619 operations; for the same case might have ligature of the artery done first and then later excision might be performed. The total mortality of the cases of Graves's disease had been 3·4 per cent. and the death-rate had steadily gone down. It was 5 per cent. at first and lately it had been 2½ per cent., and in the last 72 cases only one died. That was a mortality of 1·3 per cent., and it might be lowered. For ordinary goitre the mortality was between ¼ and ½ per cent. The only fatal case in the last 72, as mentioned already, was a young woman who had nephritis, and was operated on only at the special request of the patient and her friends. She should not, in fact, have been operated upon. The surgeon must be very careful as to the contra-indications for operation. Mental shock especially must be avoided, and the best method of doing this was to simulate an operation one, two, or even three times, the patient being told she should have some inhalation, so that when the operation came she would have no fear. If the pulse was irregular it generally meant disease of the heart, either of the ganglionic cells or the muscle substance. In cases where the pulse was irregular he preferred to postpone operation. When glycosuria was present as a result of Graves's disease he had seen benefit result from trypsin. If the specific gravity of the urine was low the surgeon must beware of nephritis. A more dangerous complication still was status lymphaticus. The rule, therefore, should be never to

operate on cases with organic disease, but he himself had operated on some cases complicated with organic disease. In some of these a perfect cure of the exophthalmic goitre had resulted, and even the signs of organic disease had disappeared. When physicians and those in general practice recognised the danger of allowing these patients to remain without surgical treatment until they were in a serious condition they would not take upon themselves the risk of delaying operation; careful and early operation would give excellent results, but it was not fair to the surgeon that he should be called upon to deal with wreckage.

Dr. HECTOR MACKENZIE (London) believed that most of the symptoms of exophthalmic goitre were closely and causally related to over-action of the thyroid gland. By experiments on monkeys and dogs, and by observation of human beings, they knew well the symptoms of excess of the thyroid secretion, which resembled the symptoms of Graves's disease. In man exophthalmos had not been seen as the result of administration of thyroid extract, but it had been met with in monkeys and in dogs. Histologically, the characters of the thyroid gland in Graves's disease were identical with those met with in compensatory hypertrophy. It had also been proved that there was a distinct increase in the amount of iodine in the gland in Graves's disease in nearly all cases. We were justified, therefore, in thinking that the gland was the chief cause of the disease. The severity of the symptoms was not proportional to the size of the gland, for often in the worst cases the gland was only moderately enlarged. As to the cause of exophthalmic goitre, he pointed out that very frequently it appeared to be due to a mental strain, and the symptoms closely resembled those of severe fright; it had been suggested that the severe mental strain had given rise to some toxic substance, which had been carried by the circulation, and had stimulated the thyroid gland to increased action. Sufficient attention had not been paid to the fact that in a very large proportion of fatal cases of exophthalmic goitre marked enlargement of the thymus gland had also been met with. In one case he had found a thymus which weighed three ounces. In some cases hyperplastic swelling of the bronchial and cervical lymphatic glands had also been met with, and the status lymphaticus frequently co-existed with Graves's disease and had been found in fatal cases. With such an etiology, he did not believe that removal of a part of the thyroid would cure the disease, and he himself had seen no case submitted to surgical treatment which could be considered really cured. At St. Thomas's Hospital 13 cases had been operated upon; of these, 5 were improved, 3 were *in statu quo*, and 5 died directly as the result of the operation. Of the 5 cases in which improvement had occurred, 2 had no exophthalmos and 3 still had exophthalmos. Results such as these were decidedly discouraging. When he considered the results shown by Professor Kocher's statistics he could only conclude that Professor Kocher had not had before him the same kind of cases as those treated in London. He would like to know how many cases were not operated on, for other statistics of operations showed a much higher percentage of deaths. With regard to medical treatment, 36 per cent. of hospital patients recovered completely, and not more than 20 per cent. terminated fatally. The statistics for private patients were better still, and he did not despair of finding some antidote which would be capable of curing the disease.

Mr. H. A. BRUCE (Toronto) offered his personal experience in the matter. His first 20 operations all recovered, and then one case died from pneumonia and another, which was in the most acute stage of exophthalmic goitre, died and was found to have an enlarged thymus. He had collected 1055 cases, and of these 4 per cent. died as a result of the operation. In 16 per cent. a complete cure followed, and 85 per cent. of the patients were able to resume their ordinary occupations. He considered these results compared very favourably with those of medical treatment. He had not found local anæsthesia suitable to the operation. He employed Crile's method. (See below.) The patient was told that he would require inhalation treatment before the operation, and every morning he was given to breathe some spirit of ether for a short time. Then a morning was chosen when the patient was not in the least nervous, and an injection of morphia was given 20 minutes before the time of operation. In this way the shock was minimised and the risk much reduced.

Mr. G. HEATON (Birmingham) believed that there were many cases which simulated Graves's disease in which operation would give a very favourable result. If these cases were included, the great divergence of the statistics of results would be explained. In true cases of Graves's disease delay was harmful, for operation in early cases had a good prognosis, but surgeons seldom saw these early cases. When cases were seen late, the risk was much greater and the surgeon should choose his cases. It was in the acute and severe cases that a surgeon was most commonly asked to operate, and these were the very cases which should not be operated upon.

Mr. ROBERT CAMPBELL (Belfast) agreed that there was great diversity of opinion on this matter. In this country physicians, on the whole, seemed to be more in favour of operation than surgeons. He considered that there were two forms. In the first form, which might be called primary, the symptoms were well marked and the disease progressed rapidly. In the other form, the symptoms developed years after an enlargement of the thyroid. He had had six cases of the primary form and all these cases he had treated by partial thyroidectomy. For the anæsthetic he preferred ether and morphia. In one case he first removed half of one lobe and then half of the other. He agreed with Professor Kocher as to the harmful results of a stay at the seaside. What they wanted to know was the mortality of the disease *per se*, and to what extent the disease incapacitated for ordinary work.

Dr R. KENNEDY (Glasgow) had observed in one case that after excision of half of one lobe the tendency to protrusion of the eyeball on that side became less. He considered that the dangers of excision of the half thyroid had been exaggerated. He had given up the use of general anæsthesia and preferred to use cocaine well diluted, half a grain of cocaine being used in a solution of ½ per cent. He had seen the temperature rise after the operation to 102° but without any other manifestation of sepsis. He always drained the wound. He looked upon acute cases as dangerous, and he considered that patients should be kept at rest until they had been brought to a more suitable condition for operation.

Mr. GILBERT BARLING (Birmingham) urged that the disease must be considered from a medical as well as from a surgical point of view. In connexion with what Professor Kocher had said as to the diminished coagulability of the blood, he might mention that he had lost one patient with complete thrombosis of the femoral artery. He would like to operate earlier than was usual at present.

Mr. DONALD ARMOUR (London) never refused to operate in cases of Graves's disease. He preferred excision except in very severe cases. For the anæsthetic he preferred chloroform preceded by morphia. On one point he insisted strongly, and that was that the gland must not be handled or even swabbed roughly by the assistant. He employed saline injection during the operation and after, and he used drainage less now than at first. He had had one death, but all the other cases had been improved by the operation.

Mr. EDWARD DEANESLY (Wolverhampton) believed that as symptoms of Graves's disease often supervened on ordinary goitre differences in the statistics were easily produced, but he considered them all to be cases of Graves's disease. The exophthalmos was never completely cured by the operation, but the tachycardia disappeared.

Mr. WALTER G. SPENCER (London) believed that in severe cases it was sometimes sufficient to divide the isthmus of the thyroid gland under gas. In one case of Graves's disease he had operated four times, and the patient was ultimately much improved.

Mr W. THELWALL THOMAS (Liverpool) considered that it was very rare for exophthalmos to complicate ordinary goitre.

Mr. E. W. HEY GROVES (Bristol) described a case of a girl with tachycardia and other symptoms of exophthalmic goitre who had one side of the thyroid gland removed. As the result of this operation very great improvement occurred.

Professor GEORGE W. CRILE (Cleveland, Ohio) read a paper on

Certain Factors which Influence the immediate Results of Surgical Operation.

He explained that his paper dealt with the problem of operating on patients who had some severe handicap. These might be divided into those who were impaired (1) by infection; (2) by anæmia; (3) by shock; and (4) by psychic

influence. He discussed these topics especially with reference to their effect upon the brain cells and from the restricted point of view of the immediate operative results. The mechanism of these cells was very delicately balanced, and their metabolic processes were the highest in the organic scale, and therefore they need not be surprised to find that they were very sensitive to harmful influences. In the early stages of acute anæmia, of shock, of fear, and of strychnine poisoning there was an increase in the size of the cells and in the amount of Nissl substance. This probably indicated an increased functional activity of cells. In toxæmia this stage was not seen. In the later stages of such cell changes, whatever the cause, the morphological alterations were similar in shock, in anæmia, with toxins, and with fear. In uncomplicated surgical shock in animals of various grades of severity, produced by trauma under ether anæsthesia, in which the anæmic factor was wholly excluded by transfusion, there were corresponding changes in the structure of the nerve cells in all parts of the brain, and an alteration in their reaction to the Nissl stain as well. The structural changes of the cells included alteration in the absolute size of the cells, in the size relation of the nucleus and cytoplasm, in the membrane surrounding the cell and the membrane surrounding the nucleus, and finally in the general contour of the cell. As to the gross size, the increase varied from slight to even eight times the normal. In the normal there was a certain relation between the size of the nucleus and the remainder of the cell. In shock the nucleus became relatively larger. In the normal the membrane surrounding the cell and that surrounding the nucleus always presented an unbroken continuity; in severe shock these limiting membranes might be extensively ruptured, affording no restraint to the forces that produced distortion of the cell structure. In extreme cases, the cell completely lost its contour and presented the appearance of a disorganised mass of protoplasm. At first there was an increase in the reaction to the Nissl stain, but later the reaction diminished, and finally there was none. But even in cases of fatal shock only a certain proportion of the cells were thus altered. When the nucleus in the cell body became so altered as to leave an undifferentiated mass of protoplasm the cell was certainly dead, and would never regenerate. The gravity of a given case of shock was indicated by the percentage of cells that were thus broken down and killed. The damage of pure trauma without anæmia was shown in cells of all parts of the brain, but the spinal cord was little, if at all, affected. When anæmia, produced experimentally, was allowed to act upon the brain, the appearances would depend upon the duration of its action. This was a fact of great clinical importance. If the anæmia were sufficiently prolonged the cell was killed; therefore patients should not be allowed to continue long enough in a state of anæmia to reach this fatal stage. It was important that the various parts of the brain were not equally affected, for the cerebral cortex suffered more than the medulla. By experiments on the action of infection on the brain cells equally important results were obtained. Several methods of producing toxæmia were employed; in all the same destruction of the brain cells took place. He had also studied the question as to whether uncomplicated fear caused morphological changes in the brain cells. Uncomplicated fear in rabbits caused widespread morphological changes in the brain cells, especially in those of the cortex of the cerebellum. Trauma, anæmia, infection, and fear, singly or in combination, damaged the brain cells, and so influenced the immediate surgical risks. Patients attacked by any of these factors had a decreased margin of safety. This reduced margin of safety might be partially restored by certain methods, relating especially to the anæsthesia and to the operative technique. In some experiments as to the relative shock of nitrous oxide and oxygen anæsthesia on the one hand, and ether anæsthesia on the other, the number of cells destroyed in the ether series were not less than four times as great as in the nitrous oxide series. They must therefore conclude that either nitrous oxide acted as a protective against shock or ether predisposed to shock. In a series of 150 cases of acute perforated appendicitis, half of which were anæsthetised with nitrous oxide and half with ether, in all respects the nitrous oxide patients did better, both in pulse-rate, in nausea, and in vomiting. He believed that in a few cases ether might impair the patient sufficiently to cause death. Shock, fear, and anæmia were in a great degree controllable. As to surgical shock, if they would prevent it they must first understand the cause. The causes of shock were fear and adequate trauma. The factor of fear might be almost wholly excluded by management of the patient and in part by the administration of morphine or some similar substance. The other factor producing shock (trauma) might be excluded by interrupting the physiological connexion between the brain and the field of operation by the use of local anæsthesia. By excluding both the psychic and the traumatic factors shock itself might be excluded. The factor of anæmia might be completely controlled by the direct transfusion of blood, provided it was done before there was destruction of the brain cells. These principles might be illustrated by certain types of cases. In cases of senile and diabetic gangrene they had handicapped patients. The practice in these cases would be gas and oxygen anæsthesia, while in younger subjects morphine and scopolamin might be needed to protect the cortex against fear. In the aged senility alone was sufficient protection against fear. Infiltration anæsthesia of the skin should be employed, with intra-neural anæsthesia of nerve trunks, no tourniquet, sharp division of the soft parts to the bone, gentle retraction of the flap, tying all vessels in continuity, and maintaining a dry field. Since following this plan he had amputated 12 times for gangrene of the leg without a death. A study of 120 operations for Graves's disease convinced him that in this condition there was hypersensibility to trauma and to fear; therefore it was necessary to exclude the psychic factor and to anæsthetise the field of operation with cocaine as carefully as though no inhalation anæsthesia were being given. Thus the central nervous system was completely cut off and no shock followed. This technique had wholly altered the immediate operative results. In cases of increased intracranial tension threatening total anæmia of the brain it was important to maintain a high blood pressure until the intracranial tension was relieved. Therefore, if the patient was nearly comatose no general anæsthetic should be given. Cocaine might be used as an anæsthetic, but if a general anæsthetic were needed a momentary nitrous oxide and oxygen anæsthesia, which did not lower the blood pressure, should be employed. Patients handicapped by a seriously depressed vitality from long-continued infection, or by starvation or loss of blood, might be reclaimed in a remarkable manner by direct transfusion of blood. With regard to post-operative neurasthenia, in many cases an operation led to nervous disturbance for several months after. This harmful mental effect could be minimised by giving morphine and scopolamin prior to operation, by making the least possible show of preparation, by using nitrous oxide and oxygen anæsthesia, and in some cases by employing local as well as general anæsthesia. Inasmuch as it was now established that brain cells might be morphologically altered by psychic and by traumatic stimuli, and that the psychic stimuli might be excluded by morphia and special arrangements, and the traumatic stimuli by cocaine blocking, it followed that the brain might in many operations be wholly isolated from all impulses so that no post-operative nervous impairment followed.

ANATOMY.

THURSDAY, JULY 28TH.

President, Professor ARTHUR KEITH (London).

Case of Agnathia and Cyclops in a Lamb.

Dr. R. J. GLADSTONE (London) demonstrated with specimens and diagrams a case of Agnathia and Cyclops in a Lamb, in which all the parts above the level of the Hyal apparatus were distorted. The pharynx ended blindly above in a recess corresponding to the posterior nares, and in its anterior wall were placed a rudimentary palate and tongue. The two cerebral hemispheres were fused together in front, the lateral and third ventricles presented a single cavity, and there was one single optic nerve. All the thoracic and abdominal viscera were normal. After discussing the occurrence of cyclops in twin monsters (cephalothoracopagus) and explaining its production through the oblique apposition of the fusing heads, the first observation of cyclops in a single monster by Huschke (in 1852) was illustrated and described, the condition evidently being produced by arrested

development of the fronto-nasal process, allowing the orbits and eyes to coalesce. Dr. Gladstone agreed with the modern view that this condition was most probably produced by some external cause acting on the growing fœtus rather than by any inherent defect in the germ.

Fissura Facialis.

Dr. GLADSTONE also showed a specimen of Fissura Facialis in a human fœtus, with a large meningocele, from which a long twisted pedicle emerged, lying in the upper part of the cleft. The premaxilla had united with the right maxilla in the open edge of the cleft. The anterior part of the skull was deficient and the brain almost entirely replaced by nævoid tissue, as usual in anencephalic monsters.

Structure of the Heart in Birds.

Dr. IVY MCKENZIE (Glasgow) gave a demonstration of the results of recent researches into the structure of the heart of birds which had been carried out in coöperation with Dr. Jane Robertson. While unable to find any trace of an *a.v.* bundle, completely novel structures of two distinct types were observed: 1. Small glomeruli, composed of masses of epithelioid cells, on the nerve trunks lying in front of the commencement of the aorta. A few of such bodies were found also in the neighbourhood of the superior vena cava. They lay embedded in dense connective tissue and were not connected in any way with the nerve ganglia. They had a rich nerve-supply of their own. 2 Cushion-like masses of ill-differentiated muscular tissue grouped around the bases of the cusps of the aortic and pulmonic valves. In these the muscle cells were spindle-shaped, narrow, and feebly striated, and were embedded in a dense cellular matrix. They had no specially notable nerve or blood-supply. The authors, while advancing the theory that these tissues might represent the remains of the bulbus cordis, recognised that the latter was probably represented wholly by the infundibulum, as had been proved in other hearts, and recognised further that the disposition of this tissue equally around the bases of the cusps of *both* vessels was against the theory that it was a vestige of the bulbus, as the torsion and atrophy which took place there would result in a more unequal distribution of this new-found tissue. They pointed out also that any idea that the masses surrounding the valves might be concerned in producing constriction of the orifices was negatived by another detail in their structure, for it was shown that the fibres did not form a continuous ring, being arranged in little whorl-like masses. While unable to assign a definite function to these two peculiarities, the authors pointed to their importance in light of recent physiological researches which had shown clearly that the ordinary electrical responses which could be elicited in the mammalian and reptilian heart were completely absent in the bird's heart.

The PRESIDENT remarked that the total absence of the *a v.* bundle in the bird's heart must throw doubt on its being an essential factor in the synchronism of cardiac action. He suggested that when present that bundle might act as an "end-organ," coördinating the contraction of auricles and ventricles in the same way as the common flexor and extensor muscles were coördinated, and thought that these tissues described by Dr. McKenzie and Dr. Robertson might come to rank as "end organs" too.

Absence of Transverse Meso-colon.

Captain N. C. RUTHERFORD, R.A.M.C., showed a case of Complete Absence of the Transverse Meso-colon. The cæcum was seen to be enormously dilated, with the ileo-cæcal valve placed on its upper surface above the level of the umbilicus. The colon took a sharp U-shaped bend at the hepatic flexure and then ran upwards and to the left in close contact with the anterior border of the pancreas and the posterior abdominal wall. The great omentum was attached along the posterior abdominal wall below the level of the gut, so that when the omentum was turned up in the earlier stages of the dissection the transverse colon could not be seen. Another notable point was that the splenic flexure was placed some distance from the spleen, being fully 3½ inches in front of it and to the right. The explanation of the condition offered was that it was due to a shortness of the primitive mesentery of the gut.

Muscle of Treitz and Plica Duodeno-jejunalis.

Mr. P. T. CRYMBLE (Belfast) gave a demonstration by specimens and lantern-slides of his observations of the Muscle of Treitz and the Plica Duodeno-jejunalis in 53 subjects. He first pointed out the discrepancies in the description of the attachment of the muscle to the diaphragm in current text-books. He always found that it was attached either to the right crus or to the undivided surface behind the œsophageal opening. The original drawing of the muscle and its description by Treitz were given. He found that it was always possible to distinguish three distinct parts: a lower, composed of involuntary muscle fibre, attached to the last part of the duodenum; a middle, partly tendinous and partly elastic; and an upper, of voluntary muscle, attached usually to the right crus of the diaphragm. He suggested that the upper part would contract on contraction of the diaphragm, and thus keep the upper end of the duodenum fixed in position during respiration. Several diagrams were shown (some from Poirier and some his own) to show the change in the position of the muscle before and after the rotation which produces the duodeno-jejunal flexure takes place, and on the strength of the relation of the muscle to the trunk of the superior mesenteric artery before and after that rotation he advanced the theory that the muscle itself played a part in bringing the rotation about, being comparable in that respect to the gubernaculum testis. In demonstrating varieties of the plica duodeno-jejunalis he pointed out that in the majority of his cases the fold lay just to the right of the inferior mesenteric vein, but that in some cases it was drawn over the vein by its fusion with the transverse meso-colon and that in a few cases it was absent altogether. The muscle of Treitz was always found to lie within this fold, and when the fold overlapped the vein the muscle itself always retained its relation to the medial side of the vein.

An interesting discussion followed Mr. Crymble's paper, in which the PRESIDENT, Professor JOHNSON SYMINGTON (Belfast), Professor W. WRIGHT (London), Professor D. WATERSTON (London), and Dr. RUTHERFORD (London) took part, all agreeing on the importance of definite description and terminology in a region of such practical importance.

The section then accorded a hearty welcome to Professor RAMSTROM (Upsala), who read a most interesting paper, in excellent English, on

Emanuel Swedenborg as an Anatomist.

His main theme was to show that Swedenborg, though most widely known as a mystic seer and writer on religion, had penetrated deeply into many branches of natural science, and had made speculations so thorough as to lead him to some conclusions which were only confirmed at a later date through methods of highly developed technique. After passing Swedenborg's published work on the nebular hypothesis, on geology, and on palæontology under review—work which alone would have entitled him to an honoured place in the annals of science—Professor Ramstrom then gave a detailed account of his publications in the realm of organic nature, dwelling particularly on his statement of a theory of epigenesis (afterwards substantiated and elaborated by Caspar Wolff), and his localisation of the sensory and motor areas of the cerebral cortex, confirmed, in the main, by all later researches. He claimed that Swedenborg must have conducted considerable researches and experiments on his own account, and as he left little or no actual record of these Professor Ramstrom then proceeded to give in conclusion the results of careful and elaborate research he himself had conducted to show how little there was in contemporary literature on which Swedenborg might rely for the facts in support of his theories.

Professor G. D. THANE (London) congratulated Professor Ramstrom on his brilliant paper and conveyed the best thanks of the section to him for it. He drew an interesting comparison between Swedenborg and another great constructive philosopher, Herbert Spencer. He thought that perhaps the reason why Swedenborg's truly scientific work had not received the attention it deserved lay in the fact that after first confining his attention to the phenomena of natural science he went off into the supernatural, and also that, unlike Linnæus and Caspar Wolff, he had left no great record of actual observations.

Mr. R. H. SCANES SPICER (London) contributed a paper on

The Normal Orthograde Posture.

He showed a large number of photographs and plates illustrating ancient and modern types of what might be regarded as normal and abnormal postures. He criticised severely many of the postures advertised as attainable by various modern "Schools of Health Culture." To obviate the

possible dangerous results of these (impairment of respiration in particular), and to guide those entrusted with the physical training of the young, he thought that anatomists and physiologists should combine to determine on what is definitely the normal orthograde posture, so that it could be aimed at and retained by training. He emphasised the many ill-effects (especially, in his own experience, in the organs of voice and respiration) which were clearly traceable to the habitual assumption of faulty posture.

An interesting discussion followed Mr. Spicer's paper, in the course of which the PRESIDENT corroborated the serious ill-effects which sometimes follow the ignorant application of the commonly prescribed exercises in modern schools of health culture. He knew from his own experiences cases of emphysema of the lungs and heart disease which had been the result of these. His own impression was, however, that it would prove well-nigh impossible to describe a "normal," that there was no single "ideal" posture, but that each individual must be studied separately and advised accordingly.

Professor A. ROBINSON (Edinburgh) pointed out how materially the posture varied naturally with age, and thought no useful conclusion could be come to without the most elaborate data, and that no "hasty" definition, even in face of the prevalence of a most regrettable amount of quackery, would be of any avail.

The PRESIDENT and Professor P. THOMPSON (Birmingham) agreed entirely with Mr. Spicer in declaring the subject one of vital importance in view of the detailed attention now being directed to the medical supervision of school children.

Methods of Preservation of Anatomical Material.

The section then entered on a discussion of the Methods of Preservation of Anatomical Material in which many members took part and in which a great deal of very useful information emerged, so much so that the section resolved to adjourn to the following morning, when an informal meeting took place and the discussion was continued.

BACTERIOLOGY.

THURSDAY, JULY 28TH.

President, Dr. CHARLES J. MARTIN (London).

The Pathological Section combined with the Bacteriological Section for a joint discussion on

Complement Deviation Methods in Diagnosis.

In the regrettable absence of Professor WASSERMANN (Berlin), who had consented to open the discussion, his paper was read by the honorary secretary of the section. It was entitled—

The Diagnostic View of the Complement Fixation Method.

He first dealt with the nature of the reaction—viz., that antigen could only unite with antibody in the presence of a third body complement, which was then fixed and unavailable for sensitising a second antigen-antibody reaction. If complement was linked, fixed, or deviated, both antigen and antibody would be present. Bordet and Gengou showed first that complement was deviated by bacteria and immune serum, but it was later shown that extracts of bacteria were as efficacious as the bacteria themselves. Owing to the impossibility at present of growing the treponema pallidum outside the body Professor Wassermann used as antigen an extract of the liver of a syphilitic fœtus, which contained large numbers of the organism. The substance extracted was soluble in alcohol and ether, and was therefore like fatty substances and lipoids. Although extract of normal organs acted as antigen in many cases, it followed unconditionally from the nature of the reaction that extract of syphilitic liver must be more reliable than extract of normal organs. Many modifications had been made with the view of simplifying the test and making it more delicate, but Professor Wassermann thought that these modifications made the test *too* sensitive. He purposely made the test not too sensitive, and as a consequence out of 10,000 examinations he had not made one false diagnosis of syphilis. In his opinion, the modifications were not to be recommended. In order to obtain reliable results both the reagents and the technique should be faultless. False results were obtained if unheated serum was used and a positive result might be obtained with a normal serum. Probably all spirochætæ liberated lipoids from the liver cells and therefore one would expect to obtain positive reactions in all diseases due to these parasites; and this was the case. Cases of malarial infection frequently gave a positive reaction if the blood was taken at the time when the parasites were present in the blood. Complete reliance could not be placed on the serum diagnosis of syphilis if the patient had suffered from a malarial attack within three months or any acute febrile disease within one month. In the absence of protozoal infections or acute febrile disease a positive reaction was certain evidence of syphilis. A negative reaction, however, was not *certain*, although the diagnosis would be correct in 90 per cent. of cases. Examination of the serum could show if sufficient treatment had been given and a negative reaction appeared after mercurial treatment, but a positive reaction reappeared if not enough treatment had been given. After vigorous treatment only 20 per cent. of cases showed a positive reaction. Ehrlich's new treatment appeared to be remarkably rapid and efficacious, but would have to be controlled by serum examinations to see if a positive reaction returned or not. All treatment must in future be guided and judged by frequent determinations of the serum reaction.

Mr. H. WANSEY BAYLY (London) emphasised the importance of the epoch-making discovery of the serum diagnosis of syphilis, for which mankind will ever be indebted to the genius of Professor Wassermann. As a result of over 1000 examinations in the London Lock Hospitals he came to the conclusion that Wassermann's original technique was more reliable than the so-called simplification introduced by Hecht, Bauer, Stern, or Fleming, where variants were substituted for constants, and he considered that the most essential of all conditions in a *comparative* test such as this was that all factors, except the one tested, should be constant. He followed Captain Harrison's method of using two amounts of complement so as to arrive at a roughly quantitative measurement of the complement-fixing power of the serum, and in this way had investigated the comparative value of the different methods for the administration of mercury. Pill treatment produced no sign of hæmolysis, even in the tube containing the double dose of complement, in under six months; whereas frequently one three months' course of inunction or intramuscular injections showed a distinct effect of treatment. He concluded, therefore, that inunction and injection were more potent than treatment by the mouth. He had obtained as good results with an alcoholic extract of rabbit's heart as with an extract of syphilitic liver. He found that 10 per cent. of human sera contained no substance producing lysis of sheep's red cells, and that the complement content of human serum varied very considerably, and that the results obtained by methods depending on fresh human serum for these factors could not be depended on. He considered that the history of the Wassermann reaction was too recent to justify the statement that even a succession of negative results proved complete and permanent cure and that no late manifestation would ever occur. He believed a positive reaction to be of the greatest possible value for diagnosis and as an indication for continued treatment.

Professor R. MUIR (Glasgow) discussed the properties of complement in general, especially in relation to the question of fixation. He pointed out that just as complement was notoriously susceptible to the influence of physical agencies—e.g., heat, light, &c.—it was no less strikingly liable to absorption by various substances in solution or in suspension. The disappearance of complement in any test might be due to (*a*) actual destruction; (*b*) inhibition of action; and (*c*) actual fixation. With regard to the last mentioned he classified the chief conditions of occurrence under the following headings: (1) fixation in presence of an antigen and its antisubstance; (2) fixation in the syphilitic reaction of Wassermann; (3) fixation in the presence of various organic substances in solution or colloidal suspension; and (4) fixation in the presence of comparatively gross particles suspended in the fluid. He gave an account of his own observations in regard to fixation by antigen and antisubstance in the case of hæmolytic, bacteriolytic, and precipitating sera and testified to the extreme delicacy and usefulness of the test when carried out by quantitative methods. He considered that the Wassermann reaction was an example of fixation of quite another nature, as here no true antigen was present, and he considered it a matter of

regret that Professor Wassermann had not drawn this distinction and had not considered the nature of the reaction when syphilitic serum was used along with lipoids, &c., derived from other sources than syphilitic extracts. In this case he (Professor Muir) considered that no antigen in the strict sense was present. He pointed out the complexity of the reaction in syphilis and how the result might depend upon slight variations in each of the three constituents used. He referred to the importance of the physical state of the substance fixing complement in all the conditions mentioned and raised the question whether an immune body might not lead to the fixation of complement in some such way. The evidence that a true complementophile group was present in an immune body was unsatisfactory and he considered that the use of the term "amboceptor" was not justified.

Dr. J. HENDERSON SMITH (London) drew attention to the fact that the attraction of sensitised corpuscles for complement might be accentuated or diminished in various ways—e.g., by variations in temperature, salt concentration, or alkalinity or acidity of the fluids in which the cells were suspended. Thus in a mixture of a certain degree of acidity hæmolysis did not take place, although all the necessary factors were present. It had been shown, however, that in some conditions, where inhibition of lysis was produced by acidity of the fluids, sensitised red cells though unlaked were not unaffected by the complement with which they had been in contact. If they were separated by centrifuging it could be shown that they had taken up a fraction of the complement, while a second portion remained in the supernatant fluid. Neither of these fractions was by itself capable of producing hæmolysis, but conjointly they could lake properly sensitised red cells. In complement deviation reactions only one of these fractions was deviated, a portion remaining free in the fluid. If this free portion was added to cells which were not only sensitised in the ordinary way, but persensitised by addition of the other fraction of complement laking took place readily. Both fractions of complement were thermolabile at 56° C. It was not necessary that both should be derived from the same kind of serum in order that their joint action should produce lysis. It seemed probable that if in carrying out deviation experiments with bacteria use was made of *whole* bacteria, as in the Bordet-Gengou technique, instead of extracts of the organisms, as in the method advocated by Wassermann, that not one part only but both parts of the complement were deviated.

Fleet-Surgeon P. W. BASSETT-SMITH (Haslar), with an experience of over 1000 cases, concluded that a positive reaction did not occur till at least 45 days after infection, but that men with extra-genital sores reacted earlier than those who contracted the disease in the ordinary way. The effect of treatment on the reaction was most marked, and the intermittency of the reaction was especially noticeable in cases receiving intra-muscular injections. He thought that the positive reactions sometimes obtained after a course of injections might be due to the use of defective "creams." In no case of chancroid or gonorrhœa in which syphilitic symptoms afterwards developed did he fail to get a positive reaction, and in no non-syphilitic sore was a positive reaction ever obtained. Using Fleming's method, he found that 10 per cent. of human sera failed to hæmolyse sheep's blood cells, but otherwise he found this method satisfactory and considered it an excellent check on the original technique and useful when only a small amount of serum was obtainable. He found McDonagh's modification, using unheated "test" sera examined after 24 hours from collection, to be a very efficient technique.

Dr. IVY MCKENZIE (Glasgow) spoke on the individual properties of complement and organ extract, and drew attention to the fact that 0·1 cubic centimetre of fresh guinea-pig serum might contain from 7 to 40 hæmolytic doses of complement for 1 cubic centimetre of fully sensitised corpuscles. Experiments showed that complement also varied in deviability and that fresh complement deviated to a greater extent than complement which had been kept for a while. Some alcoholic extracts fixed so much complement by themselves that the effect of the addition of serum to the extract could not be estimated by arbitrarily noting the effect on 0·1 cubic centimetre of serum complement. Turbid emulsions of alcoholic organ extracts deviated much more complement than clear emulsions. The extract used should not be lytic by itself for the test corpuscles, for the lytic property might require part of the complement in addition to the test serum to inhibit its action, and in this way a positive result might be got with a normal serum. To ensure reliable results, therefore, it was considered necessary (1) that the result should be estimated in terms of the number of hæmolytic doses of complement absorbed; (2) that the extract should not by itself exercise a strong inhibitory effect on the complement; and (3) that the extract should not be lytic for the test corpuscles.

Dr. CARL H. BROWNING (Glasgow) found that although "pure" lecithin along with syphilitic serum might absorb a certain amount of complement, the addition of cholesterin to the lecithin increased the amount of complement absorbed in the presence of syphilitic sera but not in the presence of normal sera. By themselves the lecithin alone and the lecithin-cholesterin mixture absorbed an equal and almost negligable amount of complement. Accordingly, if the addition of cholesterin to the lecithin caused an increased absorption of complement in the presence of a patient's serum, this indicated that the case was one of syphilitic infection. This method had proved to be both delicate and uniformly reliable.

Dr. J. O. WAKELIN BARRATT (Liverpool) dealt with the relation of complement deviation to carcinoma. His observations were made on mouse carcinoma and also upon human carcinoma. In the former complement deviation was obtained in some, but not all, of the cases examined, while in the latter no case of complement deviation was recorded. The appearance of complement deviation in some of the mouse cases appeared to show the production of an autotoxin or isotoxin on the part of the affected animal.

Dr. H. R. DEAN (Oxford) criticised the relative value of the various methods of preparing the extract used in the Wassermann reaction. No two specimens, from whatever source taken, will be found to be equally rich in antigen. He had never been able to demonstrate any difference between extracts made from normal and syphilitic organs in testing sera from cases of obvious secondary or tertiary syphilis, but in latent and doubtful cases he was inclined to think the watery extract of syphilitic liver to be the most delicate and reliable. He considered it absolutely essential that all new extracts should be titrated and standardised, and that it was not safe to use a fixed dose. A good extract was one showing a large difference in the dose necessary for the fixation of complement in the presence of syphilitic and normal serum, and the syphilitic should require less than half the dose required by the normal. In comparing different methods (Hecht, Bauer, Stern, and others) he came to the conclusion that Wassermann's original technique was the safer, for the reason that it permitted of the standardisation of the reagents and the putting up of adequate controls, and although the various modifications had been employed with considerable success, the evidence at our disposal was enormously in favour of the original method.

Captain L. W. HARRISON, R.A.M C., considered that more delicate and reliable results were obtained if the test serum was only heated for 10 minutes at 55° C. Comparison between the deviating power of the same sera after heating for 10, 30, and 60 minutes respectively showed that while in florid cases of syphilis no great difference was apparent, in well-treated latent cases a considerably higher proportion of positive results occurred with sera that had been treated for 10 minutes only. He used a large amount of hæmolytic amboceptor and complement less than 24 hours old, and had not found the variation in the complement content of guinea-pig serum to be as marked as some of the previous speakers. He did not think two years long enough for routine treatment. Although simplified modifications, such as those of Hecht, Stern, or Fleming, might be of value for regulating treatment, he did not think that for diagnostic purposes they were as reliable as the original technique.

DISEASES OF CHILDREN.

THURSDAY, JULY 28TH.

President, Dr. ARCHIBALD E. GARROD (London).

Dr. C. R. BOX (London) opened a discussion on

The Diagnosis and Treatment of Infections of the Urinary Tract by the Bacillus Coli.

He said that many different pathogenic organisms had been shown to be capable, under certain conditions, of infecting the urinary tract in children. The bacillus coli, however,

was to blame in such a vast majority of the cases of urinary infection met with in ordinary practice that it seemed best to devote all the short time at their disposal to considering the recognition and treatment of its effects. Under normal circumstances the urine successfully resisted the invasion of the bacillus coli, by which it was constantly threatened. When certain incompletely known conditions were present, however, these organisms did gain entrance and swarm in the urine without causing more than a trivial local irritation. If the resistance of the parts was further weakened, or the bacilli more aggressive, inflammation was set up in the mucous membrane. This was most commonly limited to the bladder, but often extended to the ureters and pelves, and might even invade the parenchyma of the kidneys. These inflammatory conditions were most common in bottle-fed babies of the female sex, but they might occur in boys also, and at any age. In whatever part of the urinary tract the inflammation was present the urine was generally acid and contained, after the first few days, numerous pus cells and crowds of bacilli, and the local symptoms were slight. If there was cystitis only the general symptoms also were such as might escape notice. Whenever the disease spread to the pelvis, however, marked general disturbance and misery at once appeared, with a typhoid-like pyrexia, ushered in, in most of the female cases at least, by faintness, shiverings, actual rigors, or convulsions. A more or less definite tenderness on pressure over the corresponding parts of the surface of the trunk could sometimes also be made out. In the treatment of all degrees of bacillus coli inflammation of the urinary tract it was important to administer plenty of fluid and to encourage the action of the bowels. Three methods of attacking the bacteria had been extensively tried—by antiseptics, by alkalies, and by serums or vaccines. 1. Treatment by antiseptics, such as urotropine, helmitol, and salol, had been generally found disappointing, being ineffectual and apt to be followed by relapses. 2. The administration of potassium citrate in sufficient amount to render the urine alkaline and to keep it so for some weeks was very successful in the acute cases, so long as the kidneys had not become severely affected. 3. The use of serums or vaccines had given varying results, having led to speedy cure in some acute cases but not in others, and being as futile as all other therapeutic measures in those with a chronic course. The prognosis in the acute cases, when treated early, was generally very good; but if the treatment was delayed or ineffective the risk of extension of the disease to the kidney was probably considerable.

Mr. J. G PARDOE (London) said that the more serious forms of bacillus coli infection of the urinary tract in children appeared to be of much less frequent occurrence than in adults. Autogenous infections were much less common than those due to other conditions, such as calculus in the kidneys or in the urinary bladder. Acute infections occurring apart from other conditions showed the same tendency, as in adults, to rapid and complete cure. Chronic infections occurring apart from other conditions were notable by their rarity. Chronic infections dependent upon, or occurring during the course of other conditions, tended to more complete cure than in similar circumstances in adults. The patients should be kept strictly in bed on a milk diet and a sustained course of alkalies. There should be no instrumental interference. Sandal wood oil was the best additional antiseptic.

Dr. J. PORTER PARKINSON (London) said the condition was mostly due to an ascending infection, though there appeared to be some connexion between colitis and bacilluria. Normal urine apparently inhibited the growth of bacilli. There occurred three classes of cases: 1) those in which symptoms were slight or absent with marked bacilluria; (2) severe cases in which the symptoms were general; and (3) severe cases in which the symptoms were local. He cited instances in which the temperature had fallen and the symptoms cleared immediately after the injection hypodermically of from 10 to 40 million dead bacilli.

Dr. EDMUND CAUTLEY (London) thought that bacilluria did not necessarily mean an infection of the urinary tract. The organisms might be present in great numbers without any symptoms occurring. In older girls vulvo-vaginitis was attended by involvement of the bladder only. Drugs were for the most part ineffective, though some benefit attended the use of benzoates.

Dr. GRAHAM FORBES (London) said that 56 out of 80 such cases which he had examined were due to bacillus coli. They presented the features of cystitis with ascending infection or those of a general infection. He described in detail the various pathological changes met with and the results of bacteriological investigation.

Dr. W. M. JEFFREYS (Lyndhurst) described the clinical aspect of 37 cases, of which 23 were attributed to bacillus coli. A great number displayed gastro-intestinal symptoms. Bladder symptoms were present in 23. Altogether the course presented great variety—11 only could be considered cured, six died. Several responded temporarily to vaccine, others more slowly to antiseptics.

Dr. J. MCCAW (Belfast) had the best result with alkalies; in one case where vomiting was prominent he gave 20 grains of citrate of potash in half an ounce of water by the rectum frequently with satisfactory result. Rest in bed in an even temperature and milk diet were essential.

Dr. J. S. DICK (Manchester) demurred at these cases being all attributed to infection of the urinary tract, and instanced cases of bacillus coli pneumonia as proving general infection. He found autogenous vaccine most satisfactory. It had been shown that bacillus coli grew in an alkaline medium, but this increased phagocytosis, which would explain its beneficial effects in the urine.

Dr. J. H. THURSFIELD (London) gave 40 grains of urotropin daily for six weeks. A persistent bacilluria might be attended by dangerous local or general infection at any moment.

The PRESIDENT considered the sex proclivity to the malady required discrimination; in the local infection anatomical considerations had much to do with it.

Dr. THEODORE ZANGGER (Zürich) read a paper on

The Therapeutics of Whooping-Cough.

He said that the principal reason for the want of efficacy in the treatment of whooping-cough lay in the continual change of remedies. Their motto should be: "Non multa, sed multum." They had not only to deal with a contagious disease of bacillary origin, but also with distinctly nervous symptoms of a reflex nature. To combat the infective factor he recommended hydrochlorate of quinine in a 1 to 2 per cent. solution in doses of 2½ fluid drachms administered three times a day—at 8 A.M., 2 P.M., and 6 P.M. Euquinine, first recommended by Professor von Noorden, came next in efficacy and was slightly bitter, and almost non-irritant for the stomach. It was prescribed in doses of 2 to 4 grains three times a day. To combat the nervous element of whooping-cough he recommended simple hydropathic packs applied two or three times, especially towards the evening and night for from one to four hours. They should reach from the armpits to the knees and be covered with flannel. The temperature of the water should be from 52° to 60° F. (12° to 15° C.). Their sedative effect was remarkable. The result of this combined treatment had been satisfactory in upwards of 200 cases spreading over a number of years. The convulsive stage had been shortened in medium and severe cases to 20, 15, and even 10 days. There had been rarely more than 20 attacks of cough in 24 hours, and the number of attacks and their intensity decreased from day to day. There had been no fatal cases, no complications, and not one case of broncho-pneumonia.

Dr. W. ESSEX WYNTER (London) congratulated Dr. Zangger on his results, and said that the mortality and complications occurred chiefly in neglected cases rather than in those under careful medical supervision, as so many people regarded the complaint as trifling and likely to run its own course. Of all modern remedies nothing approached the effect of chloretone in whooping-cough, given in 2½ grain doses three or four times a day in cod-liver oil or petroleum emulsion. Improvement was immediate and within three days the paroxysms practically subsided. He had been led to employ the drug from a consideration of its known antiseptic, anæsthetic, and sedative effects.

Professor ADOLPH D'ESPINE (Geneva) read a paper on the Diagnosis of Tuberculous Bronchial Glands by the Detection of Dulness and Bronchophony with Pectoriloquy over the First and Second Dorsal Vertebræ and Manubrium Sterni, which was discussed by Mr. F. W. GOYDER (Bradford).

LARYNGOLOGY.

THURSDAY, JULY 28TH.

President, Mr. HERBERT TILLEY (London).

The PRESIDENT announced that the papers to be read by Dr. H. S. Birkett and Mr. E. B. Waggett were so much akin that it would be wise to dovetail them and let them be discussed together afterwards; and he reminded the meeting that Dr. Birkett had come from Montreal especially to give them not only the results of his own experience, but a *résumé* of 63 different references in the literature.

Dr. H. S. BIRKETT (Montreal) initiated a discussion on

Vaso-motor Rhinitis.

He said they must confess to ignorance of its etiology. Predisposing factors included a neuropathic temperament and cold weather. There was no racial incidence. Heredity was a possible factor. He had seen cases of apparent transmission from father to son. Other predisposing causes were strain and exhaustion, mental or physical, rheumatism, and gout. Exciting causes might be either something arising within the patient—internal, or from without—external, such as pollen, dust, or the actinic rays of the sun; these might be supposed to act on a pathological nasal mucous membrane. Ballinger thought that catarrhal sinusitis predisposed, and based this view on clinical experience. Others had suggested chemical changes in the mucus-secreting glands. Acute toxæmia, generally from dietetic errors, had by some been held responsible. Four cases had been traced to malarial poisoning. But he considered that certainly three factors were always to be found: (1) a neurotic temperament; (2) a local morbid condition of the nasal mucous membrane; and (3) an irritant, internal or external. Sometimes the anterior ends of inferior turbinals were hypertrophied, but B. Fraenkel denied the specificity of this as an etiological factor, and invoked nerve irritation as the cause. Later, it was discovered that the posterior ends of the inferior turbinals, and often the middle turbinals, were enlarged. There was a large problem awaiting solution, in the relation of the sympathetic nervous system to diseases of the nose. It had recently been established that the sympathetic fibres to the nasal mucous membrane were from 5 to 10 times as numerous as spinal fibres. Possibly the sympathetic fibres were insensitive in a healthy state, but in rhinitis became inflamed. Unfortunately they had at present no technique for staining a pathological axis-cylinder. The patients were of three types: 1. Females of a slight build and nervous temperament. Characteristic of this type was the total absence of nasal obstruction or of itching of the eyes and nose. 2. Males who were good livers; these presented nasal obstruction and lacrymation. 3. These differ from (2) only in that the nasal mucous membrane was pale and stippled. The nasal flux must be diagnosed from the escape of cerebro-spinal fluid. The treatment was: 1. Therapeutic—(*a*) local, to shorten the attacks; and (*b*) general, for the neurotic condition. 2. Surgical intervention, as by galvano-cautery. Various experts had recommended the following: free scarification, tri-chloracetic acid, cold-water sprays on the nape of the neck, and mercuric iodide in nasal spray; but the most novel was the plan of Dr. Eugene Young (Manchester), who injected absolute alcohol to deaden the nerve—first the anterior branch through the cribriform plate of the ethmoid, then the branches of Meckel's ganglion through the posterior end of the middle turbinate bone.

Mr. E. B. WAGGETT (London) followed with his paper, whose chief object was to sketch out the lines of future advance. What, he asked, was the minimum of interference to be used as routine treatment? The immediate results of galvano-cautery were often so good as to be misleading, since such results were not permanent. It was doubtful whether actinic rays could initiate a paroxysm. Adrenalin, after the preliminary anæmia, caused a reactionary hyperæmia accompanied by œdema. Experiment was necessary. They would like to know, for instance, the effects of the submucous injection of (1) isotonic fluid, (2) normal serum, (3) serum of a rhinorrhœic subject on (*a*) a normal man, (*b*) a rhinorrhœic subject. Such a research as this meant one year's work. The underlying problem was, Why do some people react to poisons which leave others unaffected? The personal idiosyncrasy was most striking. Two men of similar age and physique, who had been born and bred in the same place, who had similar habits, and whose nasal mucous membranes presented similar macroscopic appearances go into the same hayfield and inhale the same pollen. One has a paroxysm: the other escapes. The time of day was a factor, and perhaps early morning urine contained convulsive, and evening urine narcotic, substances. Choosing a rhinorrhœic subject, Dunbar injected pollen toxin subcutaneously into the arm, producing typical hay fever with urticaria; this experiment failed with a non-rhinorrhœic subject. Now under the influence of pollen toxin the blood became laked, which altered the osmotic coefficient of the blood; and Sir A. E. Wright showed that a deficiency of calcium salts in the blood, by increasing osmosis, might cause urticaria. These facts, taken with the frequent coincidence of urticaria with paroxysmal coryza and hay fever, were very significant. Paroxysmal rhinitis might be a true urticaria of the nasal mucous membrane. He (Mr. Waggett) prescribed calcium salts (20 grains of the lactate daily) with success; the addition of magnesium salts was often useful, whether it cured or not. Certainly calcium lactate controlled hay fever. *Apropos* of the use of mineral salts in metabolism, examples were quoted from the animal kingdom; for instance, the reindeer must have his drink of brine. As a further subject for research, he suggested the blood chemistry of rhinorrhœics, whether their affection occurred seasonally or diurnally.

The PRESIDENT thanked Dr. Birkett warmly for the vast labour he had taken to collate his data and the valuable information it afforded, and considered that the thanks of the section were due to him and to Mr. Waggett, who had read to them the most thoughtful paper they had heard for years.

Dr. H. A. FRANCIS (London) read a paper on

The Probable Explanation of the Effect of Nasal Cauterisation in Asthma and the other Vaso-motor Neuroses.

He advocated the removal of obstructions, spurs, &c., and especially the use of the galvano-cautery. He had had no less than 86·3 per cent. of successful results. It might be argued that since the operation was small, and the result so important, suggestion played a large rôle. But he reminded them that his cases had included (1) the deliberately incredulous; (2) those who had at first been credulous but after much treatment had become hopeless; and (3) children, whose intelligence is too small to give scope for suggestion. The speaker gave instances of other diseases, all of which he considered vaso-motor in orgin, which he had cured by nasal cauterisation—angina pectoris, migraine, and Raynaud's disease; and he could lower, or, with less certainty, raise, the general blood pressure by the same means.

Mr. STUART LOW (London) noted that Mr. Waggett had emphasised the importance of the general disturbance. But the local disturbance was also important; for instance, this year, owing to a heavy rainfall, there had been less horse-dung dust and less hay fever. The speaker had obtained good results from injecting 3 minims adrenalin solution subcutaneously anywhere in the body.

Dr. R. H. SCANES SPICER (London) submitted that Dr. Francis's work was upon lines well known to all.

Dr. N. C. HARING (Manchester) had frequently found a family incidence in the North. In such cases hay fever might alternate with migraine. As regards treatment, the difficulty was to treat people with no gross intranasal lesion. To cauterise such was as illogical as to dilate the sphincter ani. He quoted the case of a woman, not hysterical, where the suggestive effect of passing a bronchoscopic tube was so marked that it staved off her asthmatic attacks, previously frequent, for a year. Then another attack occurred, and she returned with the request that the tube should be passed again.

Dr. STCLAIR THOMSON (London) asked Dr. Francis to explain or demonstrate the technique of his method of cauterisation by which he had obtained such good results.

Dr. P. WATSON WILLIAMS (Bristol) considered that Dr. Haring's case of the relief of asthma by the mechanical manipulations of bronchoscopy should not be referred to suggestion. Probably the stimulus of the tube on the bronchial mucosa acted reflexly on the bulbar centres. He considered it dangerous to rely on the use of the galvano-cautery, after which improvement is fairly constant, but cure most rare. He considered dietetic and general treatment most valuable.

Dr. HENRY LUC (Paris), in rising at the repeated invitation

of the President, protested that he had come to learn, not to teach. He endorsed Dr. StClair Thomson's appeal to Dr. Francis to demonstrate the technique of his cauterisation. It was customary to divide patients into (1) those with a gross nose lesion and (2) those without such, but he thought that many cases of (2) would on minute examination prove to belong to (1). For example, under cocaine the mucous membrane of the middle turbinal and the middle meatus often showed myxomatous degeneration, the removal of which might cure the patient of asthma.

Dr. HEMINGTON PEGLER (London) remarked that, *à propos* of the relation of hay fever to urticaria, a minute trace of honey in his own mouth produced a visible factitious urticaria of the buccal mucous membrane.

Dr. ANDREW WYLIE (London) urged the importance of correcting errors of refraction, notably astigmatism; by the cure of this he had often seen rhinorrhœa cured.

Dr. W. PERMEWAN (Liverpool) urged the claims of chemical caustics and the use of calcium salts.

Dr. IRWIN MOORE (London) endorsed Mr. Stuart Low's views as to the use of adrenalin.

Dr. G. PARKER (Bristol) had had good results from galvano-cautery of the tubercle of the septum.

The PRESIDENT said that, *à propos* of Dr. Francis's method, he himself had had excellent results from cauterisation of the septum opposite the anterior end of the middle turbinal.

Dr. BIRKETT replied, saying that he hoped to have the pleasure of furthering Mr. Waggett's scheme on the other side of the Atlantic.

Mr. WAGGETT, in reply, thanked the President, members, and visitors for the way in which they had received his paper.

Dr. FRANCIS also replied, offering to demonstrate his technique at any time. The point he selected for cautery was high up opposite to the middle turbinal. The spot, cautery of which reduced the general blood pressure, differed in different people and must be sought for with the simultaneous use of the sphygmomanometer.

Dr. W. CAMAC WILKINSON (Sydney) read a paper on

The Use of Tuberculin in the Treatment of Laryngeal Tuberculosis.

Quoting extensively from a large Australian experience, he claimed that the treatment was very useful, even in advanced cases, and almost invariably successful, even in cases of extensive ulceration. Some cases appeared to be primarily laryngeal. The ulcers could actually be watched as they healed, and these results are obtained without creasote or other drugs internally, and without open-air treatment. At the end of the treatment the patients exhibited no reaction to tuberculin, which was a proof of their cure.

Dr. WATSON WILLIAMS stated his opinion that tuberculin should be used in small doses. He personally had seen tuberculin fail in cases where sanatorium treatment had succeeded.

Dr. J. DONELAN (London) asked for the technique of the method of administration of tuberculin.

Mr. WAGGETT considered that tuberculin was useful only in cases which were chronic, that is, where there is a balance maintained between the patient's resistance and the tubercle bacillus; in such cases tuberculin would upset the balance in favour of the patient.

Dr. PERMEWAN asked Dr. Wilkinson the percentage of cures.

Dr. BIRKETT gave his Canadian experiences. Tuberculin was in universal use across the Atlantic, and he had never once seen laryngeal œdema result.

The PRESIDENT referred to cases which he personally had seen successfully treated by Dr. Wilkinson.

Dr. WILKINSON, in reply, said that in practice he began with bovine tuberculin, and if no improvement resulted proceeded to use the human vaccine.

MEDICAL SOCIOLOGY.

THURSDAY, JULY 28TH.

President, Dr. JAMES ALEXANDER MACDONALD (Taunton).

Mr. J. SMITH WHITAKER (London), medical secretary of the Association, opened a discussion on

State Sickness Insurance (Provision of Medical Attendance) as Affecting the Public Health and the Medical Profession.

He began by pointing out that the existing systems for providing medical relief for the wage-earning classes, which might be summarised under the heads of private practice, contract practice, charitable agencies, and public services, were quite inadequate for their purpose. They failed more particularly because they did not secure early treatment of disease, which would in many cases prevent prolonged sickness or permanent disability. He believed that the delay in seeking treatment was often due, at all events in the more self-respecting members of the working-class, to a fear of the cost, though it was also, no doubt, owing in part to the inertia inherent in human nature and most marked in the uneducated. On public grounds it was desirable that the State should provide facilities for the more prompt treatment of disease. The action of the State in this direction might be limited to contributing to some scheme of insurance, which, *inter alia*, would provide payment for medical treatment when required, or it might be extended to the direct provision of such treatment through the agency of salaried medical men. He considered that the general acceptance by political parties and by the press of the principle of sickness insurance showed that the more limited system of State aid was more likely to be adopted, and he thought, speaking purely in his individual capacity, that this was also the solution which would be most acceptable to the profession. It was, however, eminently a question for discussion and, in point of fact, opinions regarding it were very divergent; on the one hand, the authors of the Minority Report appeared to advocate the establishment of an army of whole-time medical officers to attend the necessitous sick, while at the other extreme were those who maintained that medical treatment should always be given by an independent medical man chosen by the patient. In support of this latter view the speaker would urge that medical treatment could not be regarded as a wholly material question; there entered into it a psychological element dependent on the mutual attitude of the doctor and the patient, the patient feeling confidence in the doctor he had freely selected, and the medical man in turn being stimulated by the evidence of the patient's trust in him. This consideration was overlooked by the advocates of the Minority scheme. The ends to be aimed at could be effectually secured by a system of national insurance which would leave to the patient the right to choose his own doctor. For the organisation of such a system the voluntary coöperation of the medical profession was essential. While the profession were the natural advisers of the Government on this question, they were also the people to be employed under the proposed scheme, and this fact, according to modern ideas, gave them a right to be consulted as to the conditions under which they would give their services. From this point of view the question of remuneration was specially to be considered. Two methods of payment had been suggested—namely, payment by fee for actual services rendered and payment of a fixed sum per patient per annum. These alternatives having been much discussed, he merely drew attention to some points that had not been brought into prominence. He doubted whether payment by fee afforded, as its advocates assumed, more scientific basis of remuneration than payment per head per annum. The fee of a medical man was not, as appeared to be assumed, a scientifically ascertained financial equivalent of his expenditure of energy in performing a given piece of work. Probably the real units of comparison were the year's work on the one hand and the year's income on the other, and the fixing of fees was merely a rough-and-ready way of securing to the professional man in full employment such an annual income as satisfied his requirements. He believed that the majority of the profession desired above all things a relative steadiness of income, and this the payment per head per annum would yield, whereas under a system of payment by fees there would not only be the fluctuations due to the number of patients who employed a given practitioner, but also the fluctuations due to variations in the amount of sickness from year to year. The essential thing was to secure that the remuneration, however calculated, should be adequate. The defects in this respect of existing forms of contract practice were due, not to the system of payment per head per annum, but to the system of employing a single doctor for each club instead of giving the patients a choice of doctor.

Dr. J. PEARSE (Trowbridge) desired to deal with the question from the standpoint of the general practitioner, who enjoyed exceptional opportunities of getting in touch with the life and thought of the working classes. He

believed that the Minority Report of the Poor-law Commission was based on unsound premisses and was unduly optimistic. It first over-estimated what had been effected by public health authorities, and then, by establishing a wholly false analogy between zymotic infections and other forms of disease, assumed that by an extension of the sphere of activity of these authorities an immense reduction of general illness could be brought about. It was quite premature to think of subordinating universally the idea of cure to the idea of prevention, and it was neither practicable nor desirable to pursue that notion by amalgamating the Public Health and the Poor-law Medical Services. If any system of sickness insurance were established, the recent experience of friendly societies showed that claims would have to be very carefully scrutinised.

Mr. C. S. LOCH (London), of the Charity Organisation Society, read a paper entitled,

"*Sickness Insurance: Some Pros and Contras*,"

in which he advocated a scheme for the organisation of medical treatment and the better remuneration of medical practice on the basis of the principles set out in the Majority Report. Dealing with the economics of the question, he pointed out that there were many conditions in medical practice which interfered with the normal tendency of the market to establish a grading of payment corresponding with the grading of skill. The medical fee changed, for instance, with the patient's social status, so that the richer man paid more than the poorer man for the same doctoring. Again, the existence of different scales of payment led people, in medical treatment as in railway travelling, to classify themselves according to these scales, so that the wage-earning population became accustomed to taking as it were third-class tickets for treatment. But what most differentiated medical practice from other services was the fact that the ideas of charitable people and of the community, as represented by its administrative departments, determined the standard of medical skill and care which ought to be available for the poorer members of the community, who were thus supplied with treatment of a grade higher than that for which they would ordinarily pay or be able to pay. This meant selling a higher-priced commodity at a lower price, and so driving the lower-priced commodity out of the market—a process which had long been in operation in medical treatment, and which the proposals of the Minority Report would greatly accelerate. To remedy this economically unsound position there are two courses open—to devise a new discrimination of patients well founded and generally accepted, or to establish a free system of medical treatment for the mass of patients on lines of State contract resting either on a salaried medical service or on insurance. He believed that the former course was practicable, and would be more consonant with the national tradition. He advocated a system based on the existing doctor's clubs and provident dispensaries which would be developed under the control of the local Medical Assistance Committee as contemplated in the Majority Report. To prevent individual patients from getting out of this system and having recourse to the voluntary hospitals or the Poor-law infirmaries and dispensaries it would be necessary to establish a similar tariff of charges at these institutions; the charges would be settled as nearly as possible by the consensus of the profession in the locality and would be payable by the patient and his friends or by the Public Assistance. This extension and reorganisation of the provident system would practically give all the advantages of State insurance against sickness, would associate the great body of the profession with its operation, and would ensure that an agreed standard of remuneration would be payable for a similar service, whether in ordinary practice or in Public Assistance or in voluntary work.

Dr. J. H. KEAY (Greenwich) thought that the individual relation of doctor and patient which formerly prevailed was the best system, but admitted that it was now ceasing to be possible. He believed that in Scotland and in the North of England the principle of club practice did not work too badly. He had no language strong enough to express his condemnation of the effects of the out-patient departments of voluntary hospitals in sapping the spirit of self-help in the wage-earning class and in cultivating a habit of loafing. He was in favour of a compulsory system of insurance with a graduated scale of contributions. From an extensive knowledge of that country he was quite convinced that compulsory insurance had done much to make Germany what it is; it had got rid of the slums, and it had in a most remarkable degree strengthened the moral independence and self-respect of the wage-earner.

Mr. H. W. ARMIT (Wembley) thought it very important that the medical profession should express a decided opinion on this question. Their opinion would certainly influence the form of whatever legislative proposals were brought forward. He strongly advocated a compulsory system of State insurance, based on the German systems, but organised with a recognition of the defects and failures as well as the advantages which had been revealed in that country's experience during the last 25 years. He did not see, however, that compulsory insurance could be introduced without police registration, and he feared that it would be difficult to establish such a system of registration in face of the prejudice of the English working classes against what they would erroneously regard as an interference with their personal liberty. He dissented from the belief that sickness insurance was a very prolific cause of malingering in Germany; it had been found by neurologists in that country that probably 70 per cent. of cases suspected of shamming were really instances of traumatic neurosis. So far as it was real, the evil of malingering could be satisfactorily dealt with by the German plan of placing the individual under expert observation in a special institution for as long as might be necessary. He agreed with Dr. Keay in attributing the self-reliant spirit of the German working class very largely to the influence of the national insurance system.

Dr. MAJOR GREENWOOD (London) did not think it probable that the medical profession would get control of the medical work under the new systems that had been proposed. He regarded the idea of abolishing destitution as quite visionary, and believed that the recommendations of the Minority Report were dangerous. He would accept the system of compulsory insurance which would enable the workman to pay his own doctor.

Mr. W. HOLDER (Hull) expressed the opinion that the legislative proposals on this matter were already drafted, and that all the Association could hope to do would be to modify them in details. He was entirely opposed to the principle of contract payment, which rested on a false analogy between medical practice and manual labour. The insurance system strengthened character and stimulated the spirit of self-reliance. Whatever scheme was adopted it was essential that the medical men working under it should be in a position of independence with regard to the patients. Inspection should be by Government officials promoted from the ranks of the medical men who were engaged in this work.

Dr. A. H. BYGOTT (Barking) remarked that if Mr. Loch knew what contract practice meant to the medical man who had to work under it he would hardly suggest that it should be made the basis of a system of State insurance. In Barking there was a large section of the population who would not be able to pay any part of the insurance premium; it was clearly impossible that these persons should be allowed to choose their own doctor. Under a State-aided insurance scheme, where medical attendance would not be provided by salaried officers, the malingering difficulty would be considerable. It was all very well to say that the Association could take disciplinary measures against practitioners with a deficient sense of responsibility in the matter of certificates, but the public would have to find the money for the scheme, and they were not at all likely to leave its management in the hands of the Association.

Mr. W. L. MUIR (Glasgow) was opposed to systems of State sickness insurance. He considered that the scheme outlined by Mr. Loch would do everything that was necessary, and would not be attended by the disadvantages involved in the proposals of the Minority Report.

Dr. A. E. LARKING (Buckingham) was afraid that many of the schemes discussed would impose an intolerable burden of clerical work on medical men. He deprecated comparisons with Germany, where the national conditions were quite different and where more particularly there was no such development of the friendly society system as prevailed in this country. The contract system with a fixed minimum fee—say 8*s*. or 10*s*. a head annually—would be the most

simple and the most practical solution of the problem. In country districts there was no need of sickness insurance.

Dr. A. H. WILLIAMS (Harrow) emphasised the importance of securing that the present rate of payment for contract medical work in this country should not be taken as a standard in fixing the amount of remuneration under a State-aided system.

Dr. R. W. W. HENRY (Leicester) remarked that contract practice worked fairly well amongst the artisan population of Leicester. It enabled the private practitioner to retain many working-class patients who in the absence of such a system would have sought medical relief from the Poor-law.

In reply to a question by a member of the section Mr. LOCH said he believed that it was generally understood, if indeed it had not been authoritatively stated, that the Government was framing its insurance proposals with the advice and assistance of the heads of the large friendly societies.

Mr. SMITH WHITAKER, replying on the discussion, said that what the profession had to aim at was the establishment of an adequate minimum rate of remuneration for medical service. He did not think that it was practicable to devise a graded scale of fees. Even if the principle of graduation according to income was to be embodied in a system of State-aided insurance, there was no reason why the payment of the doctor should not be at a fixed rate. He hoped that the medical profession would realise how much they could do by collective action to influence the solution of this question in their own interest and in that of the public health.

NAVY, ARMY, AND AMBULANCE.

WEDNESDAY, JULY 27TH.

President, Colonel ANDREW CLARK, A.M.S. (T.F.), (London).

The PRESIDENT having welcomed the members,

Major C. G. SPENCER, R.A.M.C., communicated a paper entitled

Local and Spinal Analgesia in Relation to Active Service.

He said that surgical work on active service might be considered under two heads—the immediate treatment of the wounded during and after an action, and the subsequent treatment of the cases when they had reached a "stationary" or a "general" hospital. The early treatment was carried out in the field ambulances, and there little more than first-aid could be attempted. At that stage no operation should be undertaken unless it was urgently necessary. Anæsthetics would therefore be required chiefly for securing wounded vessels, for putting up some compound fractures, and very rarely for any other purpose. Local analgesia was not at all suitable for that kind of work. It was suitable only for operations in which every step was accurately known beforehand. The difficulty, often amounting to impossibility, of ensuring asepsis under field conditions was another objection to the use of local analgesia. Perhaps the most weighty objection of all was the time required to produce satisfactory local analgesia. One advantage of local analgesia was that it dispensed with a separate anæsthetist. It might be useful for a medical officer who was single-handed should he be compelled to operate without assistance. Even then it would hardly enable him to attempt much more than the removal of a superficially lodged bullet. He regarded spinal analgesia as having no place at all in field work. At the best it was a somewhat uncertain method, and it demanded special experience, time, and most careful attention to a multitude of details for its success. The assistants at the operation must be thoroughly conversant with the special requirements of the method, the posture of the patient must be very carefully adjusted, and after the operation complete rest for several days was absolutely necessary if the unpleasant after-effects of spinal analgesia were to be avoided. It was in its present stage of development altogether too delicate and complicated a procedure for the hasty emergency work in a field ambulance. In the stationary and general hospitals the conditions of surgical work were practically the same as in a military or civil hospital in time of peace, and the special difficulties attending work in the field had not to be faced. There the choice of an anæsthetic might be made according to the nature of the case, and local, spinal, or general anæsthesia might be employed as the surgeon might prefer.

Mr. A. E. BARKER (London) said he fully endorsed all that Major Spencer had said. There had been a tendency in several quarters rather to force the pace in regard to the newer forms of anæsthesia without sufficient knowledge and experience, and Major Spencer's remarks would help to put a slight check on hasty conclusions and rash action.

Fleet-Surgeon A. G. WILDEY, R.N., said that he was disappointed to hear such discouraging views on the subject of local and spinal analgesia in the field. He looked to early nerve-blocking to relieve much agony in mangled wounds, and hoped that by lessening shock and facilitating transport it would afford some hope of successful primary amputation.

Captain J. W. H. HOUGHTON, R.A.M.C., said, while agreeing entirely with the remarks of Major Spencer and Mr. Barker, he thought the uses of local and spinal analgesia would not be so limited on active service as they indicated.

Fleet-Surgeon P. W. BASSETT-SMITH (Haslar) said, speaking from a bacteriological point of view, he thought the risk of sepsis in giving injections of fluid was exaggerated.

Fleet-Surgeon WILDEY read a paper on

Hypodermic Injections in Action: Suggestions for Simplifying their Administration.

He said that in such actions of war as naval engagements, when casualties were numerous and caused almost entirely by the results of shell-fire, the first attentions of the surgeons and their assistants, professional and lay, would be required for the arrest of hæmorrhage, for the relief of pain, and for the lessening of shock. There they were dealing with the immediate relief of injuries of great severity—smashed and mangled tissues, compound fractures with dragged and lacerated nerves sending increasing afferent impulses of pain and shock, wounds too extensive and too contaminated to allow a hope that such first-aid dressings as might be applied under the circumstances could render them sterile, wounds more eager for anodynes than for immediate antiseptics. Tourniquets, pressure forceps, and hypodermic syringes, with perhaps the iodoform dusting-dredger and the iodine spray or sponge, must take the first place in the surgeon's armament when a pause in the action permits him to reach the wounded. While much ingenuity had been expended upon the simplification of tourniquets, resulting in their extreme handiness and efficiency, they remained, unfortunately, most painful appliances. Of pressure forceps they had a great variety, but they were still in want of some light, strong, and inexpensive form of easily applied hæmostatic clip, something as mechanically simple as the safety-pin and costing almost as little. Still more were they in want of some contrivance to simplify the charging of the hypodermic syringe to ensure rapidity of action and certainty of dose. To attempt to charge the syringe directly from a bottle of stock solution, or first to pour the morphine into a shallower vessel, was to invite such accidents to the stock as the capsizing of the bottle or the exposure of its contents to the dust and débris of action, with consequent blocking of the needle. To overcome those difficulties they required an unspillable bottle with protection for its contents under all circumstances; also they should have a metal scabbard attached to the coat to readily and securely hold the needle-fixed syringe when not in actual use. Some time ago he had contrived a simple and inexpensive shallow glass reservoir to hold not less than 1 ounce of solution and fitted with two, or double-layered, indiarubber detachable caps. Through the caps the needle of the syringe could be thrust into the solution and the syringe rapidly and easily filled. A slight lateral pressure on the needle while charging the syringe prevented the formation of a vacuum. This morphine bottle had been adopted by the Admiralty for issue in field-chests and to the service afloat. Amongst other advantages the shallow rubber-capped morphine vessel admitted of injections being given in the dark, provided always the strength of the solution was such that one complete syringeful was one dose. In morphine solutions they had the most generally useful injection for the soothing of pain, while its calming action on the circulation aided materially the control of hæmorrhage; but equally important were injections of local analgesics and of anti-shock and hæmostatic drugs. It was not impossible that "nerve-blocking" might be attempted quite early in the treatment of the seriously wounded. Injections of local anæsthetics into the neighbourhood of the great nerve trunks of the limbs might help to cut off the fearful storm-areas of the mangled limbs from the central nervous system, and by arresting shock impulses mitigate the agony and dangers of transport and so add to the chances of recovery from a primary amputation. All

those injections would be facilitated by the use of rubber-capped bottles, and several different drugs could be kept ready to hand if the bottles were of distinctive shape.

Fleet-Surgeon BASSETT-SMITH said every endeavour should be made to simplify treatment in emergencies. Rubber-top bottles had been employed for a very long time for vaccines and they were excellent, but rubber was not suitable for use in the tropics as it rapidly deteriorated.

Surgeon-General G. J. H. EVATT suggested that instrument makers be invited to construct a hypodermic needle with metallic squeezable case containing morphia solution, which could be squeezed into the patient and the case then thrown away.

Fleet-Surgeon WILDEY, in reply, said the perishability of rubber had been taken into account. He had suggested they should be supplied in hermetically sealed tin boxes holding six caps for use in the tropics.

Colonel P. BROOME GILES, A.M.O., read a paper entitled

The Training of the Territorial R.A.M.C.

He said that it was necessary to realise that though a period of six months was intended to be allotted to combatants subsequent to mobilisation to perfect their peace training, that could not apply to the Royal Army Medical Corps. In his opinion, the regimental stretcher bearers should receive from the medical officer attached to their unit instruction in first-aid and sufficient drill, so that they could work at a stretcher, load and unload any injured as little harmfully as possible; but hours spent in perfecting drill, even if not wasted, could better be employed in acquiring first-aid. That instruction should be given as a course and the men not permanently segregated as medical orderlies. Each year it was better to instruct fresh men, for in action they could not have too many with a knowledge of first-aid. In camp on all parades which the medical officer attended a stretcher squad should be told off for emergencies, and opportunity taken to impart instruction, and the men pointed out any advantages or risks the surrounding country possessed in approaching and dealing with the removal of the wounded. With regard to field ambulances, during the year and previously to camp all the general instruction and drill should have been completed; the sections organised under their officers should be so forward that two days in camp should be amply sufficient for all ranks to shake down into their respective places. Two important questions were: 1. Should the field-ambulance training be a real thing, a training centre, or should it merely be an appendix to a brigade, perfunctorily treating such dummies as might be arranged for on field-days? 2. As the amount of sickness should be very small, should a detention hospital be established for the period of camp or should each field ambulance deal with its own sick? Here there were divergences of opinion; he had tried both ways and strongly recommended that the field ambulance should be a training centre, and that each field ambulance should deal with its own sick by daily detailing sufficient *personnel*, equipment, and transport for that purpose, and so leave the remainder free to exercise, go on track, or bivouac away from camp. He could not too strongly urge the importance of placing as much responsibility as possible upon the sectional officers. He was greatly in favour of the field ambulance on one day going out and keeping the relative positions in an imaginary attack or defence upon a position representing what a division would have occupied; it should treat casualties systematically placed by the adjutant who, from his experience, knew how probably a real fight would have influenced the positions. Also a field ambulance should be mobilised as completely as the peace equipment permitted, each unit furnishing a section. The sanitary company training during the year was rather restricted. There was practically no equipment and strenuous steps should be taken to put those units in possession of proper training machinery. Up to the present time units had been trained at military hospitals, which was no doubt the better system; still, he felt sure if with their peace strength they furnished a section of a hospital near their division once every three years it would be advantageous.

Lieutenant-Colonel E. M. WILSON, R.A.M.C., read a paper on

Medical Requirements in War, with Suggestions for Assisting the R.A.M.C. on Mobilisation.

He said that with a view of supplying additional medical officers for the expeditionary force the Special Reserve of Officers was created, and he had previously tried to show how in order to make provision for those requirements every medical practitioner, whether civil or military, might help each in his own way. All could use their influence to recommend men fully qualified to join the Special Reserve of Officers. Teachers and deans of schools could point out the advantages to students of the Officers Training Corps. Their own officers might take more interest in the after careers of their own trained men who left the colours by registering their names and recommending them for employment in civil life. Medical men, too busyin private practice to accept commissions in the Territorial Force, might take up ambulance work and assist in training and keeping efficient some of those subordinates whose services on mobilisation would be in such demand. The Territorial and the Special Reservist must do his training annually. The St. John Ambulance man must perform at least 12 drills and attendances every year or he could not remain in the Brigade, and he laid stress on the constant maintaining of efficiency.

Lieutenant-Colonel G. E. TWISS, R.A.M.C., pointed out that in the old form of enrolment in the St. John Ambulance Brigade the question was asked if willing to serve with the army "at home" or "abroad," and such questions reintroduced would help Colonel Wilson.

Colonel C. H. MILBURN pointed out the necessity for the acceptance of men for service abroad and service at home, as many instances had occurred in the past where men were not medically fit for service abroad, but were eligible to and could serve at home.

Surgeon-General EVATT said that the pharmaceutical profession should be specially dealt with and a defined status given them on joining the Territorial Army.

Major A. M. CONNELL, R.A.M.C. (T.F.), said there seemed to be a desire on the part of members of the Pharmaceutical Society who were enlisted in general hospitals to obtain commissions. He certainly felt very strongly that it would serve no good purpose to grant such commissions.

Lieutenant-Colonel WILSON, in reply, said he thought that the system of having two sets of companies in the St. John Ambulance Brigade, one being the company of the Brigade in a district and one being a "county company," might lead to duplication, but, of course, that was a matter for the authorities at St. John's Gate to deal with. Replying to Colonel Milburn, he said that the men of the St. John Ambulance Brigade who served at home during the South African war had been gladly welcomed and a separate form of agreement was specially drafted for them, but it was a fact that very few volunteered for that duty, the great majority preferring to go on active service. In reply to Surgeon-General Evatt, Major Connell, and others regarding the position of qualified pharmacists in military hospitals, he said that it was a fact that dispensers were enlisted into the army during the South African war as privates and subsequently given promotion. Dispensers could join the St. John Ambulance Brigade as supernumeraries and enter the Home Hospitals Reserve, or enlisting into the Territorial Forces R.A.M.C. could qualify for promotion. A knowledge of medical returns and administration in connexion with dispensing was all that was required.

OPHTHALMOLOGY.

WEDNESDAY, JULY 27TH.

President, Mr. CHARLES HIGGENS (London).

The PRESIDENT, in his opening address, reviewed the changes in the practice of Ophthalmology that he had known during his experience of 40 years. In some branches there could be no doubt that they had made great advances both in theory and practice; in others the advance, if any, was small. Considering this second group, he instanced the grave diseases of trachoma and glaucoma. Of the first they had learned something more of its histology, and possibly of its pathology, but save for the fact that they had dropped the old name of granular lids or ophthalmia for the more classical name of trachoma they had made no alteration in their practice regarding it that was worth the name. Of glaucoma it could be said they had learned a great deal of its patbology, but as regards its treatment he was sure that a "bad" iridectomy was now, as it was 40 years ago, the very best and most successful operation, and by a "bad" iridectomy he meant one that left a minute fragment of iris in the scar, so that

the wound never properly healed, but maintained constant leakage proportional to the tension of the eye. In other diseases, such as inflammation of the anterior uvea, they had little advance to record; these cases were as mysterious and intractable as ever; but he would not say much on this as the subject was to be considered in a set discussion of the section. In diseases of the lacrymal apparatus the only improvement in methods he could cite was the very general cessation of the practice of slitting up the canaliculi for every form of epiphora; it was a good change. Their greatest advances had without doubt been in the realms of optical work. The treatment of squint had been revolutionised, correction of difficulties of vision was uppermost, and operations had become proportionately rare with the best results. In quite recent years they had improved greatly in their methods of testing colour vision, thanks largely to the labours of Dr. Edridge-Green; but the matter was still the subject of inquiry, and it was without doubt a complicated one. The establishment of the universal use of the metrical system of measuring lenses had been of the greatest value and convenience in practice; younger members of the profession could scarcely conceive the worries in fractional calculations they had escaped by the substitution of dioptres for inches. Again, they had gained much by improved and standardised test types. The appliances of their work had been improved by the universal use of electricity; it was a boon not to be forgotten. Coming to operative measures particularly, he could not see very much change. It would seem, to judge by the makers' catalogues, that every man invented instruments of his own, but the essential tools of their craft remained unchanged. Graefe's knives, the keratome, forceps, and cystotome were the basis of most modifications of cataract instruments. But in the introduction of the giant magnet of Haab there was a real gain, notwithstanding it was an appliance for hospital rather than private practice, in which its use was rarely required. In some fields of their labours there had been a recrudescence of old operations. Sclerotomy for glaucoma bid fair to be fashionable once more, but it was no new thing. Bader and himself had practised it by incision and by the use of trephines; they mostly did it to relieve tension in blinded eyes, and the effects were undoubtedly good; but the practice had been superceded by the fashion for iridectomy. Again, removal of the lens in its capsule was an old operation, it was described in Macnamara's text-book and then mentioned as old; he did not favour the method himself, but he had practised it rather by way of accident than purposefully, and no harm had resulted; the human eye would withstand a lot of handling. In the treatment of syphilitic affections changes were to be observed; at one time the use of mercury was grossly excessive, then came the inevitable reaction and its replacement by infinitesimal doses of potassium iodide; now their practice seemed to be rational and successful. In local anæsthetics they had obtained a great gain; the contrast to operating with a badly-administered general anæsthetic, with its risks of post-anæsthetic vomiting, to their present invaluable cocaine was immense; it appeared to him to be the greatest advance of his time. Antisepsis had also done much for them, asepsis little, for the attainment of asepsis of the conjunctiva was well-nigh impossible. Then in the objective diagnosis of refractive errors the substitution of retinoscopy for direct ophthalmoscopy had been invaluable; he remembered the time when such a master of the refraction ophthalmoscope as John Couper was not ashamed to spend hours over a few cases which to the surgeon of the day would occupy but minutes. One other point was worthy of remark, and that was the enormous increase in the number of ophthalmic surgeons. In his early days there were but a handful in London, now there must be more than a hundred. He hoped competition would have no ill effect upon their work. In this connexion he wished more power to the British Medical Association, and an increase of its efforts to prevent abuses both within and without the profession.

Dr. G. A. BERRY (Edinburgh) then opened a discussion on

The Future of Ocular Therapeutics,

considering the prospects of advance in the use of local and general remedies. The underlying idea of their discussion was an inquiry as to how far their knowledge, their aspirations, and the directions given to their scientific knowledge and practical views of to-day indicated the direction in which any real advance might be expected to take place in the near or more remote future. Practical therapeutics could not be brought within the limits of very definite rules; a great deal would always depend upon the individuality, the temperament, the judgment, and the resourcefulness of the medical man. Further, there was an equal variability in the toleration, vulnerability, and diathesis of each patient he was called upon to treat. It was even so in eye affections, where diagnosis was so much more sure than in other branches of medicine. The progress of science in physiology, pathology, and bacteriology, and also in chemistry and physics, was constantly affording new indications for treatment; and similar advances tended to explain the effects of therapy which had hitherto been empirical. Nevertheless, it seemed true that the main advances in treatment were those which clinical experience had established. Scientific discovery might lead to changes, but did not ensure such new treatment to be better than, or even as efficacious as, other methods which did not appear to comply with a more accurate knowledge of the pathology of a disease. Clinical experience could alone demonstrate utility or failure. Part of the reason for the failure of indications afforded by scientific observation was due to the difference of effects of the same interference, whether it were upon normal or diseased tissues. Even laboratory experiments in antiseptics did not necessarily ensure the effectiveness of that reagent that was presumably most sure; local tissue reaction introduced a complexity not recognisable in laboratory experiments. So with antitoxins, sera, vaccines, &c., for which there appeared scientific indications. In these the inferences were complicated and the outcome far from commensurate with expectations entertained. At the present their art lagged behind their science. Yet, even so, their art advanced slowly but surely, for with every successful assimilation of a scientific indication blind empiricism was reduced. Excluding operative and optical treatment, he considered local and general treatment. Both were older than history. Local treatment was known to the Egyptians in earliest times, and general treatment flourished in India and China long before Hippocrates. In local remedies it was curious that many had continued in valued service even to-day, particularly for diseases now known to be microbic. Mydriatics, miotics, local anæsthetics, analgesics, vaso-constrictors, and vaso-dilators were of almost entirely recent introduction. Yet of these it could not be said they were as local applications established on a basis that admitted no difference in practice. Witness the abuse of mydriatics and a too prolonged and too powerful application of local antiseptics. In the future he looked to the more general substitution of pure alkaloids for salts of these reagents. Still, it was remarkable that of the two most extensively used reagents corrosive sublimate was of great antiquity, and boracic acid was the first of known antiseptics. It seemed likely that they should discover selective antiseptics for particular micro-organisms, yet it was possible that the combining of different antiseptics might prove of real advantage, for these drugs had uses beyond their bactericidal power. Part of their difficulty in judging of these matters arose from their lack of knowledge as to how the tissues of the eye reacted to some of these infections when no treatment was given. If they knew something of this they might see how to add to and hasten nature's curative processes. Particularly did they need greater penetration and less general irritation in the antiseptics employed, and it was a need which might possibly be met. Ionization seemed an approach in this direction, perhaps also subconjunctival injection. Of the use of specific sera and vaccines he would not speak in detail, as this fell to the province of the next speaker, but there were undoubted indications that these would prove of real value. New methods for increasing the resisting powers of the tissues was a line upon which they might expect advance; heat and cold were valued by everyone; paracentesis had received justification; of dionine he could not speak with much satisfaction. Other methods of local treatment, electricity, X rays, radium, and massage, required reference. As regards electricity he confessed the utmost scepticism as to any good having ever been done, in any eye affection whatever, by the use of either the continuous or interrupted electrical currents. And he did not think past experience foreshadowed future benefits. Electrolysis had proved of service; something might be expected of iontophoresis. It was too soon to define the sphere of radium, but it seemed to be better and safer than the X rays. But they needed opportunity for forming an opinion as to its value and limitations. Referring to general treatment, he noted a curious difference in its usage as compared with local treatment. Old local methods survived at least in simplified forms, but this could not be said with equal truth of

general treatment. Excessive purging, bleeding, blistering, the use of emetics, and the excessive use of mercury, had all disappeared. Sweat cures also were now rare; perhaps that was a pity, but they might return to favour. For the future he anticipated the discovery of methods for the arrest of tuberculous lesions, perhaps of preventing them. Syphilis and cancer might conceivably yield to curative and prophylactic measures; and even alcoholism might be eliminated as a factor in disease. Maybe other disturbing influences would arise to fill the places of those overcome, "but sufficient unto the day is the evil thereof." Improvements in the treatment of glaucoma were to be anticipated; and he would fain hope for successful relief of detachment of the retina; even now they occasionally got some good from Deutschmann's method of double puncture. Brain surgery would possibly relieve them of many cases of optic atrophy. Such were the possibilities that seemed to him to arise out of their present lines of advance. What else was in store for them, who could say; was it altogether inconceivable that cataract itself should be capable of prevention, or at least of arrest?

Dr. J. W. H. EYRE (London) continued the discussion, taking up the consideration of

Bacterial Products.

He said that scientific therapy depended upon accurate diagnosis; it was hopeless to expect improved methods of treatment without this as a basis. Take, for example, the well-known condition of ophthalmia neonatorum: this was not a specific entity, but one that depended on the infection of several organisms—the gonococcus, streptococci, staphylococci, and others; clearly any specific treatment needed a particular diagnosis. There were two groups of bacterial remedies, antitoxic sera and vaccines. He could not recognise local and general divisions. What they did was to imitate nature so far as possible. Their methods were the outcome of observations of general disease produced experimentally and of a close study of the course of infection and the production of antibodies directed against the invading organism. Careful inquiry showed that antibodies were specific. Nature was very strict in her methods in these infections, and one antibody would not serve against an alien organism. Hence the prime necessity for accurate diagnosis. Serum therapy seemed to have only a limited applicability. There was one undoubtedly valuable serum, that of diphtheria; it was of value in diphtheritic conjunctivitis. Of other sera little good had come, at least in eye work. The antipneumococcic serum was not antitoxic, but antibacterial; it had proved of some service; but in his experience pneumococcic affections of the eye were uncommon in England, though more common on the continent. One of the difficulties of obtaining specific sera was the inability to immunise animals of sufficient size. Vaccine therapy seemed to present a much more fruitful field. Its object was to provide a stimulus to the natural processes, to provoke the production of antibodies within the affected subject, and in larger quantities than were naturally formed. They obtained cultures of the invader, destroyed them by heat, standardised the preparation, and injected known quantities of the vaccine into parts of the body distant from the original infection; the reaction caused a local production of antibodies which circulated throughout the body and exerted a beneficial effect upon the distant lesion. Of those most useful in eye work he would cite the old tuberculin T. R. of Koch; this they had only recently learned to use in a proper manner. Staphylococcal and streptococcal vaccines had proved of great value, in direct contrast to the inutility of the sera. Gonococcal vaccine had proved of value in iritis. The applicability of tubercular vaccine was increasing, and he looked to it to afford a better means of treating tubercular conjunctivitis than any surgical method. Lastly, he dealt with the relations of the ophthalmic surgeon to the bacteriologist. Harm was done by isolated individual action, for each failed in a knowledge of the other's line of work. To obtain the best results they must work hand in hand, the surgeon to observe the clinical aspects of the case, the bacteriologist to carry out the specific diagnosis and the indications for specific treatment.

Three papers pertinent to the discussion were then read as part of the discussion.

Mr. ARNOLD LAWSON and Dr. MACKENZIE DAVIDSON (London) communicated a paper on

Radium Therapy in Ophthalmology.

They gave an account of an investigation into the possibility of radium as a therapeutic measure in external diseases of the eye and eyelids. The mode of application and some indications gathered from their experience were given with regard to usage, length of exposure, and frequency of sittings. The immediate and remote effects of exposure were discussed, and the results of treatment detailed. (An extensive tabular summary of the cases treated was circulated.) The report was of an encouraging nature and suggested in particular that corneal ulcers were amenable to the action of this agent. There seemed to be no doubt that spring catarrh was definitely cured, whereas by any other treatment it had proved intractable.

Dr. H. M. TRAQUAIR (Edinburgh) read a paper on

The Treatment of Purulent Keratitis by Zinc Iontophoresis.

The treatment was introduced by Wirz in 1908 for external eye disease. The principle underlying it was the carrying of extremely minute fragments of the zinc electrode into the tissue by means of the galvanic current. He demonstrated the apparatus used and the general methods of anæsthesia and mydriasis adopted in the course of the treatment. Up to the present 27 cases of corneal ulcer had been treated by him in that way, and only those which were of so serious an order that the ordinary treatment would have been by means of the thermo-cautery. Film preparations and cultures were made from the ulcer to establish diagnosis. Twenty cases were typical ulcus serpens, the others were atypical. Of 20 investigated cases 15 were of pneumococcal origin. The cases treated were described in detail, and it was concluded that on the average the treatment was more expeditious, and the vision regained after cure was superior to that obtained by the cautery. The method was not unduly painful and the apparatus was convenient and simple.

Mr. N. BISHOP HARMAN and Dr. E. R. MORTON (London) communicated a paper on

The Use of Carbon Dioxide Snow in Eye Work.

They pointed out the recentness of the use of this snow in surgery and the established place it had secured in the treatment of capillary nævus. Their communication related to its use in papilloma and rodent ulcer about the eyelids and in trachoma. In the treatment of external new growth their experience had been one of great satisfaction. A large papilloma and four rodent ulcers had yielded to single applications of the snow for 40 seconds. The application caused scarcely any pain and the after reaction was not discomforting. The growth simply exfoliated and left clean healed surfaces almost indistinguishable from normal skin. In the treatment of trachoma brief and repeated applications were made, beginning with 15 seconds; the time was gradually increased to 30 seconds; sittings were once a week. They did not pretend to assert they had found any specific cure for a disease of so chronic and intractable a nature as trachoma, but they pointed out that in cases of six months' treatment fine scarring had been produced quite as readily as one could expect, and that the treatment had a particular value in that it was free from pain. The preparation of the snow was demonstrated to the section on the succeeding day and cases treated were exhibited. One of trachoma was treated with the snow at the time.

In the general discussion on the subject for the day Dr. ANGUS MACGILLIVRAY (Dundee) said he thought that Dr. Berry was rather inclined to be pessimistic of the prospects of advance. He regarded the advance in bacteriological methods of diagnosis of the highest promise—e.g., in the case of corneal ulcer their action should be entirely determined by it. If the pneumococcus was found it was an indication for the immediate use of the cautery; but if the diplobacillus was the infecting organism then the cautery was injurious, and zinc became their sure aid. Again, in conjunctivitis the finding of the Koch-Weeks bacillus indicated an inflammation that would speedily depart, even without treatment; but the diplobacillus would keep up inflammation for long periods unless effectively treated with zinc. Fibrolysin injections he had found of great service in reducing scars of old interstitial keratitis; in this he disagreed with Dr. Berry, but he was entirely in accord with him in his strictures on the use of electric currents. The coöperation of bacteriologist and eye surgeon was likely to be of great value, but they should not hasten to discard all the laboratory expert condemned—e.g., he found argyrol of value in ophthalmia neonatorum, notwithstanding its feeble bactericidal power.

Dr. R. A. REEVE (Toronto) held that the efficacy of dionine

had not been fairly tested unless the powder itself was used in direct application, after the use of cocaine. In acute iritis with synechiæ solutions of dionine might prove useless, but the powder produced speedy and gratifying effects; they must not be afraid of a marked reaction, the best result followed it. Again, he questioned the pessimistic view of electricity; high-frequency currents had been of service to him. Also fibrolysin injections had been followed by resolution of vitreous opacities responsible for detachment of the retina with resultant improvement in field and acuity of vision.

The PRESIDENT remarked on the use of electricity in early optic atrophy. He saw no justification in it—it was rather like flogging a dying horse.

Dr. G. S. RYERSON (Toronto) said he had had gratifying results in the use of radium in cases of epithelioma of the conjunctiva; these were cases that spread to the surrounding tissues, and incision did not secure cure without great loss to the tissues. Nævus of the lids also yielded readily to radium. He asked what activity of radium had been used by Mr. Lawson.

Mr. A. HILL GRIFFITH (Manchester) said he had had the most gratifying results from the use of tuberculin in cases of tuberculosis of the ocular and palpebral conjunctiva. Complete cure had been obtained.

Mr. A. W. ORMOND (London) referred to four cases of tubercular periostitis of the orbit in which there were proptosis of the eye and loss of vision. In all cases part of the mass had been excised and proved to be tubercular. Tuberculin injections had been used with unvarying improvement of the conditions. In two cases complete cure had been obtained, and the other two were improving more slowly.

Mr. LESLIE J. PATON (London) said that in the treatment of detached retina it was important not only to get the retina back into place but to fix it there. Through lack of fixation cases that at one time promised fair were eventually disappointing. He recommended the use of the cautery for perforating the sclera and retina, and the attempt to draw the retina into the lips of the wound. This method presented an ideal method of sealing the retina to the scleral cicatrix.

Dr. G. MONTAGU HARSTON (Hong-Kong) confirmed the beneficial effects of argyrol in 25 per cent. solutions in the treatment of ophthalmia neonatorum. The use of powdered dionine he considered too drastic; not only was the reaction severe, but in one case he had seen a severe reaction of the patient against the doctor. He confirmed absolutely the conclusion of the President as to the uselessness of high-frequency currents, or any other electrical current, in optic atrophy. In one case he had seen some success from intramuscular injections of succinimide of mercury, but it was rash to draw conclusions from one case.

Major H. A. J. GIDNEY, I.M.S., considered dionine of great value in corneal opacities; the chemosis it caused need not alarm one. Fibrolysin, he considered after an extended trial, useless. He emphasised the necessity of restricting the use of the cautery to the advancing edge of the pneumococcal ulcers of the cornea and leaving the central portions, which had been shown to be free of organisms, untouched.

Major G. H. FINK, I.M.S., commented upon the use of carbon dioxide when in solution in water. It had been proved by Hankin of Agra to be destructive of organisms.

Dr. BERRY, in reply, said he had been interested to hear of the use of carbon dioxide snow. As a manager of the Edinburgh Infirmary he looked upon new remedies from an economic point of view, and serious expenditure they had contemplated on the acquirement of radium had been obviated by the advent of the snow. Regarding the possibility of cure or retardation of optic atrophy, he thought that those cases in which improvement was believed to have been effected by treatment were really retrobulbar neuritis and of the same order as those described by Graefe in 1850 as amblyopia *sine causâ*.

Dr. MORTON replied to some questions concerning the use of carbon dioxide snow. As regards the sensations of patients, they experienced at the moment of the application a slight burning feeling, there was slightly more sensation at the time of thawing out, but neither of these sensations was discomforting. The efficacy of the treatment upon rodent ulcer was a surprise to all concerned.

OTOLOGY.

WEDNESDAY, JULY 27TH.

President, Dr. EDWARD LAW (London).

The PRESIDENT, in a brief address, welcomed the distinguished visitors, and expressed regret that Professor Politzer, through illness in his family, was prevented from being present. He then touched upon the value of the combination of scientific business with a long respite for social intercourse. This coalition of business and pleasure not only led to pleasant acquaintanceship, with a possibility of enduring friendship, between men engaged in the same vocation, but also dissipated personal jealousies and misrepresentations and obliterated international prejudices. He congratulated the members of the section on forming once again a separate section of otology. The wisdom of the isolation from any other section became self-evident when one considered the marvellous growth of specialism. At the same time he was desirous of otology having a more pronounced sphere of influence in the nose and naso-pharynx; the apathy of aurists in not introducing naso-pharyngeal subjects more frequently into their discussions encouraged the suggestion occasionally mooted of a separate section of rhinology. Unless otologists showed more interest and enthusiasm in the nose and the naso-pharynx, and so got down to the portal of entrance and the bed-rock of many aural affections, it was probable that rhinology would assume the rôle of the "predominant partner" in the study and treatment of diseases of the throat, nose, and ear. He drew the attention of the members of the section to the very interesting and instructive report of Dr. James Kerr, the eminent and zealous education medical officer of the London County Council. The report showed the dire necessity of the compulsory medical examination of school children; it emphasised the fact that childhood is often the only time for the preventive treatment of deafness and many other troubles in later life. It recorded an experiment in the treatment of aural cases, particularly suppurating ears, at their own homes; it pointed out that the congenitally word-deaf child was no longer to be classed as imbecile and neglected in education. The weighty facts revealed throughout the report demonstrated that their representatives in this huge metropolis were undertaking social work which a few years ago would have been looked upon as impracticable or Utopian, and which, *inter alia*, must have a most salutary and far-reaching influence on the prevention, early recognition, and treatment of aural affections. He alluded to the controversial topic whether the examination and treatment referred to should be carried out at the child's home, or undertaken at the hospital, or in school cliniques, and by whom such measures, whether operative or otherwise, should be carried out. He hoped that every member present would agree with him that these special duties should be undertaken or supervised only by specially trained members of the profession (not necessarily specialists), who must be suitably remunerated for their valuable services to the community, regardless of economic cost, which is, after all, in the long run, a sound investment for the long-suffering ratepayer. Dr. Kerr's report also stated that the interesting experiment of a tuberculosis school was to be tried, and a careful analysis of 500 cases of deafness was included, but neither in the report nor in the analysis was any mention made of "aural tuberculosis in children." That easily explainable omission justified the action of the section in choosing as a fit and proper subject for one of their discussions,

Aural Tuberculosis in Children.

The discussion was limited to the diagnosis, the prognosis, and the treatment without details of operative procedure, and was opened by

Dr. W. MILLIGAN (Manchester), who dealt with the frequency of aural tuberculosis in childhood, and described in detail the usual routes of infection. He insisted upon the importance of recognising the disease as of primary origin in the middle-ear cleft in a large proportion of the cases. The main symptoms of aural tuberculosis, subjective and objective, were then considered, and the various methods of establishing a definite diagnosis were described and criticised. The complications most frequently met with were enumerated and their relative importance mentioned. The important questions of prognosis and treatment were also discussed and

the results of treatment were analysed. Suggestions were made as to how best to deal with aural tuberculosis in school children, so as to prevent dissemination of the disease, and the advisability or otherwise of isolating infected children was considered.

The PRESIDENT remarked that aural tuberculosis in childhood appeared to be of more frequent occurrence and of greater moment than was usually surmised. The prophylactic war-cry evidently was, "Pure milk and satisfactory bygienic environment."

Mr. R. LAKE (London), speaking of his own hospital experience, considered the disease was very rare indeed. This experience might be explained by such cases more frequently finding their way to the general hospitals and not to the special hospitals. He advocated absolute eradication of the disease by operative measures regardless of consequences to the facial nerve, and he considered formalin a useful antiseptic after the operative procedure.

Mr. F. H. WESTMACOTT (Manchester) had examined cases at the Children's Hospital, Manchester, during the past two years for information on this subject required by school medical officers. Out of 1500 cases in the past year he found 31 cases of undoubted tubercle of the ear—that is, 2 per cent. Of the 31 cases the discharge showed tubercle bacilli in only 2 cases; in the other cases a mixed infection was present.

Mr. SYDNEY R. SCOTT (London) said his personal experience of the disease was based upon some 10 cases which he had met with at the Evelina Hospital for Children. In all these cases the diagnosis was established by direct histological examination or by inoculation. All the children were under 4 years of age except one, a boy of 5 years, who already had a mastoid fistula when first seen. Mr. Scott took a favourable view with respect to the result of local treatment effected by the complete radical tympano-mastoid operation through the ordinary post-aural route, and he would not consent to treat these cases through the meatus.

Dr. R. BÁRÁNY (Vienna) was also in favour of operative measures and of making them as radical as possible. He did not hesitate to operate a second time if the results desired had not been obtained by the first operation. But at times, after recovery from the operative treatment and after the wound had soundly healed, the child succumbed to meningitis. In the matter of the medical inspection of school children this country was more advanced than Austria, but at the present time there was a movement on foot to introduce in his own country the systematic inspection of school children.

Dr. DUNDAS GRANT (London) was of the opinion that tuberculosis of the ear would be more often diagnosed at an early stage if the possibility of its occurrence was kept more prominently before the mind. Many cases of apparently acute mastoiditis in very young children had a basis of tuberculosis with pyogenic infections superadded. The removal of fragments of tissue for preliminary microscopic examination could be safely effected by means of Hartmann's minute punch forceps. He had seen good effects from the application of methyl violet either in the tympanum or in the osseous wound.

Dr. W. JOBSON HORNE (London), whilst fully agreeing with Dr. Milligan that tuberculosis of the ear in child life was usually primary in origin, and that it occurred quite early in life—in fact, within 12 months of birth,—at the same time, could not accept Dr. Milligan's suggestion that the disease might therefore be ante-natal in origin. Dr. Horne considered the disease had a distinct morbid anatomy, that it was essentially a bone disease starting in the deeper parts of the mastoid and petrous portions, and he suggested radiography as an aid in making a diagnosis in an earlier stage of the disease.

Mr. T. MARK HOVELL (London) emphasised the importance of the supervision of the milk-supply. He fully agreed with Dr. Milligan that the disease should be notified so that the impure milk-supply might be traced to its source.

Mr. HUNTER TODD (London) said, with regard to the origin of the disease, he considered that in some cases it must be through the blood stream. With regard to prognosis, if the diseased area of bone could be eradicated by operation the result was favourable. Death, in Mr. Todd's experience, seldom occurred from meningitis, but if so, it was from a separate infection and not from the spread of the tubercular lesion. He had found that if these patients died the cause of death was miliary tuberculosis or pulmonary phthisis and not tubercular meningitis.

Mr. C. E. WEST (London) held that the number of tuberculous infections of the ear had been greatly overstated if it applied to the class of case seen in hospital practice in London. He questioned the possibility of free tubercle bacilli in the atmosphere of the naso-pharynx, so conveyed, as Dr. Milligan seemed to imply, along the Eustachian tube to the tympanum. Such a supposition seemed highly improbable.

Dr. MILLIGAN, in his reply, stated that he knew his statistics would be challenged. He thought that tuberculosis was overlooked as a basis of many cases of mastoid disease.

Dr. H. S. BIRKETT (Montreal) gave a demonstration illustrated by radiograms of the mastoid process.

PATHOLOGY.

THURSDAY, JULY 28TH.

President, Mr. S. G. SHATTOCK (London).

The section combined with the Bacteriological Section for a joint discussion on "Complement Deviation Methods in Diagnosis" (see "Bacteriology").

PHARMACOLOGY AND THERAPEUTICS.

THURSDAY, JULY 28TH.

President, Professor A. R. CUSHNY (London).

The PRESIDENT, in introducing a discussion upon

The Effect of Digitalis upon the Human Heart,

said that laboratory investigators were now in a position to ask clinicians if digitalis was in all things a satisfactory drug. If it were not, then it was certainly possible among the digitalis group to find a member which would conform to almost any requirements. Digitalis had a double action, upon the inhibitory apparatus of the heart and upon the cardiac muscle. He asked the clinicians, Were these factors properly balanced in digitalis or would the therapeutic effect be improved by augmenting one or the other? Clinical opinion, however, must be backed by actual measurements comparable to those obtained in the laboratory.

Professor WENCKEBACH (Groningen), in opening the discussion, paid a tribute to the distinguished work of British physicians and pharmacologists in investigating the complex action of digitalis. He showed upon the epidiascope tracings which witnessed that after digitalis had been taken two effects became simultaneously apparent—the pulse was slowed and there was an increase of irregularity of rhythm. Whenever there was slowing there was also this increase of irregularity. This action was the result of stimulation of the vagus. It was abolished if the vagus were cut or paralysed by atropine. Pressure upon the vagus in the neck in man caused a remarkable retardation of pulse, both radial and jugular. The strengthening of the beat, on the other hand, was probably due to the action on the muscle. In small doses digitalis caused a deeper diastole and a deeper systole. In large doses the diastolic increase disappeared. He did not regard it as right to limit the use of digitalis to conditions of low tone. The action upon conductivity was complex. Therapeutic doses might do harm by lowering conductive power which was already weakened and produce, partly by muscular effect, partly by vagus inhibition, a condition of heart-block. Under digitalis in small doses the excitability of the muscle became less. In this he found the explanation of a phenomenon he had often met with—the disappearance of extra systoles under small doses of digitalis. In large doses this effect was reversed. The drug probably had a constant vaso-constrictor effect upon the arterial system. All these diverse influences worked in different intensity according to variations in dose, form, and condition of heart. In a slow heart the retardation of pulse was not wanted. Where there was no œdema there was no need for diuresis; where the pressure was high the vaso-constrictor action might be troublesome. Yet the applicability of the drug was very wide. In almost all cases of cardiac disturbance it was wise to give it a trial, carefully and in small doses, even where there was not marked cardiac dilatation and loss of tone.

Dr. JAMES MACKENZIE (London) said that the views held upon this important subject were so discordant that he had determined to disregard all accepted teaching and to make a fresh start. At the Mount Vernon Hospital he was endeavouring to accumulate reliable data upon which judgment could be founded. He made use of the new methods of recording the heart beats and of estimating the blood pressure, and he had the advantage of being able to submit all the drugs made use of to examination and standardisation by Professor Cushny. He emphasised the importance of calculating not only the condition of the heart at rest but also its power of work, as, for example, in ascending stairs. The pulse and respiration and the blood pressure were examined and recorded both before and after exercise and the results compared. The earliest evidence of exhaustion of what he called the work power of the heart was usually, however, not found in these objective signs, but in the subjective sensations of the patient. The importance of these sensations, breathlessness, consciousness of the heart's action, irregular action, fluttering sensations, a feeling of suffocation or actual pain, had been under-estimated. They usually appeared much in advance of any objective sign derived from cardiac examination. In estimating the size of the heart he made use of percussion. He did not regard the orthodiagraphic and photographic methods as sufficiently accurate. He had found a distinct relationship between the degree of heart failure and the extent of hyperalgesia of the cardiac wall. He had confined himself to the use of the B.P. tincture of digitalis. Where this had disagreed he allowed the patient to escape from the influence of the drug and substituted strophanthus, squills, or helleborein.

Dr. THOMAS LEWIS (London) discussed the characteristic reaction of the heart to digitalis when the auricle was in a state of fibrillation. This fibrillation of the auricle was not confined to man. He had recently had an opportunity of observing it in the horse beating *in situ*. The chamber was found in a condition of continuous diastole; no coördinated contraction of its walls interrupted its continued distension, but careful examination showed a tremulous state of the musculature. It might be supposed that in such a condition the normal impulse-formation was in abeyance and in its stead numerous small areas of the hyper-irritable musculature were building up independent and pathological impulses. The whole contractile substance of the chamber was thrown into delirium; meanwhile the ventricle beat rapidly and irregularly, with completely disordered rhythm. It was supposed that these beats were due to the escape occasionally of impulses from the turmoil of small contractions in the ventricle. On such a heart digitalis had a marked retarding effect. It had been suggested by Professor Cushny that the slowing of the ventricle was due to an increase in the resistance to the passage of impulses from the fibrillating auricle down the auriculo-ventricular junction. A tracing was shown from a dog in which stimulation of the vagus caused a slowing of the ventricular beat, while the auricular fibrillation proceeded unchanged. Where heart-block was present, fibrillation of the auricle was not accompanied by rapidity of ventricular beat. In an epileptic and syphilitic subject with fibrillation of auricle and heart-block the pulse was 30 and regular. It was therefore extremely probable that in fibrillation of the auricle digitalis slowing was the result of heart-block, produced especially in hearts with pre-existing damage of the junctional tissues.

Dr. H. H. TURNBULL (London) gave a short account of the clinical experiences which he had had while working with Dr. Mackenzie at the Mount Vernon Hospital upon the action of digitalis. They regarded full doses as necessary to produce the effects of the drug. Unless it was pushed no result might be obtained in cases which would at once react to larger doses. They had found that there was no danger in pushing the drug if the type of case was taken into consideration and the results watched. Before serious effects occurred the patient complained of headache or nausea. The only cases likely to show bad effects were those with a damaged auriculo-ventricular bundle in whom heart-block might occur. Cases had been treated as out-patients with ℥xv. of the tincture with good results. They maintained that raised blood-pressure was no contra-indication to the use of digitalis and was often due to some secondary effect of heart failure. Cases without œdema showed no increase in urine. In old people with cardiac degeneration little cardiac change was apparent. In the young rheumatic heart the pulse was invariably slowed. Rarely both auricle and ventricle were simply slowed; more commonly there was vagus arrhythmia, occasionally varying degrees of heart-block. Extra systoles were sometimes produced, but never stopped by digitalis. With strophanthus diarrhœa was more common and vomiting less common than with digitalis.

Dr. J. D. WINDLE (Southall) showed tracings indicating the action of digitalis in slowing the heart in cases of nodal rhythm or auricular fibrillation.

Sir LAUDER BRUNTON (London) said that it was just 45 years ago that he began to collect digitalis leaves for an investigation into its action. Six months later he saw a case of digitalis poisoning which showed quick beats with interpolated slow ones. Like Professor Wenckebach, he attributed this condition chiefly to the action of the drug upon the vagus, but he also took into consideration the possibility of a part being played by a system of accelerator nerves. He thought that clinically an estimation of the relation between power of the heart and arterial tension was very important, by the sphygmomanometer and by the sphygmograph. He thought that harm might arise in cases of gouty kidney from too great a rise of blood pressure. The heart was a double organ, right sided and left sided. Symptoms of discomfort and dyspnœa might arise from weakness of the right ventricle, while the left ventricle was perfectly healthy. He thought that clinicians wanted from pharmacologists a knowledge of the relative proportions of cardiac stimulants like digitalin and of bodies with a marked vascular effect like digitonin in each preparation. Moreover, he wanted to know what drugs had a selective action upon the right and what upon the left.

Dr. W. T. RITCHIE (Edinburgh) discussed the cause of the coupled rhythm or continued bigeminy produced by digitalis, and which replaced the perpetual arrhythmia of the ventricles associated with auricular fibrillation under the action of digitalis. He suggested that the prolongation of diastole under digitalis led to increased intracardiac pressure, and that wherever an enfeebled heart was unduly irritable such a rise might produce a regularly recurring extra systole.

Dr. A. M. GOSSAGE (London) discussed the connexion between loss of tone of the heart muscle and dilatation. Digitalis, he believed, benefited the heart by increasing tone.

Sir CLIFFORD ALLBUTT (Cambridge) thought it necessary in cases of degeneration of the heart to eliminate the part played by emphysema. He thought that emphysema as a potent cause of right-sided heart failure received often too little attention, and unless its effect was subtracted subjective sensations were apt to mislead. Vomiting when once started by large doses of digitalis, in his experience, did not always disappear with the readiness suggested by Dr. Turnbull.

Professor WENCKEBACH and Dr. MACKENZIE shortly replied.

PHYSIOLOGY.

THURSDAY, JULY 28TH.

President, Professor WILLIAM H. THOMPSON (Dublin).

Professor E. A. SCHÄFER (Edinburgh) opened the discussion by reading a paper on the

Factors which Make for an Efficient Circulation.

He proposed to deal only with the circumstances which more immediately affected the circulatory mechanism under normal conditions. The effective action of the heart varied: (1) with its rate of rhythm; (2) with the force of the individual beats; and (3) with its condition of tone. He spoke of the part played by the nervous system, which affected each of these conditions. By way of the vagi influences passed which moderated the rate, diminished the force, and lowered the tone; by way of the sympathetic, others which increased the rate, force, and tone. The proper balance of these effects in accordance with the work which the heart had to perform must be regarded as one of the most important factors in maintaining an efficient circulation. The ultimate source of excitation was probably always peripheral, the afferent impulses reaching the cardio-inhibitory and cardio-accelerator centres from the skin and the sense-organs, viscera, muscles, tendons, serous membranes, blood-vessels, and even from the heart itself. Respiration, together with the tone of the abdominal muscles, exerted an important influence on the heart's action. The respiratory apparatus

acted by facilitating the flow of blood to the thorax and thus to the heart, and, within limits, the greater the rate of blood-flow to the heart the more efficient the circulation, since the heart reacted to the work thrown upon it. The rate of rhythm, however, tended to diminish with increase of arterial pressure—a regulating effect due to the vagi. On the other hand, increase of pressure in the coronary arteries was a direct excitant to cardiac activity. Another factor essential to the maintenance of the circulation was the tonic contraction of the blood-vessels, which adapted the vascular system to the amount of blood it contained. This tone was regulated partly by nervous means, partly through the agency of hormones. The vessels, and especially the arterioles, like the heart, were supplied with a double set of nerve-fibres, the vaso-constrictors and the vaso-dilators. The former followed the course of ordinary motor nerves, except that they were distributed through the sympathetic, while the vaso-dilators followed, as W. M. Bayliss had shown, the course of, or might even be identical with, the afferent nerve fibres. The impulse which reflexly produced vaso-constriction or vaso-dilatation originated as did those influencing cardiac action, mainly from the periphery. The work of Bernard and Ludwig about the middle of last century, followed by the innumerable researches initiated by their discoveries, thus established beyond a doubt the important relations which subsisted between the vascular and nervous systems. Until recent years it was not possible to make any further positive assertions, although certain facts could not be accounted for. It was now known that the internal secretion of certain glandular organs exerted an important influence in regulating both the vascular tone and the force and rhythm of the heart beat. Such hormones could account for the fact that retention and recovery of tone might take place after complete severance of parts of the vascular system from the central nervous system. Those producing the greatest effect of this nature were the medulla of the suprarenal capsules and the posterior lobe of the pituitary body. Suprarenal extract strongly augmented the vascular tone as well as the rhythm and force of the heart, while pituitary extract markedly raised the tone of cardiac muscle without acceleration of heart rhythm, which might even be diminished. Moreover, the latter extract tended to produce dilatation of the arterioles of the kidney and consequent diuresis, the other arterioles in the body being simultaneously constricted. Passage into the blood of suprarenal secretion had been definitely proved, and he pointed out that it was probably justifiable to believe in a similar passage, direct or indirect, of pituitary secretion. The fact that experimental removal of the pituitary body was equally fatal with that of the suprarenals pointed to the supreme importance to the organism of the substances formed by them. The pituitary body also contained a depressor substance which acted on the heart and arterioles, and it was possible that the two substances might be produced in accordance with the needs of the organism in general and the vascular system in particular. He compared this balancing action with that of the vaso-motor nerves, and emphasised the point that there was a further very important action due to these hormones, namely, that exerted directly upon the tone of the nervous system. Evidence of this was given by the tonic effect of extract of pituitary body in cases of surgical shock. He referred also to the well-known effects of excessive thyroid secretion on the heart (shown by Graves' disease or excessive doses of thyroiodine). The further consideration of the influences regulating the circulatory mechanism he left to subsequent speakers.

Dr. GEORGE OLIVER (Harrogate) approached the subject from the clinical standpoint. He spoke on cardio-vascular adjustment, vascular tone, and the relation of peripheral resistance and blood pressure to circulatory efficiency. In connexion with vascular tone he pointed out that much information could be obtained by a study of the effect on the pulse produced by change of posture. His arteriometer had been the outcome of his observations. In chronic fag a low vascular tone prevailed with consequent rise of blood pressure when the patient assumed a recumbent position. He also spoke on the relation between syncope and splanchnic vaso-motor inefficiency, on excessive vascular tone, the injurious effect on the ventricle of a permanently high peripheral resistance, and the bad effects on the nutrition of the walls of the heart in conditions of too low peripheral resistance. Work, he said, was the best cardiac tonic for normal man.

Dr. LEONARD HILL (London) expressed the pleasure it was to see Professor Schäfer amongst them. The important work on the internal secretion of the suprarenal bodies initiated by Professor Schäfer and Dr. George Oliver had opened up a new vista to science, and he could only congratulate Professor Schäfer on the consummation of his researches. He then criticised the modern tendency of applying laboratory results obtained by experimenting on immobilised and anæsthetised animals in the recumbent position to normal and actively moving beings. He regarded the body as a wet sponge, squeezed by each muscular contraction. It was the function of the heart to propel the blood, the function of the muscles to squeeze it back to the heart. The squeezing action of the muscles was not, he thought, sufficiently taught. He spoke on capillary pressure measured by his method of introducing a fine hollow needle under the skin. He denied the existence of filtration pressure, which, according to his views of the mechanism of the circulation, could not exist, and expressed the opinion that it was the secretory activity of the cells which regulated the pressure. Dr. Hill said that no evidence of venous back pressure existed; if the blood flow in the veins was obstructed the venous pressure rose for a very brief period of time, and œdema came on only the next day.

Sir JAMES BARR (Liverpool) spoke on some practical points in connexion with blood pressure and the part played by lime salts in the circulation.

Professor BENJAMIN MOORE (Liverpool) thought that the chief factor in the regulation of the blood pressure was a chemical one. He disagreed with Sir James Barr as to the significance of the lime salts, regarding them more as by-products thrown out with other chemical substances by reason of the chemical peculiarity of calcium as an element.

Dr. ALEXANDER HAIG (London) regarded uric acid as one of the most important factors which produced the variations found in the blood pressure of man.

Dr. IVY MCKENZIE (Glasgow) contributed an interesting paper on

Healthy Lungs and Chest Wall as Factors in an Efficient Circulation

with reference only to that aspect of the question to which Professor Schäfer referred when he said that "the respiratory apparatus acted by facilitating the flow of blood to the thorax and thus to the heart," and pointed out that the extent to which an interference with normal pulmonary expansion or deficient thoracic movement could be correlated with a change in size and shape of the heart might be taken as indirect evidence of the part played by the normal respiratory movements as factors which make for an efficient circulation. The study of cases supporting this contention was classified into two groups: (1) cases in which extensive collapse of the pulmonary tissue existed; and (2) cases in which an advanced degree of rickety deformity of the chest wall existed. In the great majority of these cases collapse was present in addition to deformity. Dr. McKenzie illustrated the points by a description of a series of such cases. In each case the heart was about double the normal weight relative to the weight of the body, with relatively greater increase in size of the right side, ending in cardiac failure. Such hypertrophy could be accounted for by the failure of the accessory powers of the circulation (including the variations in intrathoracic pressure, expansion and collapse of the lungs and of the skeletal muscles). The high pulse-rate observed (averaging 150 in children of from 2 to 8 years) was probably secondary to the increased respiratory rate or associated with the cyanosis incident to the deficient respiration. A consideration of the condition resulting from atelectasis of the lung showed that possibly a vaso-motor reaction to the disturbed balance of pressure took place, or reflex contractions of the muscular rings of the bronchioles as suggested by Keith. After describing the physical changes occurring within the lung Dr. McKenzie enumerated the results as follows: (1) deficient oxygenation of blood with dyspnœa and increased cardiac action; (2) increased resistance to the flow of blood through the emphysematous parts of the lung, with consequent embargo on the right ventricle; and (3) stagnation of blood in the collapsed portions of the lung, resulting in further increase of work for the

right ventricle, and in addition the heart was deprived of the assistance of the expansion and collapse of the lung in furthering the blood flow. Reference was made to the intimate connexion between circulatory and respiratory movements, instancing personal observations on the hearts of very young fish and of mice, and those of Miss Buchanan on the rate of heart-beat in the mouse, and correlating with this the demand of the tissues for a sufficient oxygen-supply. Such a demand explained why the left ventricle was enlarged to some extent as well as the right. A consideration of many cases where intercurrent broncho-pneumonia had been complicated by collapse showed that death must be due directly to the severe strain put upon the heart. There was thus considerable evidence for the view that healthy lungs and a healthy chest were indispensable to the maintenance of an efficient circulation.

Dr. W. A. JOLLY (Edinburgh) gave results of a study of the auricle obtained with the electro-cardiogram. In cases of dropped auricular beat it was found that there were electrical variations in the curve. Dr. Jolly discussed the suggestion that the variations might be due to fibrillation of the auricle.

Professor SCHÄFER concluded the discussion by a few brief remarks, in the course of which he observed that he could not agree with the view of Dr. Leonard Hill that the results of laboratory experiments on immobilised animals were inapplicable to normal animals.

PSYCHOLOGICAL MEDICINE AND NEUROLOGY.

THURSDAY, JULY 28TH.

President, Dr. THEOPHILUS B. HYSLOP (London).

Dr. J. S. RISIEN RUSSELL (London) introduced a discussion on

The Treatment of Tabes Dorsalis.

He said that the only rational treatment of a disease was that which was based on a correct view of its etiology and pathology. The question as to whether tabes was or was not of syphilitic origin continued to exercise the minds of not a few, despite the evidence which seemed to most of them well-nigh overwhelmingly in favour of the view that syphilis was the important factor without which there would be no such disease as tabes. In his experience it had rarely happened that he had not been able to obtain a syphilitic history. Nevertheless, it had to be admitted that isolated instances were met with from time to time in which the clinical picture portrayed tabes, and yet it was impossible to obtain evidence of infection, even when the patient wished to be helpful and had no object in concealing the truth. It was here that the modern tests for syphilis might be appealed to in reason; but no one who had much experience of these tests was surprised to find that while in some instances they supplied positive information there was reason to expect negative results in others, and therefore the problem was not nearer solution. Some of them had experience of cases of unmistakeable tabes with a certain history of syphilis where these tests supplied negative information. He could not abandon the position that syphilis was the etiological factor in the vast majority of cases of the disease. Whether or not such negative cases should be treated for syphilis was perhaps open to question, but he had no hesitation in saying that it was unfair to most tabetics to be allowed to go untreated for syphilis, especially when a positive history of infection was obtained. As to the methods of treatment, he had seen the best results from inunction as carried out at Aachen, either alone or supplemented by intramuscular injections of one of the soluble salts of mercury. Whatever room for question there might be as to the value of inunction as contrasted with injection treatment, he could admit of no such uncertainty with regard to the inferiority, indeed, almost inefficiency, of mercurial treatment by the mouth. He had repeatedly seen patients in whom mercury had been given by the mouth for long periods without any benefit, and in whom, nevertheless, subsequent treatment by inunction had yielded excellent results. The details of the inunction treatment should be on as nearly as possible the same lines as obtain at Aix-la-Chapelle. He usually advised the patient to undergo a course of 100 rubbings, to be followed in from three to six months by another course of not less than 50 rubbings, which should be repeated every six months for about three years. His own experience did not support the view that it was useless to submit a patient suffering from tabes to antisyphilitic treatment except when the disease followed closely on the primary infection. As to whether a patient would develop tabes or not did not appear to be in the least influenced by the severity of the primary infection or the subsequent secondary manifestations of the disease. Indeed, a large proportion of tabetics were drawn from the class of case in which the primary infection and secondaries had been so slight as to lead to very imperfect treatment. Krön had asserted that tabes occurred at an increasingly shorter interval after primary infection the longer the autosyphilitic treatment had been kept up. It had also been suggested that the mercury used rather than the syphilis itself was responsible for the affection of the nervous system. This view was controverted by the fact that many syphilitic persons had gone untreated by mercury or any other drug and had developed tabes. He discussed the question as to whether tabes was not due to the syphilitic virus itself, but rather to the antibodies which result in the blood as a consequence of the syphilis. It was reasonable to suppose that mercury would be more likely to have an effect on the lesion if it were of the nature of a meningitis with interstitial inflammatory affection of the neuroglial tissue than if regarded as a neuronal degeneration primary in origin and not secondary to affection of other tissues. He had seen tabetics improve to such an extent that even their knee-jerks had returned under mercurial treatment, and others had experience of cases in which the pupil reflex to light had been re-established. He declined to accept the view that the cases with good results from mercury were cases of pseudo-tabes and not the genuine disease.

Dr. DAVID FERRIER (London) regarded the date of the publication of Fournier's paper in 1875 as the starting point of our knowledge of the true etiology of tabes and its rational treatment. It indicated the causal relationship between syphilis and tabes which had steadily gained acceptance. His own personal views were detailed at length in the Lumleian lectures on Tabes Dorsalis in 1906.[1] He regarded the nature of the disease as a degenerative atrophy, parasyphilitic in origin, the result of a toxin developed by the living syphilitic virus. It seemed hopeless to expect that we could restore wholly tracts or cells, that therefore an anatomical cure of tabes was an impossibility. He classified the principles of treatment as (1) prophylactic; (2) measures calculated to arrest further degeneration; (3) measures calculated to alleviate distressing symptoms; and (4) such as tended to compensate for the degeneration of the tracts which were essential to motor coördination. The efficient treatment of early syphilis offered the most hopeful prospect of success in combating tabes. The great discovery of the Wassermann reaction, though leaving some questions still unsolved as to its exact significance, gave a precise test of the existence or not of a specific virus. The treatment of syphilis should be continued till the positive reaction was converted into a permanently negative one. He had beneficial results from the administration of a combination of mercury, arsenic, and gold in the form of a triple bromide; in one case the knee-jerks returned after two years' treatment. Though an anatomical cure of tabes was practically impossible, yet the patient might recover from his ataxic and other obvious tabetic symptoms, so that a clinical cure might be hoped for. He referred in detail to the symptomatic treatment of the disease. To improve the muscular tone and to restore the faculty of coördination nothing proved so effectual as systematic massage and faradisation, and appropriate exercises according to the methods laid down by Frenkel.

Dr. ERNST FEIBES (Aix-la-Chapelle) gave credit to Erb as well as to Fournier for pointing out the close relationships of syphilis and tabes. He admitted that Wassermann's reaction only proved positive in 50 per cent. of the cases. Under antisyphilitic treatment he had known cases suffering from gastric and laryngeal crises remain for years quite free from these afflictions. He had seen the functions of the bladder return almost to their normal and ataxy with inability to walk disappear in a most marvellous manner. Of 202 cases treated with mercury he regarded 3 per cent.

[1] THE LANCET, March 31st (p. 881), and April 7th (p. 951), and 14th (p. 1017), 1906.

almost complete cures, 20 per cent. very considerably improved, and 33 per cent. a little improved. He confessed himself an adversary of intramuscular injections in nervous diseases and was a firm believer in the method by inunction prudently regulated. The mouth should be treated with a special toothpaste, with a wash of peroxide of hydrogen, and the heart and urine frequently examined. The oral exhibition of mercury could not be recommended as its energetic medication created digestive troubles. He referred to the treatment of the symptoms of tabes in general and spoke highly of Frenkel's exercises in combating ataxy. The greatest improvement by inunction took place after 80 and more rubbings.

Dr. LIEVEN (Aix-la-Chapelle) accepted the modern view that tabes was not the direct product of syphilis but was caused by the action of antibodies elaborated in response to the presence of the spirochæta pallida. He regarded mercury as having a direct destructive action on the virus as well as on the toxins produced, and that it diminished the vitality of the microbe, and if given sufficiently early should prevent tabes. With the exception of 11 out of 251 of his cases of tabes the previous treatment by mercury had been neglected or had been insufficient. He added that he considered treatment by the mouth as inadequate. No other remedy at present could replace mercury. He found the greatest benefit from inunction treatment when combined with hydro-therapeutic measures. He found injections of grey oil gave far less gratifying results; moreover, the dangers of mercurialism could not be so easily controlled. Sulphur water as well as sulphur baths lessened the risks of mercurial treatment. The economical expenditure of the patient's strength had to be considered in the prescription of Frenkel's exercises. He commented on the duration and general plan of treatment. The first course should be from seven to eight weeks.

Dr. JUDSON S. BURY (Manchester) disagreed with the axiom no syphilis therefore no tabes. He considered that knowledge and experience did not support this statement. He therefore did not regard mercury as being universally indicated. He referred to certain investigations of Orr and Rowe as bearing on the question.

Dr. J. MICHELL CLARKE (Bristol) stated that the weight of evidence from clinical and cytological investigation was in favour of the view that syphilis was a necessary precursor of tabes. His practice was to carry out antisyphilitic treatment in tabetics when patients came under observation within about five years after infection. He had also always employed the method of inunction. There could be no doubt as to the efficacy of Frenkel's exercises for the relief of ataxy, which he put in the first place amongst the advances made in the treatment of the individual symptoms of tabes. Elaborate apparatus was not essential; good results could be obtained with simple means. Next in importance was the relief of pains by modern analgesics, such as antipyrin and aspirin.

Dr. E. FARQUHAR BUZZARD (London) regarded syphilis as the chief cause of tabes, and his experience led him to qualify the statement that oral treatment by mercury was valueless. He preferred the method by inunction, but had seen beneficial results follow the oral method, and pleaded for mercurial treatment during prolonged periods of time. He did not consider optic atrophy as a contra-indication.

Dr. A. G. GULLAN (Liverpool) supported the treatment by intramuscular injections, and had not seen any untoward symptoms resulting therefrom. He related his experience of 9 cases that had considerably improved by this method.

Dr. REGINALD H. HAYES (London) gave testimony of the favourable results of the treatment of early tabes, especially by mercurial inunction well performed in combination with the use of sulphur water internally and externally as administered at Aachen. One hundred rubbings and more were frequently required to obtain the best result. Improvement was usually slow in manifesting itself. He had seen two cases of ptosis remain unaltered until 70 rubbings and then completely recover. He had observed gastric crises cease under this treatment, and marked improvement in coördination of even delicate muscular movements. For those tabetics unable to visit Aachen he urged that the methods adopted there should be utilised in this country, and should be efficiently carried out.

Dr. ALEXANDER BRUCE (Edinburgh) was not sure that the beneficial results obtained should always be attributed to the mercury administered. He considered that the pathogeny of tabes was not yet definitely settled. In some cases it was conceivable that spontaneous arrest of the disease might occur. In meningeal cases and other cases of syphilitic lesions combined with tabes mercury decidedly did good. The spa treatment might benefit a patient, but it was still a question whether the tabes had improved or had been arrested thereby.

Dr. HARRY CAMPBELL (London) agreed with the specific etiology of tabes, but was convinced the actual disease was not touched by antisyphilitic treatment.

Dr. SEYMOUR TAYLOR (London) did not uphold the view that tabes was necessarily due to syphilis.

Dr. RISIEN RUSSELL replied.

RADIOLOGY AND MEDICAL ELECTRICITY.

THURSDAY, JULY 28TH.

President, Dr. J. MACKENZIE DAVIDSON (London).

Dr. S. JELLINEK (Vienna) read a paper on

Disorders and Death following Electric Shock.

It was regretted that the short time at his disposal gave Dr. Jellinek no opportunity to deal fully with his subject. The following were the chief points of the paper, which was illustrated with numerous drawings, diagrams, and lantern slides. From an etiological point of view the most important question was, Which current was dangerous? Simple as was the question, the answer was difficult—a statement which received confirmation when it was remembered that while in some cases fatal accidents had been brought about by 100 volts, in other cases in which the voltage had been 1000, and even 10,000, recovery had ensued. In order to understand a matter so seemingly inconsistent it should be kept in mind that the danger of an electric current or plant depended on circumstances which might be placed in the following two categories:—1. The external: (*a*) voltage; (*b*) ampèrage; (*c*) number of poles; (*d*) the time of contact; and (*e*) the kind of current (continuous or alternating). The continuous current appeared to be more dangerous than the alternating. 2. The individual: (*a*) the resistance of skin and body; (*b*) the way, or the path, of the current through the body and over the surface of the skin; and (*c*) the condition of mind and body (*status somaticus*). With regard to section (*a*) of the second category, the resistance of the skin played a very important rôle, and not only the resistance of entrance, but also that of exit for the current. In most instances of accident in connexion with the resistance of exit—i.e., the feet—the earth was the determining factor as to whether contact was dangerous or not. A contact might be made with 100 volts and more if there were good isolation as regarded the feet; but it must be borne in mind that good contact with earth might sometimes be made even in well isolated rooms—for instance, carpeted rooms—if in so close proximity to water-pipes or gas-pipes as to touch them with any part of the body—earth-circuit (*erdschloss*). As to section (*b*) Dr. Jellinek said that the failure of American electrocution was most probably due to causes connected with the management of the poles, which were much moistened, a great part of the current passing over the surface of the skin, and thus not coming in contact with the organs of sensibility—the brain, the heart, &c. Under section (*c*) there was, he said, an enormous difference between the touching of a current intentionally (the mind being prepared and ready for the shock) and doing it accidentally, in the latter case the shock being liable to produce an inhibition of the functions of important organs. Electricity which passed into the body had, he said, two actions—a psychological action and a material action to the cells of the brain through the microscopical vessels of the brain, the spinal cord, the heart, &c. The result of both these actions might be either disease or death. The clinical symptoms emanated from various organs—unconsciousness, spasm, paralysis, hæmorrhage of the kidneys, degeneration of nerves, &c. The alteration of the skin (local lesions) sometimes took the form of genuine burnings and sometimes of so-called specific electric changes, which pathologically and clinically were quite different in character from other wounds. It was important to know that genuine electric lesions were painless. With regard to the mechanism of death by electricity there was no definite schema or model. In most cases it seemed

like suspended animation. It was an interesting fact that there was between electric shock and death an interim of a few seconds in which the stricken person appeared to be in quite a normal state. By experiments on dogs in the physiological institute of Professor von Tschermak it had been discovered that the irritability of the brain, which had subsided immediately after a shock, had a few seconds later become re-established, and everything then depended upon whether the action of the heart would be continued or not. As there were sometimes hæmorrhages in the brain, and as the pressure of the cerebro-spinal liquid was increased, it was necessary and important in cases of first-aid to lay the patient with the head elevated. It would, Dr. Jellinek thought, be well to educate children—and, indeed, the people generally—by means of pictorial illustrations demonstrating how accidents by electricity originated, and how to avoid them. In Austria the Government had ordered such instruction in certain schools and good results had already followed, the number of accidents in the city of Vienna being one-third less now than a few years ago, despite the increasing use of electrical energy. Dr. Jellinek also described a number of interesting experiments made with a view to the clearing up of some of the many apparently confusing symptoms found in the numerous cases he had investigated.

Dr. LEOPOLD FREUND (Vienna) read a paper on

The Conditions Necessary to obtain Radical Cures from X Ray Treatment.

He gave a tabular list of diseases which were more or less amenable to Roentgen therapy, the first class being entirely cured by a few applications, the second class being more resistant, and the third class exhibiting recurrence even after prolonged treatment. The first class contained chiefly those diseases of the hair or of hairy parts which were caused by parasitic growth. The second class, which contained lupus and psoriasis, were probably cured by the production of some antibody or antitoxin, and were hence liable to recurrence. Dr. Freund emphasised the importance of removing all crusts in lupus cases and all psoriasis scales in psoriasis before submitting the lesions to irradiation. He showed how the thinnest psoriasis scale acted as a filter which greatly reduced the biological effect of the softer X rays, although it had little or no absorbent action on the harder rays which affected a photographic plate. Hence, he drew the conclusion that the photographic method was after all a very imperfect means of measurement for the dosage of Röntgen irradiation.

In the unavoidable absence of Dr. DAWSON TURNER and Dr. T. G. GEORGE (Edinburgh) their paper on

Some Experiments on the Effects of X Rays in Therapeutic Doses on the Growing Brains of Rabbits

was read by Dr. LEONARD A. ROWDEN, one of the secretaries of the section. The following is an abstract of the paper:—The subject is of the utmost importance, as a full dose, indicated by bringing to standard tint the pastille of Sabouraud and Noire, is frequently administered to children for epilation in ringworm; indeed, the Education Committee of the London County Council determined in March, 1909, to make this treatment obligatory. Reference can be made to a letter published in the *Times* of March 30th, 1909, by Dr. Dawson Turner, containing a warning against such treatment being made compulsory. Recamier's results[1] showed that six exposures each of 10 minutes' duration with the tube at 10 centimetres distance, and with an intensity very little above a medium therapeutic dose, were able in the case of kittens to produce in one month after the last exposure very considerable modifications in the direction of the inhibition of growth of the hemicranium, the bones generally, and the teeth, and that the effect continued after the cause had ceased to operate. Others, in particular Danyz, Scholtz, and Obersteiner,[2] have shown that young animals whose brains or spinal cords had been exposed to radium rays died with marked nervous symptoms, and that post-mortem examinations revealed hyperæmia with punctiform hæmorrhages into the brain and cord. The question arose whether any change capable of being demonstrated in the nervous system would be produced by a dose of the X rays, or by a repetition of such doses as are usually employed in the treatment of ringworm. It is important to remember that in practice more than one dose is usually administered, because as the surface of the cranium is spherical, groups of nerve cells must be exposed to rays which are being applied to opposite areas of the scalp. Where the whole area of the calvaria has to be treated, no matter how careful the operator may be in giving the scalp an even predetermined dose, the brain is receiving portions of all the doses. The experiments were performed on rabbits in the laboratory of the Royal Colleges of Edinburgh, with the assistance of a Carnegie grant. A litter of six rabbits six weeks old was procured, of which two rabbits were to be kept in reserve. The first rabbit was to have one exposure, the second two, the third three, and the fourth four, with weekly intervals between the exposures. Each animal was to be killed three weeks after its last exposure for examination of its brain cells. It was thought more satisfactory to expose one-half of each animal's head to the rays and to compare that with the unexposed half than to expose the whole head and to compare that with the head of a control animal. For this reason a leaden mantle was made one-eighth of an inch thick to completely protect the animal except the right half of the head. Cotton-wool was used to immobilise the animal inside the mantle and to prevent injury through struggling. By allowing the rabbit to take a comfortable position, and then covering him with the wool and fitting the leaden mantle, a very accurate exposure of any duration could be given. The X ray apparatus included a 10-inch Apps coil, and the tube chosen was of medium hardness and of very steady resistance; it passed under the conditions of the experiments a current of between 0·4 and 0·5 milliampère. At the distance at which the heads of the animals were always placed an exposure of about 25 minutes was required to administer a Sabouraud dose. Owing to the death of two of the rabbits from accidents only four were left for the experiments. The following were the results. Rabbit F died five days after the first exposure, having lost one ounce in weight (from 16 to 15 ounces). Rabbit D had three exposures; it fell in weight in successive weeks from 15½ to 13⅔ ounces. Nine days after the last exposure it died. Rabbit E had two exposures; it fell in weight from 13½ to 11 ounces in two weeks, when it died. Rabbit A had three exposures; it weighed at first 17 ounces, then in successive weeks it weighed 17½, 16⅓ (exposures stopped), 18, 19½, and 20½ ounces, when it was killed. All the rabbits having, unfortunately, died except rabbit A, this one only was left for examination. It should have been killed 21 days after the last exposure, but it was noticed that the left iris, which had been brown, was becoming grey, and as this suggested an analogous fatty degeneration to the arcus senilis of the human eye it was decided to await further developments. It will be observed that though the right side of the brain was exposed, the left eye was the first to show changes. An X ray epilation and dermatitis of the right side of the snout had been gradually taking place. On the forty-fourth day after the first exposure the left iris was completely grey. Five days later a grey patch 1 millimetre broad was seen in the right iris, and in five days this had increased to 4 millimetres. At this time Dr. A. H. H. Sinclair, assistant ophthalmic surgeon to the Royal Infirmary, Edinburgh, made an ophthalmoscopic examination, but no changes other than the fatty degeneration of the irides were observed. At this day, the fifty-fourth, the animal was killed and the brain was carefully dissected out. The left or unexposed half was decidedly larger than the right or exposed half. The brain was fixed with formaldehyde and mounted in paraffin, and 26 sections (coronal) of the ascending parietal and the ascending frontal convolutions were cut. Each section was mounted complete in order to compare as far as possible corresponding parts of the brain. Twenty sections were stained with hæmatoxylin and Van Gieson's stain, the remaining six with thionin. (Professor R. F. C. Leith, of the University of Birmingham, who kindly examined some of the sections, suggested that in future experiments some of the more special stains should be employed.) On microscopic examination of the two sides it was noticed that in some of the sections (1) the large pyramidal cells on the exposed side were not so well developed as on the unexposed; (2) that they were more vacuolated and had not stained so well; and (3) that they

[1] Archives d'Electricité Médicale, No. 185.
[2] Archives Générales de Médecine, Juillet, 1909.

were not quite so numerous. Objection may be made that it is impossible to be sure of comparing corresponding areas, that the difference in staining may be due to the differing penetration of the fixing reagent, and that irregularity in the thickness of the section may account for change number three. Professor Leith expressed the opinion that the blood-vessels on the exposed side were slightly smaller than on the other side, though they showed no other change such as proliferation of the endothelial lining. There were therefore no decided changes either in the cells, the number of axis cylinders, or dendrites. Owing to the deaths of all the animals experimented on save one, no corroboration could be obtained of the slight microscopic changes observed in rabbit A. This rabbit should also have been killed on the twenty-first day after the last exposure, instead of which it was not killed until the fortieth day. No conclusion can therefore be drawn as regards microscopic changes. (Special nerve stains should be employed in future.) There were some undeniable gross changes—e.g., the difference in size of the two halves of the brain, the fatty degeneration of the irides, both in rabbit A, and the loss in weight of all the animals during the exposures and the recovery in weight of rabbit A after the exposures were stopped. It would therefore seem highly desirable that further investigation of this subject should be made.

Dr. C. F. BAILEY (Brighton) read a paper describing

A Method of Treatment by Radiant Heat and Iodine Ionisation.

The treatment is applicable to fibrotic deposits, thickenings, or adhesions present in or about joints in fibrositis, chronic rheumatic and rheumatoid arthritis. The following is an abbreviated abstract of the paper. The indications for treatment were fibrotic deposits, thickenings, or adhesions present in or about joints in fibrositis, chronic rheumatic and rheumatoid arthritis, &c. It was necessary to increase the supply of arterial blood to the joints and to drive iodine ions into the affected parts, to effect a solvent action on the fibrous deposits. In employing radiant heat there should be provided a large radiant heat projector, with lamp at 100 volts taking 12 ampères, giving a temperature up to 400° F., but capable of being varied and modified down to the patient's "bearable point." 20 minutes' "baking" was needed. As to iodine ionisation the following particulars were given. The solution used was a very hot 2 per cent. solution of lithium iodide with an excess of iodine present (sherry colour). Baths of hot solution to joints (where applicable) with double carbon electrodes in fluid; or pads and bandages of lint soaked in hot solution fixed round joints, covered with chain-mail copper electrodes, and bandaged on. Methods of getting the density of current approximately equal over surfaces of skin:—Area of electrode: knee, 500 square centimetres; shoulder, 450 square centimetres; hand, 200 square centimetres; foot, 300–350 square centimetres. Steady constant current, negative pole to part requiring treatment. Knee to foot, 30–40 milliampères; arm to hand, 25–30 milliampères; shoulder to hand, 30 milliampères. The average current density in the case of the hand was 0·15 milliampère per square centimetre, but the maximum in parts might be 1·5 milliampère per square centimetre; that of the foot was 0·1 milliampère, while the maximum might be 1. Cautions necessary to be taken were to avoid the current crossing the spinal cord and to use every effort to prevent sudden variations in current. Method used to produce equality of entry of current in baths and in pads, and methods to promote diffusion of current over skin surface in order to obtain approximately equal density of current over area treated (variations in pad-thickness and increase of skin resistance by ointment). Method of treating two joints at same time. Rough method of estimating where current density is above the average. Duration of treatment, 20 minutes. Daily applications for four weeks if necessary; afterwards if necessary on alternate days. Value and explanation of value of taking iodine preparation internally during treatment if patient can do so. Movements to stretch the adhesions should be exercised as soon as possible after each treatment and exercises should be carried out between the applications. The following analysis of 21 cases was given: Cures, 28·6 per cent.; relieved, 57·2 per cent. (19·06 per cent. very greatly); no improvement, 14·2 per cent.

Dr. LEONARD A. ROWDEN (Leeds) followed with a paper on

The Value of Screen Examination in the Diagnosis of Renal Calculus.

The principal points of his paper were that by proper screen examination many errors in the X ray diagnosis of renal calculus could be avoided, its advantages being that the proper quality of rays for the particular case in hand could be more certainly obtained, and therefore better contrast secured with more likelihood of detecting a shadow. The movement of shadows could be studied, and the area of illumination could be accurately cut down to very small dimensions, increasing the definition of the suspicious spot. The paper also contained a number of useful hints regarding the various points to be attended to in the diagnosis of renal calculus.

Dr. J. B. SIMPSON (Golspie) contributed a paper on

The Advantages of X Rays in Country Practice,

in the course of which he enlarged upon the great difficulties that beset the country practitioner in the diagnosis, prognosis, and treatment of injuries and diseases of the bones and joints. He pointed out the advantages of the X rays in such conditions, and showed how their aid could be secured by comparatively simple apparatus. Some interesting cases were illustrated with lantern slides.

TROPICAL MEDICINE.

THURSDAY, JULY 28TH.

President, Dr. F. M. SANDWITH (London).

Sir RICHARD HAVELOCK CHARLES, K.C.V.O., opened a discussion on

Special Factors Influencing the Suitability of Europeans for Life in the Tropics.

In an extremely eloquent and interesting discourse the subject was discussed in all its bearings, not only from the imperial but also from the commercial point of view. The importance of the matter to assurance companies, as well as to the individuals themselves whose duties called them to serve in hot climates, was also considered. The special characteristics of the torrid zone were indicated, and the effects on health of long-continued exposure to high temperatures, great diurnal variations, and the risks arising from the parasites of exotic disease were in turn duly dealt with. The pathological changes which might be induced, involving deterioration of the blood and visceral changes, especially in the liver and intestines, the accumulation of toxins, and increased nervous irritability which might follow, were also discussed. The nervous system was specially liable to suffer in the tropics. When a person had a severe illness in a hot climate it was essential for his future health that he should have a prolonged change in Europe. The kind of man best suited to bear the white man's burden in the tropics was "a good ordinary type of Britisher, with a good head well screwed on, a good temper, but not over intellectual." He should have good teeth, a healthy digestion, a chest with plenty of expansion, a regular pulse, a healthy circulation, and he should not be too much of the blonde type. He should be of regular and temperate habits and not too much inclined to pine for the pleasures of town life. One of the best assets he could have would be a wife, a true woman, built on the same lines as himself; one that was neither irritable nor capricious, one that could amuse herself and find interest in her house. The chief danger to woman in the tropics was lack of occupation. The unsuitable man for a hot country was one who suffered from migraine, habitual headache, or any mental taint; who was obese, or who suffered from asthma or tubercle. Persons addicted to alcohol or drug taking should not go out to a tropical country. To live in the tropics a sound nervous system and a good digestion were essential. Only the fit and the best men that were bred should be sent out to take up the white man's burden in the tropics.

In the discussion which followed Colonel T. H. HENDLY, I.M.S., said he was in entire agreement with every word that had been said, and he wished that the substance of Sir R. Havelock Charles's advice could be permanently placed in every room where candidates for abroad were medically examined.

Dr. C. H. HARFORD (principal, Livingstone College, Leyton) spoke as to the fitness of Europeans for life in the

tropics, more especially as to those who went abroad as missionaries. No one with any history of insanity or tubercle should be passed. The strange surroundings, the new language, as well as the effects of the climate, all tended to produce great irritation of the nervous system. Medical men at home often passed candidates of poor physique for mission work, with a wrong impression that life in a hot country would be beneficial to the weakly candidate.

Colonel C. H. JOUBERT DE LA FERTÉ, I.M.S., said that formerly life in the tropics was regarded as a sad bugbear, but now a great change had taken place; discoveries as to the causation of disease and improvements in sanitation had worked great improvements, and risks to health and to life had been lessened. If only healthy individuals were sent out to India there would be little more danger than in staying at home.

Dr. L. D. PARSONS (Gibraltar) referred to the effects of climate on a man's energy. At Gibraltar it was a common experience when the "Levant" wind blew that many residents found it impossible to continue active work so long as it lasted.

Dr. ST. GEORGE GRAY (Nigeria) said that in addition to the influence of the climate a man's work in the tropics was never done. Indeed, overwork and worry were common. Those who lived a temperate and regular life were most likely to take no harm and to escape climatic influences.

Major P. DEE, I.M.S., said that the frequent nervous breakdowns in the tropics were due not so much to climatic influences as to overwork and overworry.

Lieutenant-Colonel A. M. DAVIES, R.A.M.C., referred to the value of a vigorous nervous system in those who went to hot countries. Probably it was not sufficiently realised how much more worry was caused by work in the tropics than in this country. Most persons who went on service abroad had to work very hard—harder, indeed, than at home.

Lieutenant-Colonel P. W. O'GORMAN, I.M.S., spoke of the necessity of having a good digestion in hot climates. He was opposed to the taking of too many liquids, whether in the form of tea or coffee; he was specially opposed to the use of alcohol in the tropics. Clothing, too, had to be carefully considered owing to the liability to "chills" and consequent internal congestions.

Dr. J. PRESTON MAXWELL (Amoy) called attention to the dangers of mental unsoundness in the tropics. It was not only a serious matter for the patient himself, but it might be disastrous, for instance, to a mission which had taken years to establish, and might be wrecked or ruined by the sudden insanity of a new-comer who should never have been sent out to engage in the work. No one should go to a hot country who had an idiosyncrasy in respect of quinine.

Dr. G. BASIL PRICE (London), secretary to the Association of Medical Officers of Missionary Societies, gave a number of statistics regarding persons sent out to the tropics from this country. He showed that 61 per cent. of the deaths among them were due to so-called preventable diseases, such as malaria, tuberculosis, &c. A considerable number of retirements were brought about by nervous breakdown, tuberculosis, or actual insanity.

Dr. J. ANDERSON (London) spoke of the various kinds of diseases peculiar to certain tropical countries, and thought that the health of the person going out should first be considered in relation to the place in which his duties would lie.

Dr. L. W. SAMBON (London) expressed the opinion that the white man would in time become acclimatised to tropical conditions. The danger to life in the tropics was largely due to parasitic infections. Looking at the victories already obtained in certain places over malaria and yellow fever, &c., he anticipated that life before long would become almost as safe to the strenuous worker in the tropics as to his fellow labourer in London, so long as the former was in a healthy condition when he went abroad and so long as the place to which he proceeded was kept in a sanitary state.

Dr. G. M. HARSTON (Hong-Kong) advised that all who were about to proceed to tropical countries should submit to antityphoid inoculation. He referred to the danger which arose in persons suffering from looseness of the bowels in the tropics going on "light diet," which meant mostly meat minced and handled by a native servant and only warmed sufficiently to incubate any pathogenic organisms it might contain.

Professor FÜLLEBORN (Hamburg) said that the views expressed by the leader of the discussion were quite in accord with those held in Germany. All persons who were about to be sent out to the German tropical colonies were compelled to submit to a test to ascertain if they could take quinine before they were passed as fit.

Mrs. B. S. ELGOOD, M.B. (Cairo), gave her views as to the kind of woman who was likely to remain in good health in a hot country. Her experience of some English girls who went out to Egypt as teachers was that they did themselves harm by too much and too violent exercise. Women with no occupation did worse in Egypt than those who were occupied.

Dr. W. T. PROUT, C.M.G. (Liverpool), said that young persons with a tendency to obesity did not stand a hot climate well, nor did young weedy clerks, who were frequently narrow-chested and badly developed.

Dr. ANDREW BALFOUR (Khartoum) gave his personal testimony as to the intense irritation to the nerves caused by native servants. In his experience electrical conditions of the atmosphere had a profound influence on health.

The PRESIDENT, in closing the discussion, urged the necessity for all men engaged in work in the tropics to take their home leave when it became due, not only for the sake of their bodily health, but in order that they might receive mental stimulation by rubbing shoulders again with their own equals, this not being possible in many of the tropical countries in which Englishmen serve.

Sir R. HAVELOCK CHARLES having briefly replied, a paper by Dr. G. DUNCAN WHYTE (Swatow) on Analysis of Air within Mosquito Nets was read by one of the secretaries in the absence of the author, after which Dr. A. CONNAL (Lagos) read a paper on a Case of Horse Trypanosomiasis treated by the Serum Method.

THE ANNUAL EXHIBITION.

(*Concluded from p. 411.*)

III.—FOODS AND FOOD PRODUCTS.

NOVELTIES were not the rule in this section of the exhibition, and on the whole the representation of special foods was on a smaller scale than on previous occasions. While it is true that there were many familiar friends which it would be superfluous for us to mention, there were also illustrations of new departures which were eagerly studied by the visitors. The sour-milk preparations were a decided feature and very general attention was paid to the claims put forward by the various exhibitors for their own particular products obtained in different ways—each claimed to possess some distinctive merits of its own.

The beginning on definite lines of the sour-milk treatment had its origin in the curd prepared by the inhabitants of the Levant and known by the Turkish name yaourte. Excellent specimens were exhibited by Mrs. F. Marsh, of Overshot Mill, Colne Engaine, Essex. At this exhibit it was explained that five species of micro-organisms were concerned in giving yaourte its specific activity and attractive flavour. The milk used in the preparation is drawn from non-tuberculous cows kept constantly under personal supervision. An interesting and dietetically important constituent of milk was shown by Messrs. A. Wulfing and Co., of 12, Chenies-street, London, W.C. It is called albulactin, or the real albumin of milk as distinguished from the casein. Since human milk contains three times as much milk-albumin as cow's milk, there can be little doubt of the importance of this substance in the artificial feeding of infants. It is suggested, therefore, that by adding the right proportion of albulactin to prepared cow's milk a milk is obtained identical with human milk, modifying the curd so that it is not hard and coarse but soft, uniform, and digestible. Messrs. Welford and Sons (Dairy Company), Limited, of Elgin-avenue, Maida Vale, London, W., exhibited a number of milks of modified composition, besides some specially prepared butter-milk containing pure lactic acid ferments. There was also a series of "Sauermilch" preparations, including milk (with the bacillus of Massol and streptococcus lacticus), whey, and cheese. Besides some interesting pharmaceutical preparations, including amongst other things pancreatine pills, absorbent lozenges for common acid dyspepsia, and aperione, a mild and effective aperient, Messrs. Savory and Moore, of 143,

New Bond-street, London, W., exhibited savore, a nutrient food based upon soluble milk and cereal proteins, and the new chemical food, or fructole of red bone marrow and glycerophosphates, which experience has proved to be of remarkable tonic value in cases of debility.

Messrs. Armour and Co., of Atlantic House, Holborn Viaduct, London, E.C., exhibited a series of digestive products, pepsin in scales, grains, and powder, and a solution in glycerine (glycerole pepsin), besides pancreatin powder and some interesting preparations of lecithin, and a nutrient beef fluid known as vigoral. The Maltine Manufacturing Company, Limited, in conjunction with Messrs. Carnrick and Co., Limited, of 24–25, Hart-street, Bloomsbury, London, W.C., showed the maltine products, consisting of combinations of active malt fluid with various medicaments, as, for example, cod-liver oil, hypophosphites, iron, quinine, strychnine, and so forth, and Carnrick's liquid peptonoids, an elegant preparation possessing decided nutrient and stimulating properties. The scientific supervision of milk products was admirably illustrated in the exhibit of the Aylesbury Dairy Company, Limited, of 31, St. Petersburgh-place, Bayswater, London, W., including "humanised" milks, preparations of sour milk, sterilised and standardised milks, and so forth. The Miol Manufacturing Company, Limited, of 82, Southwark Bridge-road, London, S.E., exhibited specimens of miol, a combination of malt, olive oil, with iodine, which has been given in wasting diseases with distinct advantage to the patient. Sour-milk preparations and an apparatus for obtaining them at home were shown by Messrs. Clay, Paget, and Co., Limited, of 71, Ebury-street, Eaton-square, London, S.W. The exhibit included a cream cheese and a sugar-free (or diabetic) milk. A series of foods which have received authoritative praise was shown by Theinhardt's Food Company, of 6, Catherine-court, Seething-lane, London, E.C. They are known as hygiama foods, and their value rests upon the fact that they are practically free from raw starch, that substance having been changed either by the action of diastase or by dextrinising, or both. The exhibit of the Vacca Milk Company, Limited, of Amsterdam, Holland, was a remarkable one, inasmuch as it consisted of specimens of milk which although sterilised had not been heated, nor had any preservatives been added. The general impression was that the milk tasted exactly like fresh raw milk. The International Plasmon Company, Limited, of 66A, Farringdon-street, London, E.C., showed the protein of milk (plasmon) in its pure state and combined with a number of foods. Recent analysis has shown that plasmon is rich in organic phosphorus compounds which are so helpful in healthy nutrition.

An interesting variety of specialities was exhibited by Messrs. Brand and Co., Limited, of 11, Little Stanhope-street, Mayfair, London, W., comprising beef and chicken essences, beef-tea tablets, meat juice, besides a milk food for infants and invalids known as "Glaxo." The well-known barley and groats preparation of Messrs. Keen, Robinson, and Co., of Denmark-street, St. George's-in-the-East, London, E , were exhibited by that firm, the specimens on the stall including the mustard preparations (bran, oil, and sinapisms) of Messrs. J. and J. Colman, who are now incorporated with the former firm. Gluten foods for the diabetic were well represented in the exhibit of Messrs. G. Van Abbott and Sons, of Baden-place, Crosby-row, Southwark, London, S.E., and there were also shown almond flour, table jellies, and hypophosphite of lime. The Protene Company, Limited, of 36, Welbeck-street, Cavendish-square, London, W., were amongst the first to recognise the value of the separated protein of milk for special food purposes, and they showed a number of valuable foods enriched with this nutritious substance. Special foods were also a feature of the stall of Messrs. Callard and Co. of 74, Regent-street, London, W., who exhibited foods which are palatable in spite of being free from starch and sugar. Mention should be made also of their casoid diabetic bread reinforced with milk protein, and a food in the form of both rusks and biscuits designed for the requirements of infant feeding.

The foregoing review of the food section of the Annual Exhibition shows that attention was directed in the main to milk and milk preparations, while the lactic acid method of treatment contributed in no small measure to the number of exhibits.

IV.—SANITARY APPLIANCES.

This section was practically confined to the exhibition of filters and disinfectants. Amongst the former were several examples of the well-known Berkefeld filter of the Berkefeld Filter Company, Limited, of 121, Oxford-street, London, W. The material kieselguhr is remarkably porous, and bacteriological tests have shown its efficacy in rapidly removing organisms from water-supplies. There was also shown an aseptic irrigator for supplying sterilised water of regulated temperature for use in surgical operations. Messrs. Slack and Brownlow, of Abbey Hey, Gorton, near Manchester, exhibited the Brownlow germ filter, which consists of hollow cylinders of porous porcelain. The attention of the visitors was also drawn to an ingeniously designed filter for supplying sterile hot or cold water for hospital or surgical purposes. Amongst disinfectants shown were the large variety offered by the Sanitas Company, Limited, of Locksley-street, Limehouse, London, E., including sanitas fluid, oil, and powder, and a series of coal-tar preparations of high germicidal efficiency. The exhibit comprised some ingenious appliances for generating sulphurous acid gas and formaldehyde, and a clear soap fluid, sanitas-sypol, which seems to be especially adapted by its detergent as well as its germicidal properties to the needs of surgical practice. Messrs. Maxsol, Limited, of Garratt Green, Tooting, London, S.W., exhibited an antiseptic preparation, maxsol, described as containing three isomeric cresols and to be more powerful than carbolic acid. A toilet cream and vaseline, a soap, a mouth-wash, and a pine fluid concluded the series. Messrs. Jeyes' Sanitary Compounds Company, Limited, of 64, Cannon-street, London, E.C., exhibited a very wide assortment of disinfectant preparations, each adapted for a particular purpose. Cyllin for general use and cyllin for medical use furnish examples. Cyllin is also the basis of a syrup, an inhalant, a pastille, a capsule, a powder, and soap. The representatives of Messrs. Newton, Chambers, and Co., of Thorncliffe, near Sheffield, explained the advantages of the izal series of disinfectants. It is claimed that izal, the purified oil from coke ovens, possesses greater germicidal power than corrosive sublimate. The exhibit included surgical dressings, soaps, ointment, and capsules containing izal in approved quantity. The advantages of ronuk as a distinctly sanitary application for polishing floors were well illustrated in the specimens shown by Ronuk, Limited, of 16, South Molton-street, London, W. The exhibit included some ingenious appliances for using ronuk in the most satisfactory way.

V.—MINERAL WATERS, BEVERAGES, ETC.

A feature of this section was the demonstrations given by representatives of the corporations concerned of the advantages of certain of our home health resorts. There was abundant information, for example, to be had as to the merits of the hot springs of Bath at a stall representing the Bath corporation. There were some handsome illustrations of the various modes of treatment in vogue there, and the exhibit showed in a convincing manner how alive to modern requirements in regard to balneological practice are the authorities at this historic health resort. Every conceivable method of hydro-therapeutic treatment was illustrated, and not less are the pains taken to make the stay at Bath socially attractive. Droitwich, again, was represented in a very instructive exhibit. The position and climate of this place were described, the uniqueness of the brine baths emphasised, the complaints for which they are suited set forth, and the social attractions reviewed. The medicinal merits of the thermal waters of Buxton, or the "mountain spa," as it is called, were amply demonstrated at the stall of the general manager of this spa. Here, again, was proof shown of the endeavours of the management to make this health resort replete not only with modern bathing appliances but with social amusements also.

The exhibit of the British La Toja Company, of 44, Wallwood-road, Leytonstone, London, was interesting. The waters of La Toja, Spain, show a saline composition, common salt, calcium chloride and potassium chloride, sodium bromide and lithium chloride being the chief ingredients. The exhibit included also specimens of La Toja mud, used locally for rheumatism, tuberculous affections, and gout. Attention was drawn to the advantages of a stay at La Toja. The "Zana" effervescing baths of the Hygienic Company, Limited, of 36, Southwark Bridge-road,

London, S.E., furnish perhaps the best example of obtaining a therapeutically active effervescing bath at home akin in its effects to those produced at Nauheim and elsewhere. There were also shown as adjuncts to treatment bath essences for obtaining aromatic baths (pine oil, &c.). The Hygienic Syphon Company, Limited, of 50, Wigmore-street, London, W., showed not only their clean and simple syphon but an ingenious apparatus for charging it with pure aerated water. The method promises to be a formidable rival to the ordinary systems of aerated water making, since it provides a complete installation for making soda and other effervescing waters at home. There was an interesting collection of natural mineral waters, representing those chiefly met with on the Continent, at the stall of Messrs. Findlater, Mackie, Todd, and Co., Limited, of Railway Approach, London Bridge, S.E. The stall of the Apollinaris Company, Limited, of 4, Stratford-place, Oxford-street, London, W., was devoted chiefly to specimens of the well-known Hungarian natural bitter water, Apenta, Apollinaris, the popular alkaline carbonated water, and Johannis water, with or without lithia. Messrs. Ingram and Royle, of East Paul's Wharf, 26, Upper Thames-street, London, E.C., exhibited a number of natural mineral waters, salts, and pastilles. There were thus represented the well-known Vichy waters, Carlsbad, Giesshübler, Selters, and Hunyadi Janos. Table waters were well represented at the stall of Messrs. Schweppes, Limited, of 49, Pall Mall, London, S.W., the exhibit including non-alcoholic wines and a series of cordials to the purity of which special attention is given. The mild but effective purgative water Friedrichshall was the subject of exhibition by Messrs. C. Oppel and Co., of 10 and 12, Milton-street, London, E.C. The water contains the sulphates of magnesium and sodium and the chlorides of the same metals sufficient to make the purgative dose about one to two tumblerfuls. Lastly may be mentioned the pretty specimens of Droitwich brine crystals exhibited by Messrs. Weston and Westall, Limited, of Eastcheap, London, E.C. They are well adapted for the preparation of a brine bath which chemically is the same as those baths for which Droitwich is famous.

VI.—PUBLICATIONS.

Recent contributions to medical literature were adequately represented at the stalls of the following publishers:—Messrs. Cassell and Co., Limited; Messrs. D. Appleton and Company; Mr. H. K. Lewis; Mr. Edward Arnold; Messrs. Rebman, Limited; Messrs. J. B. Lippincott Company; Messrs. W. B. Saunders Company; Messrs. John Bale, Sons, and Danielsson, Limited; Messrs. Baillière, Tindall, and Cox; Messrs. J. and A. Churchill; The Oxford Medical Publications; and Messrs. John Wright and Sons, Limited.

VII.—EXHIBITS OF A MISCELLANEOUS CHARACTER.

Though few in number there were some miscellaneous exhibits of interest to medical men. The Gas, Light, and Coke Company, of Horseferry-road, Westminster, London, S.W., for example, demonstrated the application of coal-gas for domestic lighting and heating purposes, and the hot-water installation attracted considerable attention. The Open Air Shelter Company, of 140, North End, Croydon, exhibited their "Stanley Bates" open-air shelter for the treatment of tuberculosis and other diseases. We have already remarked upon the excellence and convenience of this design. Messrs. Holden Brothers of 3, Harewood-place, London, W., exhibited specimens of their "nature-form footwear" designed upon the lines of the natural contour of the human foot. Messrs. J. Nesbit-Evans and Co., of Floodgate-street, Birmingham, exhibited an interesting series of hospital bedsteads. Amongst these were the "anti-sagging" bedstead, the "anti-accident" children's cot, and the "epileptic" bed. Biological incubators were shown in great variety by Messrs. Charles Hearson and Co., Limited, of 235, Regent-street, London, W. The Taunton "Diagna" patent anti-sagging spring mattress was the feature of Messrs. J. and J. Taunton's exhibit (Belgrave Works, Sherbourne-road, Balsall Heath, Birmingham). The exhibit included some very useful and ingenuously designed hospital bedsteads, tables, and rests. Lastly, the Cellular Clothing Company of 72 and 73, Fore-street, London, E.C., set out for inspection examples of their Aertex cellular clothing, the claim for which is that, as it is made up of small cells in which air is enclosed, the body is perfectly insulated from heat or cold, while ventilation is not impeded.

MEETING OF THE BRITISH DENTAL ASSOCIATION IN LIVERPOOL.

THE annual meeting of the British Dental Association was held in the Medical School of the University of Liverpool on August 3rd, 4th, and 5th. Mr. W. H. WAITE presided. About 350 members attended the meeting, many being accompanied by ladies.

Proceedings commenced with a meeting of the Representative Board. The general meeting for business of the Association followed, and was ably presided over by Mr. W. B. PATERSON. This meeting was largely attended, the chief interest centring in a Bill for the Prohibition of Practice by Unqualified Persons, which had been prepared by the Representative Board. After considerable discussion the following resolution, moved by Mr. W. GUY and seconded by Mr. L. MATHESON, was carried:—

That the Association approves generally of the Bill and instructs the Representative Board to endeavour to promote its acceptance by the Legislature.

A previous amendment limiting the Bill to an increased protection of title, moved by Mr. G. M. P. MURRAY, was defeated on a division by a majority of 2 to 1.

At the adjourned meeting, which was open to visitors, the PRESIDENT delivered an address which dealt with the past history of the Association and its work since the last meeting in Liverpool held in 1882. At the conclusion of the address a presentation was made by Mr. R. EDWARDS on behalf of the North Midland Branch to the President of his portrait in oils.

Papers possessing a medical interest were read, that by Professor C. S. SHERRINGTON being a Note on Certain Reflex Actions Connected with the Mouth; and by Professor B. MOORE on the Physiological and Pathological Metabolism of Calcium and Phosphates in Relation to the Disposition of Insoluble Salts in the Formation of Bones, Teeth, and Calculi. Two well-sustained and instructive discussions followed upon papers read by Mr. J. MILLIGAN on Dental Caries, and Dr. R. J. ERSKINE YOUNG on the Saving of Children's Teeth. The latter discussion, which was opened by Mr. NORMAN G. BENNETT, evoked considerable public interest as shown by the reports in the lay press generally.

Dental demonstrations and cases occupied the morning of the concluding day. They were shown in the new premises of the Liverpool Dental Hospital, a building the conveniences and general architectural qualities of which were much admired. The Association decided to hold its next meeting in London on August 3rd, 4th, and 5th, 1911, at the invitation of the Metropolitan Branch, and Mr. W. B. Paterson was unanimously nominated President-elect.

In addition to the annual dinner various social entertainments were offered to the members during the meeting, including a reception at the Town Hall by the Lord Mayor and Lady Mayoress, a ball at the Philharmonic Hall, and a river cruise by the President and Liverpool and district members. A golf competition over the Hoylake championship course for the "Irish Challenge Cup" was arranged by Mr. J. Royston. The subscribers to the Benevolent Fund of the Association held a meeting at the Adelphi Hotel and received satisfactory reports from the treasurer, Mr. Clayton Woodhouse, and the honorary secretary, Mr. G. Hern. Amongst votes of thanks, a special vote was passed in favour of Mr. Joseph A. Woods, the local honorary secretary, who was mainly responsible for the successful arrangements made for the meeting.

COLONIAL MEDICAL SERVICES.—*West African Medical Staff:* Dr. H. B. Kent, medical officer, Southern Nigeria, has retired from the service, and Mr. F. G. Sharpe, medical officer, Gold Coast, has resigned. Mr. J. J. Moore, medical officer, has been transferred from Sierra Leone to Southern Nigeria. Mr. E. J. Tynan, medical officer, Southern Nigeria, has been seconded for service as health officer to the Lagos Municipal Board of Health. *Other Colonies and Protectorates:* Dr. G. D. H. Carpenter has been selected for temporary appointment as a medical officer in Uganda.

THE LANCET.

LONDON: SATURDAY, AUGUST 13, 1910.

The Immediate Results of Surgical Operation.

IN the days before the advent of anæsthesia the rapidity with which it was necessary to operate on account of the suffering of the patient caused the existence of great differences in the results obtained by surgeons, and these differences depended mainly on the respective technical skill of the operators. For good results could only be expected by those surgeons whose procedure was both quick and skilful. In these latter days where speed in operating has lost much of its value, the outcome of the work of particular surgeons depends to a much smaller extent on the measure of dexterity displayed, provided, of course, that due attention is paid to the aseptic character of the wound. This, of course, is obvious, so obvious that we are apt to forget that even now the results recorded by different surgeons when meeting the same or similar situations often do not tally, and it is of the utmost importance that our operators and our teachers should endeavour to find the reasons of these differences which only too surely exist. A careful examination of evidence that lies before the medical profession will show that he who habitually obtains good results devotes much more attention to certain details, not only in the conduct of the operation itself, but in the management and preparation of the patient both before and after the ordeal.

To no slight extent the issue of an operation will depend upon the selection of cases, and this not from any fear that the surgeon has of impairing his statistics, but from the conviction of the uselessness—in fact, the harmfulness—of operating when no reasonable chance exists of success. British surgeons have perhaps been somewhat prone to err on the side of caution, but this error, if error it really be, is at least in the right direction. Again, the selection of the time to operate is at least as important as the selection of the patient. A patient who to-day may be utterly unfit to be submitted to a serious operative procedure, may after a few days or weeks, during which he has been the subject of careful dietetic, medicinal, and hygienic treatment, become perfectly capable of undergoing a severe operation. Everyone, again, knows that in the avoidance of sepsis the diminution of micro-organisms, which are naturally present in the part to be operated upon, is of immense importance. But is this common knowledge invariably acted upon? The surgeon has not fulfilled completely his duty who, having to operate on the stomach of a patient, has merely done his best to render aseptic the skin of the abdomen. Oral sepsis, for instance, is a prolific source of infection after operation on the stomach, and the operative skill of the surgeon may be thrown away and the life of the patient be lost for want of preliminary attention to the patient's mouth. And when the operation has been completed, when all that surgical skill can effect has been done for the patient, the matter is by no means finished. The patient's life may be hanging on a thread, and a small neglect in the after-treatment, a small disregard of some factor, which perhaps looks unimportant, may serve to bring to a fatal termination an operation which surgically was perfect. This is another way of saying that nothing in the possible avoidance of sepsis, irritation, or collapse is unimportant. The choice of food, the arrest of vomiting, the posture of the patient, the provision of sleep, each of these if cared for with judgment adds its quota to the forces which are working for the patient's good. Each of these if neglected takes its share in bringing about a fatal issue. The difficulty of the problem how to bring a patient successfully through a severe operation differs greatly according to his previous condition. It is truly wonderful what a healthy individual can stand. Long, tiring operations, with the removal of some most important portion of the body, may be borne with wonderfully little disturbance, provided that the patient is in good health; but if some important portion of the body is already diseased, if the heart or the kidneys are incapable of fully performing their functions, then the chances of the patient recovering from the operation are very greatly lessened, and the patient can only be regarded as a fit subject for operation, because in defiance to the severity of his plight the surgeon is prepared to take extraordinary pains in the after-treatment. And it is by the exercise of elaborate care in cases of disease that one surgeon may snatch a patient from death, who in other hands would fail to survive; in other words, the patient whose case under one man might be desperate, under another man secures a fighting chance.

One of the most inspiring papers read in the Section of Surgery at the recent meeting of the British Medical Association was that by Professor GEORGE W. CRILE, of Cleveland, Ohio, who took for his subject the consideration of the mode of prevention of certain harmful factors in operations on patients handicapped in some way. A patient about to be submitted to operation may have his chances of recovery impaired by previously existing infection, by the existence of anæmia, by shock, and by psychic influences. Quite apart from other effects which these conditions may have, Professor CRILE suggested in his paper that they have all a very direct, a very certain action on the cells of the nervous system, and considered that it is possible to gauge to some degree the extent of this action. There seems little doubt that we can estimate the vital activity of the cells of the nervous system by the amount of substance they contain which takes the Nissl stain. Professor CRILE'S experiments have shown that each of the general conditions which we have mentioned as prejudicing the chances of the patient undergoing an operation, can damage the cells of the nervous system and can ultimately destroy them, so that they are no longer capable of any nervous action. They are, in fact, dead, and if sufficient cells are destroyed the life of the patient must be destroyed also. In some cases the damage is done owing to the intensity of a malefic influence; in others, it is the long duration of the action which is responsible for the damage of the cells. Professor CRILE set himself the task of solving the problem how these

harmful influences may be prevented from acting. In the case of all the factors the results are the same; the same changes occur in the cells of the central nervous system, and the same harmful effect follows. We do not follow Professor CRILE through all the details of his paper; a summary of his more important conclusions will be found in our report of the proceedings at the Surgical Section of the Association (p. 472). There is, however, one matter to which he has devoted attention which we feel to deserve especial mention. All should be aware of the very potent influence of psychical influences in the results of operation, but not enough stress is laid on this point. That fear can kill, none dare doubt. That grief can depress intensely the nervous system, all must acknowledge. And if these powerful psychical emotions act before an operation of any severity they cannot fail to exert a harmful influence, and may in critical cases suffice to turn the scale and lead to a fatal issue. The fear of the operation itself has been vastly diminished since the introduction of anæsthesia. But the anæsthetic itself can exert a terrifying influence on many minds. The odour of the anæsthetic, the unusual position, the presence of strangers, the sight of the instruments, all these cannot fail to exert a harmful influence on the impressionable mind. In a healthy subject the harm done may be of but little moment, in the weak and nervous it may be great; and Professor CRILE has devised methods by which these psychical influences may be minimised. He has endeavoured to accustom the patient to the surroundings of the administration of anæsthetics. By a daily use of an anæsthetic mask, with some substance possessed of a striking odour, he has made the patient lose his fear of having the mask applied to his face. By the administration of morphia or scopolamine he diminishes the sensitiveness of the central nervous system so as to shut off harmful afferent impulses. In some cases he combines with the general anæsthetic the use of a local anæsthetic injected in the part or into the neighbouring nerve trunks so as to prevent strong centripetal impulses. As to the anæsthetic itself, he is thoroughly convinced from careful observation of a series of cases that the degree of shock in operations when the anæsthesia is produced by nitrous oxide and oxygen is very much less than when ether is administered, and it may be well imagined that this difference, if further experience should prove it to be true, must receive careful consideration when an anæsthetic is being chosen. Further experience is needed, and further observation is required before Professor CRILE'S conclusions can be fully accepted, but his work is very suggestive and cannot fail, we think, to give rise to many investigations on which may depend practical conclusions of the very first moment.

Cavour: Nature-Student and Statesman.

ITALY does well, before a sympathising world, to attest her gratitude to CAMILLO BENSODI CAVOUR, but for whose personal influence and consummate statesmanship she might still be but the "geographical expression" which METTERNICH found her, vainly striving to work out her own salvation by clandestine conspiracy and the "moral dagger." Far sounder and far worthier of success were the methods conceived and carried out by the great Piedmontese whom she has just been commemorating—methods inspired by the genius that trained the Rome of antiquity to the conquest of herself as a preliminary to the conquest of the world—methods which made a CINCINNATUS or a CATO Major the necessary forerunner of an Imperial CÆSAR.

The military career for which CAVOUR qualified by a brilliant course of study at the Turinese Accademia attracted him primarily so far as it brought him into personal contact with men of science who were also men of affairs, and in his twenty-first year, after official attendance at Court and engineering service on the frontier, he threw himself with ardour into nature-study, particularly as it bore upon agriculture and the conditions under which the soil may be induced to yield its best. All the sciences underlying that *métier*—chemistry, botany, even meteorology so far as it could then be taught—he studied with zeal, fitting himself to make his own analyses and adding to his proficiency by correspondence, direct and indirect, with nature-students, continental and British, among the latter being Professor JOHNSTON, then holding the chair of Chemistry at Durham. A farm belonging to the family in the commune of Grinzane was the scene of his work, practical and experimental, and on this he concentrated his wonderful sagacity and energy, personally examining every detail and the capabilities of every labourer on the estate, in accordance with his conviction expressed to a friend: "In agriculture none succeed but those who direct its operations personally;" and again: "He who would rise above mediocrity must not apply his powers to too many subjects. The sun's rays focussed by a lens can ignite wood. Diffused here and there they produce no effect." So successful were his innovations that agriculturists and cattle-breeders far and near sought his advice, while the prosperity he gave to Grinzane made him, young as he was, the Syndic of the commune. A wider field in developing the resources of the soil he found at Leri in the Vercellese, whence, writing to his father, he declared his willingness to renounce the world and its pleasures and, with a forecast quite prophetic, to prepare himself, as "publicist and philanthropist, for the honourable service of the future." He was as good as his word. Rising at daybreak, he inured himself to work with a minimum of sleep, a habit which in after years enabled him as Prime Minister or diplomatist to get information of capital importance at 4 A.M., when his antagonists were still wrapt in slumber. One of the founders of the "Associazione Agraria," he drew to his side VICTOR EMMANUEL, whose sagacity, not inferior to his own, saw in the rehabilitator of the soil the genius that was ere long to rehabilitate all Italy and place the House of Savoy at its head. All this time he was widening his mental horizon, mainly by the study of English institutions and correspondence with English statesmen He visited London in the "forties," often exchanging the society of Lord JOHN RUSSELL, Lord CLARENDON, or Lord PALMERSTON for that of heads of departments, even including the chief authority at Scotland Yard! The result of these interviews, supplemented by

personal observation and inquiry, appeared in articles contributed to the *Bibliothèque Universelle* of Geneva, in which, *inter alia*, he anticipated by nearly 40 years the Unionist policy towards Ireland. His skill, his energy, his command of men, were shown in the statecraft which made France and Great Britain his auxiliaries in the expulsion of Austria from Lombardy, thus setting the revolutionary ball rolling which GARIBALDI urged on to the liberation of the Two Sicilies and their absorption into the Italian kingdom—matters which are, in the day now passing, familiar to the world in the vivid narrative of Mr. GEORGE MACAULAY TREVELYAN.

Having achieved his country's independence, he reverted to the nature-study and the biological sciences which had fascinated his youth, and, among many strokes of academic policy, he may be credited with the revival of physiological teaching in Italy by bringing the distinguished Dutch chemist and biologist JACOB MOLESCHOTT to Turin, a step which has re-invigorated the study in every Italian medical school, where more than one of the professors have been MOLESCHOTT'S pupils. Indeed, there is no calculating the good he might have wrought in Italy had not "his sun gone down while it was yet day." After his death his repositories were found to be full of designs for developing the agricultural resources of the mainland and the islands, one of these being a plan for converting Sicily into a great tobacco-growing plantation. His work, as his compatriots sadly admit, was but half done when he died at Turin in his fifty-first year, a martyr to over-exertion and high-pressure activity, intellectual and moral—a work which he himself acknowledged to be so far short of completion that (in the famous speech of his friend and fellow statesman, MASSIMO D'AZEGLIO), "having made Italy, he had yet to make Italians."

The Future of the Negro Race.

ANTHROPOLOGISTS are naturally recruited from the ranks of medical men; a study of human anatomy, physiology, and psychology must always form the basal part of the education of those who make a comparative study of human races. In the many wordy warfares which have been waged round the status of the negro race medical men have taken an active part. It was SHARP, a London surgeon, who elicited the famous verdict from Lord Chief Justice MANSFIELD in 1772, that a slave was free when he stepped on British soil. The crusade for the abolition of slavery, which was commenced then and prolonged far into the nineteenth century, directed the attention of medical men to the racial position of the negro. Was he structurally a different species and therefore unfit for an equal place with the European? At the end of the eighteenth century no man was so well qualified as JOHN HUNTER to answer the first part of the question. He answers it, but in an indirect manner. When REYNOLDS painted his portrait HUNTER opened the sketch book shown in the background of that famous picture at the page which illustrates the evolution of the human skull. The negro skull is figured as an intermediate stage; in HUNTER'S opinion the negro cranium was a lower stage than the European. "The darkest species," he wrote, "should he reckoned nearest the original." HUNTER regarded fertility as a test of species; the mulatto was well known to him, and it is therefore clear that he regarded the African and European as one species. A contemporary of HUNTER, CHARLES WHITE, the Manchester physician, also regarded the negro as a stage in the evolution of the human race; he was the first to show that the forearm of the negro, like that of the chimpanzee, was proportionately very long. JAMES COWLES PRICHARD, the Bristol physician, the first and one of the greatest of British anthropologists, gave an analysis of the negro characters and concluded that there were no grounds for excluding the negro from the species in which the European is included. In his famous lectures on the Natural History of Man at the Royal College of Surgeons of England in 1818, Sir WILLIAM LAWRENCE, while admitting the specific equality of the negro, said that "every fact in the past history and present condition of the African proves their inferiority of faculties," but added that such inferiority constituted a reason for special treatment of the race and did not justify the "revolting and antichristian" traffic in human flesh.

We may pass lightly over the change of view which followed the advent of Darwinism—the work of HUXLEY and of FLOWER, both by training medical men—and see how the matter stands to-day. The authority we are to quote is not a medical man, but one closely in touch and sympathy with the work and aspirations of modern medicine, Sir HARRY H. JOHNSTON. No one is better qualified to speak of the African races than he. For 25 years he has been exploring, investigating, recording, administering, and governing various parts of tropical Africa. The latest work, "The Negro in the New World,"[1] is the twelfth of a series of great works devoted to a study of the negro's mind culture and body. In the first chapter of his latest work he gives a brief but admirable summary of the structural position of the negro. There is no question of a higher and lower race; the negro represents not a stage in the evolution of those human races which are usually accounted higher; the European, the Asiatic, the African represent terminal branches of the human stock; each has its own specialisations. If pigmentation of the negro is an old character of the primal human stock, his woolly hair and full lips are novel specialisations; the features of his skull—his straight and rather bulging forehead, the usual absence of supraorbital ridges—are less primitive than those of the European; he is prognathous because he has a healthily developed dentition and palate. The negro brain carries on it no mark by which it can be recognised with certainty, but we must at the same time admit that we cannot assign a mental status to any man from a mere examination of the brain. We must judge a race, not by the appearance of the brain after death, but by the manner in which that organ reacts to the demands of civilisation. Sir HARRY JOHNSTON'S study of the racial problems of the United States leads him to anticipate a successful future for the negro there. He is not blind to the defects and

[1] The Negro in the New World By Sir Harry H. Johnston, G.C.M.G., K.C.B., D.Sc., with one illustration in colour by the author, and 390 black and white illustrations by the author and others. Maps by Mr. J. W. Addison (Royal Geographical Society). London: Methuen and Co., Limited. 1910. Pp. 499.

delinquencies of the African races; in his opinion the negro is the victim of his past; his faults are the result of long ages spent in the darkness of the African continent and under the lash and discipline of the slave master. In Sir HARRY JOHNSTON'S opinion education will raise the negro to take a just place in the scheme of civilisation. He pins his faith to that type of practical educational propaganda which is being directed by Dr. BOOKER WASHINGTON from the Tuskegee Institute in Alabama. If all the members of the coloured race could be raised by education to the level of Dr. BOOKER WASHINGTON, then the negro problem would indeed be solved—all but for one obstacle. Many of our readers will remember the storm of indignation that was roused in the United States when President ROOSEVELT received Dr. BOOKER WASHINGTON and sat down to table with him. This, in Sir HARRY JOHNSTON'S opinion, was a manifestation of *race prejudice*—"nonsense which has got to be uprooted if the United States is logically to extend its beneficent governing influence beyond its actual geographical frontiers." Thus, in Sir HARRY JOHNSTON'S opinion, the solution of what is known as the "negro problem" is the eradication from the white man's mind of "race prejudice." He wishes to see the American receive the African in his midst "as a brother, but not as a brother-in-law." He pictures a future when the descendants of the 10,000,000 negroes and negroids now in the States will live harmoniously side by side with the whites and share equally all the privileges of the predominant race.

This view of a terribly important situation will not find favour in the United States, even, we think, among philosophers, and in our opinion Sir HARRY JOHNSTON under-estimates the strength and the nature of that remarkable trait of the Anglo-Saxon which he regards as race prejudice. The trait is one which ROBERT KNOX, the Edinburgh anatomist, recognised nearly a century ago as the predominating feature of the Anglo-Saxon. Politicians and anthropologists cannot blink its strength. Our home circumstances leave this quality latent, but we see that it quickly becomes alive when the Saxon passes oversea. Under its influence we see the Australians legislate to secure predominance and purity of race; we see, whether we agree or not, the new federation of South Africa leaves the native races outside the pale of its franchise; we see the Southern States elbow the coloured population quietly but effectively from the ballot-boxes, and the Northern States, which went to war for negro freedom, look coldly on. A survey of the history of colonisation shows that the Portuguese and Spaniards had a less degree of "race prejudice," with the result that their virile blood in the course of generations became lost in the veins of native races. Race prejudice, or race instinct as we prefer to call it, has preserved the Saxon blood amongst alien races; its very strength now makes the problem of our modern civilisation more difficult; there must be a constant war between the Saxon sense of justice and the Saxon sense of race purity. Hence it is that the prejudice becomes the dominant feeling in those living side by side with alien races; the sense of justice is dominant in those at a distance. We may not like the fact, but we cannot solve our difficulties by overlooking it. Those who have searched into the factors which have dominated the dispersion and differentiation of the human stock into the various forms we see to-day on the earth find in this irrational race-feeling a main driving force. The race survives as a race in so far as this instinct is implanted in it. Race instinct is as old as the human stock itself; it is not a late or petty mental acquisition that can be brushed lightly off or eradicated by education. It is a basal trait which anthropologists and politicians cannot afford to leave out of their calculations.

Annotations.

"Ne quid nimis."

NATURE AND NURTURE.

Professor Karl Pearson recently said—or said something very like it—that education and environment play only a small part in the formation of the individual. He spoke as president at a debate of an extremely polemical kind, held at University College, London, and this deliverance seemed to be directed to a doctrinaire gallery. But now that we have read his truly luminous pamphlet entitled "Nature and Nurture" we breathe freely, for in its pages he "makes good," as George Borrow would have said, an otherwise dubious utterance. "Nature and Nurture, the Problem of the Future" is the outcome of researches conducted at the Galton Laboratory for National Eugenics in University College, Gower-street, by Professor Pearson and his accomplished staff. "I believe," says Professor Pearson, speaking of the fact that our popular politics are mainly the result of sentimental generalisations and doctrinaire assertions, "that the day for acting merely on a consensus of opinion based on rhetorical or emotional appeal of a political or philanthropic character is passing by." This is our own belief also. In future statesmen and reformers will more and more base their views on careful inductions derived from scientific data, laboriously acquired and registered. The more data the better. The aim of the Galton Laboratory is to multiply them till their mere weight must necessarily convince the candid and the scientific-minded. "Nature and Nurture," which has already been a good deal discussed, deals with the old question as to the relative influence upon the individual of heredity and environment. There is a school which believes and declares that in three generations the descendants of any sort of parents can be made into anything—into persons of the highest culture or the most approved conventionality. These pseudo-thinkers forget *in limine* that inherited ill-health or disease, which has much to do with individuality, cannot be eliminated at will. "Dissipants," as the Americans now call them, will give birth to a progeny of vicious tendencies; insanity dies very hard, if it does not increase. Such a serious condition as deaf-mutism may become intensified. Cataract and epilepsy in some forms progress cumulatively. Nothing could be more luridly instructive than the pedigrees published in Professor Pearson's book. One such shows how a single blind man originated in four generations 15 blind descendants. In another—we purposely do not quote the extreme cases—we note "twenty abnormals in four generations, the product of two degenerates whose right to reproduce their kind should have been challenged by man from the start, as it would have been refused *a priori* by Nature." It is the business of the biometrician to attempt to establish laws with regard to these matters, or at any rate to supply matter for intelligent anticipation. Nature, of course, is, in the opinion of some, the

grand eugenist. The optimistic Longfellow called her a kind old mother, but, in their opinion, she is really a surgeon. And savages are the successful survivors of her age-long series of operations. We may here quote from a communication which has reached us recently on this very topic. The writer says: "In North Queensland, in the Arctic regions, in Central Africa, the savage tribe witnesses to the truth of the eugenic theories. The savage is a ruthless eugenist. He destroys the weakly as often as not at birth; he eats what the tribe cannot support. Cannibals have a keen eye for the weak and the superfluous, as well as for the obese and unwieldy, and cannibals, unhampered by social wreckage, are persons of magnificent physique and often of high intelligence and good tribal morals. Witness the Papuans as described by Dr. C. G. Seligmann in his last book. The teeth of savages excite our envy; they are the direct result of the survival of the fittest. To eat raw or tough meat in quantities and to support life thereon in a severe climate the savage needs the teeth of a wild animal." Our correspondent is here a little too sweeping, for it is notorious that the teeth of many wild animals, herbivorous and carnivorous, are frequently subject to gross caries, but his general argument is weighty. We still quote the formula about the greatest good of the greatest number, but many of the more thoughtful among us are inclined to revise this rough-and-ready teaching in the light of modern science, and substitute for "the greatest number," "the best." The greatest good of the best—that seems to be the aim set before the scientific reformer to-day. It is an aristocratic aim in the finest sense. Yet it does not militate against the democratic increase of the best.

THE RETIREMENT OF DR. E. C. SEATON.

THE announcement that Dr. Seaton, the county medical officer of health of Surrey, has been appointed consulting medical officer of health, and that he has thus relinquished the more active rôle of administration for its reflective and advisory aspects, recalls the prominent part he has taken in many public health matters which are now accomplished facts, but which, when he entered the public health arena some 40 years ago, were but just, as it were, being brought into the battle line. The name of Seaton is intimately bound up with the sanitation of the last 50 years, Dr. Seaton's father having occupied between the incumbencies of Sir John Simon and Sir George Buchanan the important post of principal medical officer to the Local Government Board at a time when vaccination administration was in the making, and his writings upon this subject are well-known classics. The present Dr. Seaton has had an almost unique experience. As early as 1871 he assisted in the sanitary inspection of Oxford during an outbreak of enteric fever, and in the following year he was appointed an assistant Commissioner for inspecting school children in Lancashire and Cheshire in connexion with Mr. Mundella's Commission. As medical officer of health for Nottingham in 1875 he was instrumental in declaring the first "unhealthy area" under the Housing Act of that year, and in 1878 he obtained the insertion into a local Act of a clause for the notification of infectious diseases, this same clause subsequently becoming the basis of the Infectious Diseases Notification Act of 1889. Later, when medical officer of health of Chelsea, he secured the appointment of a committee which subsequently induced the Local Government Board to bring about the admission of students into the hospitals of the Metropolitan Asylums Board. In 1890 the Surrey county council decided to take the lead in appointing a county medical officer of health, and for this post Dr. Seaton was selected. The difficulties of the work which devolved upon him in coördinating the work of the several districts were very great, more especially as at that time there were no precedents and very few powers, but Dr. Seaton's efforts in the direction of promoting the harmonio working of the several districts and officials were high successful, and the progress which has been made Surrey in the matter of isolation accommodation, housin water-supply, and the purification of rivers is due no small degree to Dr. Seaton's tact and judgment. D Seaton has held many important examinerships in publ health in the Universities of Oxford, Cambridge, Londo and elsewhere. He was, too, chairman of the Board Studies in Hygiene and Public Health in London Universit in which capacity he displayed much discrimination an powers of leadership. On his resignation, when he wa succeeded by Sir Shirley F. Murphy, the board marked it appreciation of his services by nominating him for electio as Chadwick lecturer. The lectures, which will be looke forward to with much interest, will, we believe, be delivere before the University of London in November next. D Seaton has, we trust, many years of active usefulness befor him, and doubtless his less exacting position as consultan as far as Surrey county is concerned will afford him leisur to devote to outside calls the knowledge and experienc which he has acquired in so long and so distinguished career.

TRANSITORY HEMIPLEGIA IN HEART DISEASE.

PARALYSIS in heart disease due to cerebral embolism thrombosis, or hæmorrhage is well known. In recent year French writers have drawn attention to a transitory form o hemiplegia not due to any of these causes, of which th pathogenesis offers an interesting problem. At a meeting o the Société Médicale des Hôpitaux of Paris on June 3r M. E. Hirtz and M. Beaufumé reported the following case A woman, aged 49 years, was admitted into the Necke Hospital on Jan. 20th, 1910. She had had rheumatic feve twice—at the ages of 9 and 39 years respectively. Sinc July, 1908, she had frequently been treated at the hospita for mitro-aortic disease with asystole and ascites. Para centesis was performed 13 times, for the last time at the end of November, 1909. In January, 1910, the abdomen was again much enlarged, but the patient could follow her occupation of housekeeper. About Jan. 14th she was seized with right frontal headache, diurnal and nocturnal, and felt giddy on rising with a tendency to fall backwards, but this condition disappeared after sitting down for some minutes. On the 19th she went to bed as usual and about 2 A.M. she felt a violent desire to micturate, but found that she could not get up or speak to awake her husband. She made great efforts to get out of bed and in the end succeeded. She found that she was paralysed on the left side in the face and arm and almost completely in the leg. On admission there was left hemiplegia with marked dysarthria. The left side of the face was flaccid and drooping; the labial commissure was depressed and she could not whistle. The left eye could be shut, but not so well as the right. The tongue was slightly deviated to the left. She could not speak, and stammered in an incomprehensible manner. The left leg was partly paralysed. The reflexes were diminished on the left side; Babinski's sign was absent. There were dyspnœa (the respirations numbering 36), marked ascites, œdema of the legs, and double hydrothorax. The heart was dilated and there was a prolonged systolic murmur at the apex and another systolic murmur at the base. The urine was high coloured and slightly albuminous. Paracentesis abdominis was performed, and after 4 or 5 litres of fluid had escaped the patient could pronounce some words; then she could move the fingers of the left hand and finally the wrist. Towards the end of the operation, which occupied 15 minutes and yielded about 10 litres of fluid, the face was less deviated and the patient could speak almost normally;

the left hand could be placed on the head, and almost all the movements of the leg were regained. Half an hour after the operation recovery from the paralysis was complete. Other cases of transitory hemiplegia in heart disease have been recorded by French writers. Constantin Paul in his work on heart disease (1883) mentions the case of a woman, aged 64 years, suffering from chronic myocarditis, who, after an effort, was seized with right hemiplegia, not accompanied with aphasia. The symptoms disappeared in four hours. In 1897 Achard and Lévi recorded two cases of the same class. A woman, aged 64 years, with mitral stenosis and asystole, had first right inferior facial paralysis which lasted four days, and 15 days later paralysis of the opposite side of the face with paresis of the upper limb; death occurred at the end of two days. In the second case a woman, aged 35 years, with well-compensated mitral stenosis, was seized with complete left facial paralysis, and then with paralysis of the left sixth nerve and transient paresis of the left arm. All the symptoms disappeared in five days. Several explanations of these transitory paralyses have been given. Paul attributes them to cerebral anæmia. Achard and Lévi compared them to the transitory paralyses of uræmia and hepatic toxæmia, and ascribe them to the auto-intoxication of heart disease. Later Achard suggested that they are due to circulatory troubles in the brain—cerebral œdema and dropsy of the ventricles. M. Hirtz and M. Beaufumé point out that their case shows that the paralysis depends on a mechanical cause—cerebral congestion or œdema—which was relieved by the paracentesis. This view is supported by the fact that in Achard and Lévi's first case the necropsy showed considerable subneningeal œdema with congestion, most marked in the Rolandic area.

THE PEKING HOSPITAL.

THE Peking Hospital is the oldest and one of the biggest hospitals in China. It was founded in 1861 by the late Dr. W. Lockhart, who came to China as a medical missionary in 1838. It now furnishes the clinical material for the Union Medical College, the leading medical school, native or foreign, of the empire. It is a matter of regret that with such a wealth of cases no accurate statistics have been kept, but as the hospital was for many years run single-handed by a succession of overworked medical missionaries such bookkeeping was not found possible. At the present time over 19,000 patients pass through it annually. In the absence of statistics Dr. H. V. Wenham (who takes a large part in the work of the hospital and college, and who is clinical tutor to the students) has been good enough to give us the following notes of his general impressions of the work undertaken in a locality where there is abundant scope for research as in North China. There are many points of difference in the manifestations of disease in China from those observed at home, the system of diet and general mode of life of the Chinese differing markedly from those of Europeans. Epidemics arise and work out their ravages unchecked, microbic transmission of disease being as yet nationally unrecognised. Dr. Wenham says: "The great and outstanding impression is that of the plague of tubercle. Every form is met with from the most acute to the most chronic; the various forms of localised tubercle in bones, glands, &c., are exceedingly common. This seems strange in the light of recently expressed views, since the average Chinaman never uses milk and never eats beef, neither are children fed on cows' milk. Their food has much opportunity for contamination by dust and flies, and the frequency with which tubercular disease follows on traumatism is noticeable. The lack of any facilities for open-air or sanatorium 'cure' renders the treatment of these cases peculiarly depressing. At the same time one feels that with such facilities there would be for many a hopeful outlook, for the dry, sunny climate of North China, with its cold, bracing winter, renders it an ideal place for the treatment of tubercle if the patient can be removed from the dust and dirt of towns. Even without such treatment many remarkable instances of natural cure take place—as, for instance, the case of a boy who came to hospital more than a year ago in a desperate condition with a tubercular pyo-pneumothorax, already ruptured, and who is to-day able to do work as a messenger. Venereal diseases, with all their complications, are exceedingly common; so, again, are fistulæ in ano, for which there is no entirely satisfactory explanation, though undoubtedly many are tuberculous. Ascaris lumbricoides is regarded as part of the natural intestinal fauna. Tumours, both innocent and malignant, are very common, especially at sites of chronic irritation, as, for instance, in scars or beneath a tight prepuce; but the exact nature of these needs further investigation. Every variety of tumour is met with, but rodent ulcer and epithelioma are the most noticeable. On the medical side there is a conspicuous absence of acute rheumatism, though chronic osteo-arthritis is very common. As a sequence mitral disease is not frequent but aortic is common, probably from the frequent association of syphilis. Acute pneumonia is rare. Typhoid, typhus, and the infective exanthemata, though always present, do not ravage the community so severely as one would expect in a large city like Peking, where there is complete absence of sanitary precautions, no proper drainage, and no attempt at isolation. Presumably the inhabitants in the course of centuries have reached a stage of natural immunity unknown to us at home. Diphtheria causes many deaths, infant mortality is high and tetanus neonatorum common. A list of the more important cases other than tuberculous which have been met with in the course of the last year of hospital practice will give a good idea of the scope for medical practice and investigation in North China. On the medical side were seen: Typhoid fever (one case developed double suppurative parotitis and yet recovered); typhus, relapsing fever; cerebro-spinal meningitis, the diplococcus being readily identified by lumbar puncture; mitral disease rare, aortic common; nephritis common; osteo-arthritis common; leprosy, nodular and anæsthetic (all from cases imported from South China); infantile paralysis frequent; rickets very rare; hemiplegia common; tabes dorsalis; spastic paraplegia; hypertrophic muscular paralysis; and paralysis agitans. On the surgical side: Tumours of all kinds; hernia, both acquired and congenital, inguinal are common (the latter included one interstitial hernia)—we have also seen a case of femoral hernia in a man; rupture of ulnar artery due to acupuncture; fistula and necrosis of bone, both exceedingly common; stricture of urethra, very common; calculus and papillomata of bladder; tetanus following dirty wounds; hydrophobia, beyond the reach of Pasteur treatment; and gangrene, common in winter months." The foregoing list is, we are informed by our Peking correspondent, a good *résumé* of the main lines of hospital work in China.

THE OPERATIVE TREATMENT OF FRACTURES.

IN the Surgical Section of the British Medical Association at its recent annual meeting there was a discussion on the Operative Treatment of Fractures.[1] It was opened by Mr. Arbuthnot Lane, the protagonist of the new method, and many decided opinions were expressed on both sides of the controversy. As a result of the interest felt in this important matter the Section passed a resolution requesting

[1] THE LANCET, July 30th, 1910, p. 348.

the Council of the Association to appoint a commission to inquire into the question of the results obtained in the treatment of fractures by operative and non-operative methods. We await with anxiety the report of the commission, though doubtless many months must elapse before any report can be ready. It is difficult to overrate the importance to the community of the decision on this matter. The inquiry must include the examination of the results of the older method, both at its best as well as at its worst; and the same will, of course, apply to the more recent operative method, for it would surely not be fair to compare the best results obtained by so skilful a surgeon as Mr. Lane with the non-operative results of a medical practitioner who has not devoted special attention to this branch of surgery. The collection of material for the report will be a valuable work, and we trust that a very large number of surgeons will coöperate in the carrying out of a valuable investigation.

TYPHOID SPERMATOCYSTITIS AND PROSTATITIS.

IT is now recognised that so-called enteric fever is a general infection with the typhoid bacillus, and that the "complications" are inflammations produced locally by the bacillus. To the long list of these lesions, involving almost every structure in the body, Dr. J. W. Marchildon, assistant professor of bacteriology in St. Louis University, working under Professor Pick at the Städtisches Krankenhaus in Friedrichshain, Berlin, has added two—spermatocystitis and prostatitis. He has reported the results of his investigation in the *American Journal of the Medical Sciences* for July. It has been shown that apparently healthy people (typhoid carriers) may have typhoid bacilli in their bladders for years after an attack of enteric fever. It appears that during the attack they are excreted by the kidney, and that the urine becomes a culture medium for them. In some cases cystitis is produced, in others there is merely bacilluria. Hence it has been recommended to give some urinary bactericide during convalescence from enteric fever. In some cases so treated the bacilli disappear from the urine, but reappear a few weeks after the treatment is stopped. This result has been attributed to the presence of ulcerative cystitis, which is a source of infection. That this is not the only explanation Dr. Marchildon found in the two following cases. A lad, aged 17 years, was admitted into hospital comatose on the fourteenth day of a severe attack of enteric fever, and he died at the end of nine days from perforation. At the necropsy Professor Pick found typhoid ulceration of the ileum with perforation, fibrino-purulent peritonitis, cystitis with a small hæmorrhage, purulent spermatocystitis and inflammation of the right vas deferens, ulcer on the epiglottis, parenchymatous nephritis with miliary abscesses, obliterative pleurisy, and bronchitis. The seminal vesicles were enlarged and reddened and fluctuated. They contained purulent fluid from which the typhoid bacillus was cultivated. Microscopic examination of the left vesicle showed that the mucosa was in some places destroyed and in others distorted and infiltrated. The lumina were dilated and filled with an acute cellular exudate which was partly necrotic and showed clumps of typhoid bacilli. The prostate was normal. In the second case a man, aged 28 years, was admitted into hospital with the diagnosis of typhoid fever of about ten days' duration. Death from hæmorrhage from the bowel occurred four days later. At the necropsy Professor Pick found typhoid ulceration of the ileum, icterus, acute enlargement of the spleen, parenchymatous nephritis with small abscesses, acute purulent prostatitis, enlarged mesenteric glands, and acute catarrh of the duodenum. The prostate gland was enlarged, especially in the right lobe. There was an area of the size of a bean containing purulent granular material. (pressure pus exuded from the lobes. From the splee lymphatic glands, and prostate gland the typhoid bacill was cultivated. Microscopic examination of the prosta gland showed an acute purulent exudation with breaki down of the glandular cells. The vesiculæ seminales we normal. Dr. Marchildon suggests that after enteric fev the prostate gland and vesiculæ seminales may harbo typhoid bacilli for a long time, and that the bacilli m readily pass into the urine with the semen or prostat secretion, reach the bladder, and produce typhoid bacilluri Thus may be explained the recurrence of typhoid bacillur after suspension of treatment. The importance of th subject in connexion with typhoid carriers is obvious.

CENTRAL PUBLIC-HOUSE TRUST ASSOCIATIO

THE annual report of the association shows that th number of Public-house Trust companies remains the sam as last year, 37, while the number of houses under Tru management is now 262. It is satisfactory to note that o of the 37 companies only seven are not yet in the positic of paying a dividend. The principal development of th Public-house Trust movement during the past twelv month has been in the home counties, the Herts an Essex Trust Company having extended its operations Middlesex, Bedfordshire, Berkshire, Buckinghamshire, Oxfor shire, Leicestershire, and Rutland, a plan which sav preliminary costs and costs of central management. Ne licences have been granted at Crosby (Lincs.), Harde and Thorne Collieries, and at the Edinburgh corporatio markets at Gorgie. We are glad to see that the movemer is making steady progress, not only in extension of area an in number of houses controlled, but also in the direction c developing the trade in food and non-alcoholics at th expense of the alcoholic trade. The report calls forcib attention to the operation of the Finance Act, and points o that its present provisions penalise improvements designe to build up a non-alcoholic trade and to further the pr gressive reforms of the Trust Association. The associatio recommends that the tax should be not upon the premis (thus penalising tea- and dining-room accommodation), b upon the trade which is created by the licence—i.e., th trade in alcoholic drinks. It would certainly be regrettab if it were found that the Finance Act placed a serio obstacle in the way of such an excellent movement as that the Public-house Trust Association.

THE DIAGNOSIS OF MALIGNANT DISEASE.

IN another column we publish an article by Dr. Elsie M Royle on the aid which chemical examination of the urin may afford in the diagnosis of malignant disease. D Royle's investigations have enabled her to prove that i cases of cancer the uric acid is usually higher than is foun in healthy cases under similar conditions; further, that th output of phosphates in the urine is in the majority of case of cancer decreased when compared with healthy individuals and finally, that the ratio of $\frac{\text{phosphates}}{\text{uric acid}}$ is almost invariabl reduced in malignant disease. Acting on these result Dr. Royle suggests that a chemical analysis of the urine ma prove of value as an aid to diagnosis in obscure cases o cancer, especially when the abdominal organs are the sea of the disease. The differential diagnosis of malignan disease from gall-stones, gastric ulcer, chronic pancreatitis and other morbid conditions is frequently very difficul and any reliable auxiliary test would be welcome. Dr Royle, however, prudently observes that her investiga tions are not complete and that this communication i

only intended as a preliminary one. The cases she has examined point to the proposed test as a useful one, but before the value in diagnosis of the facts proved in her paper can be clearly established it will be necessary to determine how far they are true of other forms of cachexia, and what their relation may be to the secondary anæmia usually present in malignant disease. Dr. Royle is at present engaged in working out these questions, and the results will be awaited with interest. The technique of the chemical tests is not a complicated one.

THE King has augmented his yearly subscription to King Edward's Hospital Fund for London from £500 to £1000, and His Majesty is anxious that the date of augmentation should coincide with that of his first visit to the London Hospital since the accession. His Royal Highness the Prince of Wales has forwarded £100 to King Edward's Hospital Fund as an annual subscription.

THE King has granted to Dr. Hugh Campbell Highet, medical officer of health at Bangkok, His Majesty's Royal licence and authority to accept and wear the Order of the White Elephant of the Third Class, which has been conferred upon him by His Majesty the King of Siam in recognition of valuable services rendered.

AMONG those to whom His Majesty the King, Sovereign of The Order of Mercy, has been graciously pleased to sanction the award of the Order are Mr. A. T. Scott, M.R.C.S. Eng., and Mr. W. Chearnley Smith, M.B., C.M. Edin.

ON the recommendation of the Prime Minister, the King has sent from His Majesty's Royal Bounty £150 to the fund which Sir William P. Treloar is raising on behalf of the widow of the late Mr. H. W. Cox and her family.

Mr. John Hammond Morgan, C.V.O., F.R.C.S. Eng., has been promoted from Honorary Associate to Knight of Grace of the Order of the Hospital of St. John of Jerusalem in England.

PORTSEA IMPROVEMENT SCHEME.—An admirable scheme for the improvement of Portsea (Portsmouth) has been drafted by Dr. A. Mearns Fraser, the medical officer of health. The available area is very rigidly bounded, and consists of some 2¼ acres, on which it is proposed to erect 46 houses, roughly 20 houses per acre, to let at rents of 7*s.* and 7*s.* 6*d.* (inclusive of rates and taxes) in the case of residences and at 8*s.* 6*d.*, plus rates and taxes, in the case of four shops. It is proposed to lay out this area as one long road, 40 feet wide, stretching from Queen-street to Kent-street. The road will be planted with trees, the houses set back from the road, and a portion of ground, about 1000 square yards in area, between the road and the houses will be used as an open space, planted with trees, and asphalted. Four different types of houses are provided, each being carefully designed to meet the requirements of some particular class of tenant. The houses are a great improvement on many working-class dwellings, the report stating that the object has been to design "more healthy, more convenient, and more cheerful houses" than has often been done. As Dr. Mearns Fraser points out, "it is but little more costly to make a beautiful than an ugly street," and the reconstruction when finished will add a very handsome and attractive road and effect an extraordinary improvement in Portsea. The report further points out that the scheme may be continued at some future time so as to give St. George's-square an approach through into Queen-street, and incidentally transform the worst conglomeration of slum property in the borough into a model working-class residential neighbourhood. Improvements of this character must add very greatly to the health of the district, and Dr. Mearns Fraser is to be congratulated on an excellent piece of constructive work.

PUBLIC HEALTH ADMINISTRATION IN HAMBURG.

BY W. E. HOME, M.D., B.SC. EDIN., M.R.C.P. EDIN., D.P.H. R.C.P.S. EDIN.,
FLEET-SURGEON, ROYAL NAVY.

The Disinfecting Station.

BY the kind permission of Professor Medizinalrat Dr. Nocht I was recently permitted to learn something of the methods of disinfection practised in Hamburg and to visit the central disinfecting station.

Hamburg is a city of 800,000 inhabitants. All its institutions are on a large scale, so one is not surprised to find that this one department of the sanitary administration of the city employs 214 men. When notification of a case of infectious disease has been received and disinfection ordered, the sanitary authorities send out a party of disinfectors dresssed in sterilised overalls, cap, blouse, trousers, and boots, and (in case of plague) gloves, too. These men collect the articles to be disinfected, sprinkle them with disinfectant, and roll them in sheets, over which an impervious cover is now fastened to confine the infection as much as possible. The room or house is then cleaned, special care being taken to clean the walls and floors of sputa which may possibly be tuberculous. After this formalin vapour, produced by boiling the solution, is employed. The materials for disinfection are removed to the central station, where the men who have done the work get hot baths and change their suits. Meanwhile the room, every crevice in which has been pasted up, is saturated with formaldehyde. When this saturation has continued long enough liquor ammoniæ is boiled into the room through a keyhole; thus the acid is neutralised and the room can be entered and aired.

The disinfecting station to which the fomites are removed is divided into two, the infected side and the clean side. These departments are divided by a wall 50 yards long, which runs through the establishment. This wall has no doors but is pierced by six steam disinfectors and by the bath rooms for men and women. Each side has its own staff, and to get from one side to the other it is necessary to pass through the open air. In this way the attendants are prevented from negligently crossing without disinfecting themselves, and so accidents are avoided. Clothes and furniture for disinfection are examined on arrival at this station; if grossly soiled they are first boiled for an hour, but if fit for disinfection they are carefully numbered and labelled. The disinfection is done by a current of steam at 102° C. and the articles are laid out on the trays of the disinfectors (iron frames with wire meshes which are covered with coarse sacking); at this temperature the clothes are not scorched. Five of these disinfectors are large ovals and are worked by current steam at 102° C.; another smaller circular disinfector is used for delicate materials, for leather, &c. In this under reduced pressure (water boiling at 80° C.) infected articles are exposed to formalin and steam. This method is more expensive, but so far no complaints of damage have been made. There is also a temporary chamber for the formalin disinfection of articles insufficient in number to fill one of the large steam disinfectors. A single disinfection in the large apparatus costs 4*s.*

The bath rooms for infected persons run completely across the building. They are entered from the infected yard and their exit is in the disinfected yard. The bathers enter, take their clothes off, and send them up in a lift to be disinfected. They then spend an hour or so taking their baths. A notice which I saw gives very complete directions for the cleansing of hands. The nails are to be cut and scrubbed, the space under the nail and the nail fold are to be cleaned with the scissors supplied, then the hands are scrubbed first with disinfectant and then with spirit. Next the hair (it was in the temporarily unoccupied ladies' division I read the notice) must be washed and cleaned with spirit under the supervision of the bath attendant. After this a bathing-cap is put on in order that the hair may not become wet in the ensuing bath. When the bath is completed the "contact" passes to the clean side, where the now disinfected clothes are received down a lift, and the disinfecting process concludes. An inventory of the clothes for disinfection which have been taken from the infected side has

to be sent to the clean side, so it is put into the disinfector with the clothes. The list is written on a buff glazed paper, which in saturated steam at 102° C., but not at lower temperature, loses its glaze after ten minutes or so; hence, at the end of the process this inventory becomes evidence that the matters named on it have been exposed to a temperature of 102° for the required time. Tests are also made occasionally with fusible alloys to make certain that this temperature is reached everywhere in the disinfector.

On each side of the dividing wall there are rooms for the staff, and a small mess-room with cooking stove and cupboards for each man's personal clothing. The bath equipment is complete, and it is proudly held in the disinfecting station that the staff, concerned with the dirtiest work of Hamburg, are yet the cleanest body of men in the town.

In the storehouse I found each man's working suit being laid out in preparation for the next day—cap, blouse, trousers, scrubber, brushes, towel, dusters, &c., all sterilised since last used. I was shown the carbolic acid and formalin disinfection outfits, packed in boxes containing everything experience has proved necessary—soft soap, disinfectant, measures, brushes for the furniture, brushes for the corners of rooms, brushes for paste, brushes for glue, candles, matches, hammer, nails, safety ropes for men working at windows, clothes lines on which to hang clothes for formalin disinfection, and clothes pins for use therewith, scrapers for removing tuberculous sputum, a telescopic arrangement of buckets which, when the buckets are separated, inverted, and built up on one another, makes a ladder. The final proof of the care which is exercised is furnished by the two pieces of wood, socketed to form a cross, which are used for placing under buckets of hot water in order to prevent their marking the polished floors. All this appealed to me very strongly, it so accurately resembled the methods evolved for war service. As Inspector Riecke, who conducted me, remarked, "We are always in preparation as for active service and have all our stores ready in case of an epidemic." In their pigeon-hole are 100 tiny wooden scoops for ladling out chloride of lime here, new boots labelled for each of the staff hung up there.

Here also is a laundry which washes for the poorhouse and for the disinfecting station. There is an excellently equipped drying-room, with fan exhaust. The clothes put in at one end are gradually carried to the other on rods supported on the links of slowly moving chains. The waste water from the baths, &c., is all disinfected by chloride of lime in a large tank before it is passed to the drains. Poison for rats is also prepared for the town in this disinfecting station. I have since seen a chart of the distribution of phthisical cases in Hamburg showing no aggregation suggesting that the disease clung to particular houses, and this result is claimed to be due to the very thorough methods of disinfection employed.

The Water-supply.

Hamburg in 1892, drawing its water unfiltered from the Elbe, experienced the disaster of a very severe cholera epidemic. 18,000 cases were notified and 8000 deaths occurred. Her merchants say that the consequent diversion of trade to other ports cost them millions. The whole story was told at length in the columns of THE LANCET by Professor Pettenkofer and Sir Richard Thorne Thorne.[1] Hamburg profited by the lesson this apparently overwhelming calamity taught her. She arranged, at great cost, to filter the water from the Elbe and to draw it from a safer intake, thus escaping not only cholera that was occasional but typhoid fever that was perennial. The sanitary authorities by their success won the confidence and gratitude of the merchants. Hence their well-staffed laboratories and splendid institutions for the preservation of the public health.

Through the courtesy of Dr. Dunbar, director of the Hygienic Institute, I was permitted to join a party which Dr. Schwarz was taking to inspect the waterworks.

The waterworks are on an island above the city, so that the intake is some five miles above the sewer outfall. Ships and barges are forbidden to anchor within a mile or so of the intake and are heavily fined if they do. The main risk is the carriage of sewage to the intake by the tide, so no water is taken for an hour or two before or after high water, when the risk is greatest.

In the laboratory Dr. Nachtigall showed us how little sediment there is in the water before it is treated and how much brighter it becomes when 40 milligrammes of alum is added to each litre and the precipitate has settled out. This process is used here on the large scale.

Gross dirt is removed by screens and the water is pumped into a small pond from which it flows through a channel into the great settling basins. The stream is about six feet wide and a few inches deep; across it lies the trough that delivers the alum solution; above this green algæ grow freely, but at this line they cease.

There are three settling basins; each holds a day's supply. As the water passes from basin to basin through culverts four feet below the surface it is constantly losing micro-organisms. It is next pumped into the filter-beds, 22 in number, larger, they say, than any elsewhere except in London. Baumeister Bergiest explained to us, by the help of a large map, the arrangement of the waterworks, and showed us sections of the filters and models of the filter-beds and their valve houses. The filter-beds are made up with a metre of sand over the stones. As it gets clogged on the surface the upper sand is scraped away gradually until 40 centimetres have been removed. The filter is then put out of action, clean sand is added, filtered water is filled into it from below, and the unfiltered water can again be turned on above. We inspected an ingenious arrangement for washing the sand with the least possible labour and a minimum of water. When scraped off the beds it gives a dark mahogany colour to the water it is shaken up with, the visible impurities being mainly algæ and some small fish.

These filters are not covered (the island is scarcely solid enough), consequently the frost in winter is a source of anxiety. "I did not sleep well during three months in 1910," said our mentor, as he showed us photographs of the great masses of ice he had to deal with, and explained the measures he had to take so that the water-supply for these 800,000 people should not fail.

The methods of treatment are devised in the Waterworks Laboratory, while as a control the Hygienic Institute in the city examines the water twice daily. Although the authorities in their definitions take the broadest view, and include all organisms which could possibly be called "coli," they are unable to find this group in the water from the works, which supply four-fifths of that delivered to Hamburg. The remaining fifth comes from deep (300 feet) artesian wells, which we also saw. The water rises almost to the surface, but some pumping is required. The pumps are driven, not by leather belting, but by steel bands, I suppose $36' \times 3'' \times \frac{1}{8}''$, an experimental fitting, but giving satisfaction. The water, which is chalybeate, is sprayed into great tanks to oxidise and eliminate its iron. These tanks are under cover, and the roof over them is heated in winter to prevent water condensing on it and falling back into the tanks. After settling, the water is filtered, the flow through the filters being kept constant, and when the head of water required reaches 60 centimetres that filter is cleaned. This process quite removes the chalybeate taste. We completed our visit in a fine steam launch, an appanage of the Hygienic Institute, thoughtfully put at our disposal to give us the advantage of a most interesting cruise through the busy and extensive harbour, of which Hamburg is justly so proud. The launch is named *Gaffky*, after the eminent discoverer of the bacillus typhosus, who worked in Hamburg in 1892.

I greatly regret I did not also see the waterworks of Altona. They supply a smaller population, but the difficulties to be overcome appear to be greater, although these are met as successfully; for they take water from the Elbe six miles below both cities, yet I heard no complaint against the water they supply. This water-supply of Hamburg and Altona is of particular interest at present, as the problems are similar to those now pressing for settlement in Cairo.

The Treatment of Sewage.

Close to the large Eppendorf Hospital, in a beautiful park, is a small laboratory which takes 5 per cent. of the hospital sewage and passes it through an experimental equipment, consisting of first a settling tank, then three septic tanks uncovered but overlaid by a bacterial scum, and then contact beds of various pattern. The septic tanks are cleansed twice a year and the 10 inches of sludge used as manure for the hospital gardens. The workers in this laboratory investigate all the problems of sewage disposal, and recently have concerned themselves with finding out how much chloride of lime is required to sterilise sewage (in Germany sewage of infectious hospitals is all sterilised before discharge to the drains), and their results are very similar to those of Dr. Phelps of the Massachusetts Board of Health.

[1] THE LANCET, Nov. 19th, 1892, p. 1182; Nov. 20th, 1893, p. 1217; and July 1st, 1893, p. 50.

imagine that they hope, in time, to be able usefully to treat, biologically or chemically, all the sewage of Hamburg before its discharge into the Elbe. At present this sewage is treated mechanically only. The sewer outfall is close to the great landing stage; here all the sewers empty into a mixing room, from which the sewage passes to a sand catch, 5 metres deep, with a discharge, 2 metres in diameter, centred 3 metres above the floor. Detritus off the roads settles here, carrying down other suspended matters, all of which are removed by ordinary dredging buckets which drop their spoil on a travelling horizontal belt which ultimately spills it into trucks. The sewage passes on into the river, but on its way flows through a revolving screen, grating, or comb, to which all large floating matters adhere. This revolves gradually out of the water and as it turns over the bar at the top all these matters are scraped off and fall on a second travelling band which spills them into another truck. The contents of both trucks are taken across the river in barges and sold to farmers on the west side of the Elbe.

One cannot say enough in thanks to officials who strive patiently that inexpert foreigners, unfamiliar with their language too, may learn to understand these well-planned installations.

The Slaughter-house.

The Hamburg slaughter-house has already been described in THE LANCET[2] as having "splendid business arrangements." It deserves all praise. It is spacious and beautifully clean. The hall in which oxen are slaughtered is 130 yards long, 25 yards wide, and makes one think of a narrow drill-hall. There is not a single partition on the floor. The hall is well ventilated and brilliantly lighted by large windows in the sides and in the clerestory. There are no private booths for butchers; all the slaughtering and the dressing of the carcasses is done in the open under the eyes of the inspectors. Since there are so few corners, cleanliness is more thoroughly attained, and it is hoped that the meat keeps better. To diminish saprophytic infection of the meat, the gullet is clamped or tied when the carcass is being dressed and the offal is removed unopened to the neighbouring room where it is cleaned. It is calculated that an expenditure of 100 gallons of water is necessary for the cleaning up after each animal slaughtered. As this hall was built with abundant capital, expense has not been spared; there are winches and overhead rails in plenty, so the labour of slaughtering is less than in private slaughterhouses I know of. Further, the slaughtermen are far better off. They all wear long boots to their knees, which keep them cleaner; they have bathrooms, and there are cloak-rooms for their working or private suits. The splendid lighting of the hall prevents many accidents.

The animals are inspected before and after slaughter. If the meat is fit for food the principal portions are stamped. No meat can be sold without this stamp. In one year 60,000 oxen, 54,000 calves, 88,000 sheep, and 283,000 pigs were killed at this slaughter-house. Of the oxen 33 per cent. were more or less tuberculosed, but only ½ per cent. of the carcasses were utterly condemned. Of pigs 7 per cent. were declared infected, and here again only 0·3 per cent. were wholly condemned. This shows a difference from our practice in England of condemning a whole carcass of pork if tubercle is found anywhere. Some meat not wholly condemned is boiled thoroughly in the slaughter-house, and is then permitted to be sold by retail.

The charges for slaughtering are: each ox 3*s.* 6*d.*, calf 1*s.* 2½*d.*, pig 1*s.* 5*d.*, sheep 5*d.*, and horse 5*s.* The cost (7*d.*) of examining a pig for trichina is included. There are 94 trichina examiners. The fees for trichina examination work out at an average of £94 per examiner per annum.

I did not know enough German to find out their principles of meat condemnation, but while I was looking for the condemned meat store I chanced upon a most interesting department—the museum of veterinary pathology. As I entered it was obvious I was a foreigner, and as soon as I said that I was a doctor the director himself most kindly got up and showed me the carefully prepared specimens in his extensive museum—a museum which is growing rapidly and should obtain everything of interest that reaches the slaughter-house, as a staff of 17 veterinary surgeons are always at work in the building. He showed me specimens of new growths, simple and malignant, parasites, actinomycosis, anthrax and farcy, tubercle in joints of cattle, teratomata, and pathological conditions—e.g., endo-, peri-, and epi-carditis of sheep, &c.

There are many other sections—a knacker's yard, a quarantine slaughter-yard, and a margarine factory. As I leave the place I wonder if anyone could visit it and still believe that private slaughter-houses should be tolerated.

The Housing of the Working Classes.

Hamburg had a great fire in 1842, when a large part of the oldest portion of the town was burned down; it has therefore fewer overcrowded areas than most cities. Still, improvement schemes are continually being brought forward and carried out. The necessity for extra accommodation in each area for the people who have been dislodged from condemned houses is met by putting on extra storeys to the new houses. But, in point of fact, the old inhabitants do not return, they crowd into other houses little better than those they left, while, as so often occurs in England, the new houses are occupied by a better class. The sanitary board improves back-to-back houses in a very thrifty manner, new to me, and apparently satisfactory. An ordinance was passed in 1882 requiring that every inhabited room should have a window. To meet this ordinance it sank (all along a row of back-to-back houses) a series of shafts, some 8 feet square, at points which would permit their reaching the adjacent corners of four houses. Thus each room lost some 16 superficial feet out of the corner, and walls were built up here with a window into the shaft to allow perflation. Now that they have the windows these are often left unopened. One lady explained that this was because cats came in. They are all casement, not sash, windows. Even in these courts and among these altered back-to-back houses in probably the most crowded slums in the town, the ground was paved and the children were clean, lively, and tidily dressed. But I was told, "If parents do not keep their children clean and tidy we prosecute them and send them to prison." I certainly, in a fortnight spent in Hamburg, saw no child barefoot, no disgracefully broken or ill-fitting boots on children, and cannot remember seeing any rags. Such things, like many other undesirable manners and customs, are in Germany "verboten."

New houses must have 800 cubic feet of air space for each adult, 400 for each child up to 14 years. In sleeping rooms 530 cubic feet are allowed for an adult, 266 for a child, and right of entry is secured for inspectors to ensure obedience to these regulations. The landlord must provide a water-closet for every 12 persons or two families, either in the house or just outside. The police see that these are kept clean, and certainly the examples that I saw were so. One hears at home strange stories of German bureaucracy and of the tyranny of officials, but I noticed that the people in Hamburg were quite glad to welcome the sanitary officials, and invited us in to see how their houses had been improved. Sometimes this improvement was decidedly rough. I was shown a place where a low-lying quarter had formerly been liable to flooding at every high tide with water 2 or 3 feet deep in the streets. This was dealt with by filling the streets and the ground floors of the houses up to 6 or 8 feet with sand. The level was thus raised and new front doors and shops were opened in the old first floors.

The Cemetery.

The Ohlsdorf Cemetery, which covers an area of 450 acres, deserves mention. On an elevated sandy knoll 4 miles from the town, it was planned out by men who, like those who built the Rathaus, or Senate House, were confident of the great future before Hamburg and built on a large scale in consequence. Great avenues were marked out by planting trees in quantities—conifers, cypresses, planes, limes, and beeches. In secluded nooks are the burying-places of the wealthy. The smaller people have their grave areas in avenues backed by tall cypresses, each plot being inclosed by a cypress hedge 2 feet high. Few are so small but they have room for a garden seat, to which is generally chained a small watering-pot to help the flowers along. There is no crowding of the tombstones. You may easily be quite secluded in your grief, though a hundred other mourners are within hail. It is a beautiful place, which the stranger is from the first advised by everyone to visit—and with justice.

(To be continued.)

[2] THE LANCET, August 14th, 1909, p. 494.

THE LONDON COUNTY COUNCIL AND MEDICAL AFFAIRS.

Medical Treatment of School Children.

AT its last meeting before the summer recess the London County Council approved a scheme for the treatment, by means of X rays, of 50 ringworm cases a year at the Royal Free Hospital, Gray's Inn-road. The Education Committee stated that under existing arrangements children attending schools in West Islington and the adjoining districts were referred to the Charing Cross Hospital for treatment. The Royal Free Hospital would be more convenient, and full advantage could be taken by children from other parts of London of the accommodation set at liberty at Charing Cross Hospital. The arrangements made with other hospitals provided that 100 cases a year should be guaranteed for each clinical assistant working one half day a week, at a cost of £85. The committee did not feel able to guarantee a sufficient number of cases for treatment at the Royal Free Hospital to justify the engagement of a clinical assistant for one half-day a week. The governing body was prepared to undertake 50 ringworm cases in 12 months at a charge to the Council of 17*s.* a case, including the services of a medical practitioner.

Schoolkeepers and Vaccination Exemption.

At a meeting of the Education Committee held subsequent to the adjournment of the Council a number of matters of medical interest were considered. Some discussion took place with reference to the case of a school caretaker who had made a statutory declaration of conscientious objection to the vaccination of his child. Ultimately the committee approved a recommendation that—

In view of the fact that, should an outbreak of small-pox occur, children of schoolkeepers and caretakers would be more liable than other children to contract and spread the disease, in all cases where members of a caretaker's household had not been vaccinated, vaccination should be performed within 24 hours, or the schoolkeeper should cease work, and he and all members of his household should vacate the premises, no salary to be paid during absence.

Medical Fees in Accident Cases.

The committee approved a scale of fees to medical men for first attendances upon school children meeting with accidents, fixing 3*s.* 6*d.* as payment for attendance on a child taken to a surgery and 5*s.* for attendance on a child to whom the medical man has been called. The Council holds itself responsible for the payment to medical men of the fee for the first attendance upon scholars who are hurt at school, and it was reported that the amounts claimed under this head had varied considerably hitherto.

Experimental School for Tuberculous Children.

The Council on March 10th, 1910, agreed to an experimental school for tuberculous children being conducted by the Paddington Dispensary for the Prevention of Consumption.[1] It was proposed that the school should deal with children (1) suffering from tuberculosis, (2) predisposed to tuberculosis, and (3) discharged from sanatoriums and being treated at the dispensary. The Board of Education had stated, however, that it was only prepared to give favourable consideration to the scheme provided the school was confined to children having incipient phthisis, or having the disease in a definite form, either of a subacute or chronic nature. The Board added that if the promoters were prepared to modify the scheme in this respect it would consider the matter further. The committee agreed to the modification and decided to communicate with the dispensary.

Sane Epileptic Children.

As reported in THE LANCET of July 9th, 1910, p. 117, the committee decided on July 6th to ask the Home Secretary to receive a deputation urging the need for legislation with regard to the care and control of the feeble-minded, particularly as to making provision for sane epileptic children, of whom it was estimated there were 600 of school age in London, certified by the medical officer (education) to be fit for instruction, but as to two-thirds of them not in attendance at any school. It was reported that the General Purposes Committee of the Council had cancelled the Education Committee's resolution as premature, the Council not having yet considered the report of the Royal Commission.

Treatment of Affections of the Ear and Eye.

A report was received on the scheme under which the Queen Victoria Jubilee Institute of Nurses has undertaken the treatment of children in Hackney, Shoreditch, and Bethnal Green who are suffering from suppurating ears.[2] The children's care subcommittee stated that the results were not very satisfactory mainly owing to the difficulty of obtaining the medical prescriptions necessary before treatment could be commenced. It was desirable to ascertain the most satisfactory method of dealing with children suffering from a complaint which required attention two or three times a day, and whether the Jubilee Institute of Nurses could be of assistance in this direction, and therefore the subcommittee recommended that another experiment should be made in Paddington, where several good dispensaries existed and where there would be less difficulty in obtaining medical prescriptions. An agreement with the Paddington and District Nursing Association for this purpose was approved.

Difficulty had been experienced in connexion with the treatment of children suffering from affections of the eye and ear at the Woolwich medical treatment centre, owing to the failure of parents to carry out the instructions of the medical men as to the insertion of atropine in the eyes and the syringing of the ears. The governing body of the Woolwich Cottage Hospital, which is responsible for the centre, stated that the Woolwich Nursing Association was willing to provide, for £40 a year, a nurse who would assist the parents in carrying out the medical man's instructions. The committee accepted the offer for six months.

[1] THE LANCET, Feb. 19th, 1910, p. 525.

METROPOLITAN HOSPITAL SUNDAY FUND.

THE following is a list of the awards for the year 1910 :—

GENERAL HOSPITALS.

	£	*s.*	*d.*
Charing Cross Hospital	1019	13	4
French Hospital	340	4	2
German Hospital	669	17	6
Great Northern Central Hospital	1140	8	4
Guy's Hospital	1588	18	4
Hampstead General Hospital	473	8	4
Italian Hospital	221	7	6
Kensington General Hospital	113	1	8
King's College Hospital	1543	17	6
London Homœopathic Hospital	411	2	6
London Hospital	5941	13	4
London Temperance Hospital	653	11	8
Metropolitan Hospital	885	10	0
Mildmay Hospital	244	7	6
Miller Hospital and Royal Kent Dispensary	246	5	10
North-West London Hospital	181	2	6
Phillips' Memorial Homœopathic Hospital	47	18	4
Poplar Hospital	616	4	2
Prince of Wales's General Hospital, Tottenham	816	10	0
Royal Free Hospital	1405	17	6
St. George's Hospital	1545	15	10
SS. John and Elizabeth Hospital	99	13	4
St. John's Hospital, Lewisham	207	0	0
St. Mary's Hospital	2267	8	4
St. Thomas's Hospital	543	7	6
Seamen's Hospital Society	1630	2	6
The Battersea General Hospital	78	11	8
The Middlesex Hospital and Convalescent Home	2523	5	10
University College Hospital	2234	16	8
Walthamstow, &c., Hospital	127	9	2
Wandsworth, Bolingbroke Hospital	326	15	10
West Ham Hospital	505	0	10
West London Hospital	1291	16	8
Westminster Hospital	1243	18	4

SPECIAL HOSPITALS.

CHEST HOSPITALS.

City of London Hospital for Diseases of the Chest, Victoria Park	1103	3	10
Hospital for Consumption, Brompton	2911	0	4
Mount Vernon Consumption Hospital, Hampstead	1395	6	8
Royal Hospital for Diseases of the Chest, City-road	547	4	2
Royal National Hospital for Consumption (Ventnor)	239	11	8
Royal National Sanatorium (Bournemouth)	95	16	8

CHILDREN'S HOSPITALS.

Alexandra Hospital for Hip Disease	309	10	10
Banstead Surgical Home	39	5	10
Barnet Home Hospital	45	0	10
Belgrave Hospital for Children	179	4	2
Cheyne Hospital for Incurable Children	77	12	6
East London Hospital for Children, Shadwell	857	14	2

[2] THE LANCET, Feb. 13th, 1909, p. 488.

	£	s.	d.
Evelina Hospital for Sick Children, Southwark	34	10	0
Home for Incurable Children, Hampstead	44	1	8
Home for Sick Children, Sydenham	127	9	2
Hospital for Hip Disease, Sevenoaks	57	10	0
Hospital for Sick Children, Great Ormond-street	1122	4	2
Infants Hospital, Westminster	179	4	2
Kensington, for Children, and Dispensary	98	14	2
Paddington Green Hospital for Children	268	6	8
Queen's Hospital for Children, Hackney-road	851	0	0
Royal Waterloo Hospital for Children and Women	250	2	6
St. Mary's Hospital, Plaistow	254	18	4
St. Monica's Hospital, Brondesbury	76	13	4
Victoria Home, Margate	34	10	0
Victoria Hospital for Children, Chelsea	744	12	6

LYING-IN HOSPITALS.

British Lying-in Hospital, Endell-street	124	11	8
City of London Lying-in Hospital, City-road	200	0	0
Clapham Maternity Hospital and Dispensary	38	6	8
East-End Mothers' Home	91	0	10
General Lying-in Hospital, Lambeth	143	15	0
Home for Mothers and Babies, Woolwich	62	5	10
Plaistow Maternity Hospital	43	2	6
Queen Charlotte's Lying-in Hospital, Marylebone-road	506	0	0

HOSPITALS FOR WOMEN.

Chelsea Hospital for Women	314	6	8
Grosvenor Hospital for Women and Children, Vincent-square	161	19	2
Hospital for Women, Soho-square	299	19	2
New Hospital for Women, Euston-road	345	0	0
Samaritan Free Hospital, Marylebone-road	386	4	2

OTHER SPECIAL HOSPITALS.

Cancer Hospital, Brompton	*Nil.*		
Central London Ophthalmic Hospital, Gray's Inn-road	158	2	6
Central London Throat and Ear Hospital, Gray's Inn-road	9	11	8
Female Lock Hospital, Harrow-road	201	5	0
Gordon Hospital for Fistula, Vauxhall Bridge-road	30	13	4
Hospital for Epilepsy, Paralysis, and other Diseases of the Nervous System, Maida Vale	241	10	0
London Fever Hospital, Islington	287	10	0
London Throat Hospital, Great Portland-street	22	0	10
Middlesex Hospital, Cancer Wing	225	4	2
National Dental Hospital, 149, Great Portland-street	52	14	2
National Hospital for the Paralysed and Epileptic	890	5	10
National Hospital for the Diseases of the Heart, Soho-square	157	3	4
Royal Dental Hospital of London	305	14	2
Royal Ear Hospital, Dean-street	40	5	0
Royal Eye Hospital, St. George's-circus	308	11	8
Royal London Ophthalmic Hospital, City-road	978	9	2
Royal National Orthopædic Hospital, Great Portland-street	399	12	6
Royal Sea Bathing Hospital, Margate	172	10	0
Royal Westminster Ophthalmic Hospital, Charing Cross	113	1	8
St. John's Hospital for Diseases of the Skin	71	17	6
St. Mark's Hospital for Fistula, City-road	278	17	6
St. Peter's Hospital for Stone, Covent Garden	126	10	0
West End Hospital for Diseases of the Nervous System	554	17	6
Western Ophthalmic Hospital, Marylebone-road	112	2	6

CONVALESCENT HOSPITALS.

All Saints' Convalescent Hospital, Eastbourne	383	6	8
All Saints' Convalescent Home, St. Leonards-on-Sea	23	19	2
Ascot Priory Convalescent Home	81	9	2
Brentwood Convalescent Home for Children	10	10	10
Charing Cross Hospital Convalescent Home, Limpsfield	58	9	2
Chelsea Hospital for Women Convalescent Home, St. Leonards	46	0	0
Deptford Medical Mission Convalescent Home, Bexhill	17	5	0
Friendly Societies' Convalescent Home, Dover	95	16	8
Hahnemann Convalescent Home, Bournemouth	28	15	0
Hanwell Convalescent Home	12	9	2
Hastings, Fairlight Convalescent Home	28	15	0
Hendon, Ossulston Home	59	8	4
Herbert Convalescent Home, Bournemouth	19	3	4
Herne Bay Baldwin-Brown Convalescent Home	57	10	0
Homœopathic Hospital Convalescent Home, Eastbourne	9	11	8
Hemel Hempstead Convalescent Home	19	3	4
London Hospital Convalescent Home, Tankerton	68	0	10
Mary Wardell Convalescent Home for Scarlet Fever	57	10	0
Metropolitan Convalescent Institution, Walton	383	6	8
Ditto Ditto Broadstairs	249	3	4
Ditto Ditto Bexhill	444	13	4
Metropolitan Hospital Home, Cranbrook	9	11	8
Mrs. Gladstone's Convalescent Home, Mitcham	76	13	4
Mrs. Kitto's Convalescent Home, Reigate	47	18	4
Police Seaside Home, Brighton	51	15	0
St. Andrew's Convalescent Home, Clewer	95	16	8
St. Andrew's Convalescent Home, Folkestone	172	10	0
St. John's Home for Convalescent and Crippled Children, Brighton	33	10	10
St. Joseph's Convalescent Home, Bournemouth	43	2	6
St. Leonards-on-Sea Convalescent Home for Poor Children	95	16	8
St. Mary's Convalescent Home, Broadstairs	143	15	0
St. Mary's Convalescent Home, Shortlands	21	1	8
St. Michael's Convalescent Home, Westgate-on-Sea	33	10	10
Seaside Convalescent Hospital, Seaford	115	0	0

COTTAGE HOSPITALS.

Acton Cottage Hospital	96	15	10
Beckenham Cottage Hospital	76	13	4
Blackheath and Charlton Cottage Hospital	76	13	4
Bromley, Kent, Cottage Hospital	125	10	10
Bushey Heath Cottage Hospital	39	5	10
Canning Town Cottage Hospital	90	1	8
Chislehurst, Sidcup, and Cray Valley Cottage Hospital	69	0	0
Coldash Cottage Hospital	21	1	8
Ealing	82	8	4
East Ham Cottage Hospital	68	0	10
Eltham Cottage Hospital	71	17	6
Enfield Cottage Hospital	76	13	4
Epsom and Ewell Cottage Hospital	43	2	6
Hounslow Cottage Hospital	43	2	6
Livingstone Dartford Cottage Hospital	91	0	10
Kingston, Victoria Hospital	83	7	6
Mildmay Cottage Hospital	48	17	6
Reigate and Redhill Cottage Hospital	109	5	0
Sidcup Cottage Hospital	33	10	10
Tilbury (Passmore Edwards) Cottage Hospital	47	18	4
Willesden Cottage Hospital	105	8	4
Wimbledon Cottage Hospital	61	6	8
Wimbledon (South) Cottage Hospital	50	15	10
Wood Green Cottage Hospital	72	16	8

INSTITUTIONS.

All Saints', Highgate	29	14	2
Firs Home, Bournemouth	36	8	4
Free Home for Dying, Clapham	112	2	6
Friedenheim Hospital for the Dying	299	0	0
Hospital for Invalid Gentlewomen, Harley-street	92	19	2
Invalid Asylum, Stoke Newington	31	12	6
Royal Mineral Water Hospital, Bath	57	10	0
Santa Claus House, Highgate	59	8	4
St. Catherine's Home, Ventnor	19	3	4
St. Luke's House, Pembridge-square	154	5	10
St. Saviour's Hospital and Nursing Home	95	16	8
Winifred House, Holloway	59	8	4

DISPENSARIES.

Battersea Provident Dispensary	194	10	10
Billingsgate Dispensary	55	11	8
Blackfriars Provident Dispensary	18	4	2
Bloomsbury Provident Dispensary	15	6	8
Brixton, &c., Dispensary	46	19	2
Brompton Provident Dispensary	20	2	6
Buxton-street Dispensary	15	6	8
Camberwell Provident Dispensary	75	14	2
Camden Town Provident Dispensary	14	7	6
Chelsea, Brompton, and Belgrave Dispensary	38	6	8
Chelsea Provident Dispensary	13	8	4
Child's Hill Provident Dispensary	12	9	2
City Dispensary	57	10	0
Clapham General and Provident Dispensary	24	18	4
Deptford Medical Mission	23	0	0
Eastern Dispensary	43	2	6
East Dulwich Provident Dispensary	53	13	4
Farringdon General Dispensary	46	0	0
Finsbury Dispensary	46	19	2
Forest Hill Provident Dispensary	35	9	2
Greenwich Provident Dispensary	30	13	4
Hackney Provident Dispensary	21	1	8
Hampstead Provident Dispensary	46	19	2
Holloway and North Islington Dispensary	9	11	8
Islington Dispensary	53	13	4
Islington Medical Mission	50	15	10
Kennington and Vauxhall Provident Dispensary	13	8	4
Kensal Town Provident Dispensary	11	10	0
Kentish Town Medical Mission	21	1	8
Kilburn, Maida Vale, and St. John's Wood Dispensary	35	9	2
Kilburn Provident Medical Institution	47	18	4
London Dispensary, Spitalfields	15	6	8
London Medical Mission, Endell-street	104	9	2
Margaret-street, for Consumption	31	12	6
Metropolitan Dispensary	60	7	6
Mildmay Medical Mission Dispensary	12	9	2
Notting Hill Provident Dispensary	18	4	2
Paddington Provident Dispensary	34	10	0
Public Dispensary, Drury-lane, W.C.	34	10	0
Queen Adelaide's Dispensary	24	18	4
Royal General Dispensary	28	15	0
Royal Pimlico Provident Dispensary	39	5	10
Royal South London Dispensary	44	1	8
St. George's, Hanover-square, Dispensary	31	12	6
St. John's Wood Provident Dispensary	47	18	4
St. Marylebone General Dispensary	47	18	4
St. Pancras and Northern Dispensary	35	9	2
South Lambeth, Stockwell, and N. Brixton Dispensary	31	12	6
Stamford-hill, Stoke Newington Dispensary	47	18	4
Tower Hamlets Dispensary	43	2	6
Walworth Provident Dispensary	13	8	4
Wandsworth Common Provident Dispensary	12	9	2
Westbourne Provident Dispensary	18	4	2
Western Dispensary	76	13	4
Western General Dispensary	91	0	10
West Ham Provident Dispensary	11	10	0
Westminster General Dispensary	46	0	0
Whitechapel Provident Dispensary	33	10	10
Woolwich Provident Dispensary	40	5	0

NURSING ASSOCIATIONS.

Belvedere, Abbey Wood	7	11	6
Brixton	30	6	0
Central St. Pancras	22	14	6
Chelsea and Pimlico	22	14	6
East London	189	7	6
Hackney	22	14	6
Hammersmith	53	0	6
Hampstead	22	14	6
Isleworth	15	3	0
Kensington	53	0	6
Kilburn	7	11	6
Kingston	30	6	0
London District	310	11	6
Metropolitan (Bloomsbury)	22	14	6

	£	s.	d.
North London	60	12	0
Paddington and Marylebone	37	17	6
Peckham	15	3	6
Plaistow	136	7	0
,, (Maternity)	174	4	6
Rotherhithe	15	3	0
St. Olave's (Bermondsey)	30	6	0
Shoreditch	45	9	6
Sick Room Helps Society	22	14	0
Silvertown	22	14	0
South London (Battersea)	53	0	0
Southwark	37	17	6
South Wimbledon	45	9	6
Tottenham	7	11	6
Westminster	30	6	0
Woolwich	30	6	0

ASYLUM REPORTS.

Fife and Kinross District Board of Lunacy (*Annual Report for the Year ending July 31st, 1909*).—The average daily number resident at the Fife and Kinross District Asylum for the period reported upon was 611, of whom 292 were males and 319 females. There were admitted 159 patients, this being the highest number in the history of the asylum. The figures show that the increase is due to a remarkable rise in the number of male admissions. Ninety-three persons were discharged, the number of those discharged recovered being 54, or 33·9 per cent. of the admissions. It appears that the change in the character of the cases now placed under care has produced, as one of its results, a marked lowering of the recovery rates. The deaths numbered 38, this being 6·2 per cent. of the average daily number resident. More than half of the persons who died were over 60 years of age. The report has this year been delayed in publication owing to the unfortunate illness of Dr. A. R. Turnbull, the medical superintendent.

County and City of Worcester Lunatic Asylum, Powick (*Annual Report for the Year 1909*).—At this asylum the average number resident was 935. Admissions numbered 109. Fifty-three patients were discharged during the year, and of this number 34 were discharged recovered. Deaths numbered 77, being a percentage of 8·2 on the average number resident. Pulmonary tuberculosis accounted for 13 per cent. of the deaths, and it may be noted that the Commissioners in Lunacy reported with regret that they saw phthisical cases being treated in bed in the associated dormitories. They express a hope that means may be found to provide for the treatment of such patients in the open air or in some form of segregation. It is satisfactory to notice that post-mortem examinations were made in 73 out of the 77 deaths.

Eastern Counties Asylum for Idiots, Imbeciles, and the Feeble-minded, Colchester (*Annual Report for the Year 1909*).—At this asylum the average daily number in residence was 336, as against 326 in the previous year. Twenty-five persons were admitted. The total number of deaths was eight, which is a considerable reduction upon former years. For the last four years the death-rate per 1000 has been 18·9, a fact of which the medical officer, Dr. F. Douglas Turner, writes with pride. The rate is certainly a striking one when the poor vitality and resisting power of this class of patients is remembered. No deaths from any form of tuberculosis occurred during the year, and during the last four years the total number of deaths from this cause has only been four, the rate being one-fifteenth of what it was before 1905.

Lunatic Asylum for the County Borough of Leicester, West Humberstone (*Annual Report for the Year 1909*).—At this asylum the average number daily resident was 716. The admissions during the year numbered 161. The discharges numbered 73 and the percentage of recoveries on the admissions, excluding patients transferred from other asylums, was 38·38. The deaths numbered 85, the rate estimated upon the average number resident being 11·87. The death-rate has been higher than in any year since 1900, and amongst those who died were a large number of old chronic cases. Fourteen deaths occurred in patients over 70 years of age. The Commissioners observe with regret that many patients suffering from phthisis undergo treatment in the general wards, and they recommend that verandahs be provided for the open-air treatment of such cases.

CENTRAL MIDWIVES BOARD.

SPECIAL meetings of the Central Midwives Board were held at Caxton House, Westminster, on July 19th, 20th, and 21st, Sir FRANCIS H. CHAMPNEYS being in the chair.

The following midwives were struck off the roll: Lottie Bloomer, that being in attendance as a midwife at a confinement, the patient suffering from severe rigor and abdominal pain, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to a medical practitioner, as required by Rule E. 19 (4). Ann Briggs, that being in attendance as a midwife at a confinement, the perineum being seriously ruptured, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Ellen Briggs, that being in attendance as a midwife at a confinement, the child suffering from inflammation of the eyes, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Sarah Collings, that being in attendance as a midwife at a confinement, the patient suffering from post-partum hæmorrhage, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Mary Denver, that having, with intent to evade supervision and inspection, notified the local supervising authority in 1907 of her intention to cease practice as a midwife, and to practise in future only under the supervision of a registered medical practitioner, she had nevertheless since practised as a midwife, and in cases where a doctor had been only colourably engaged, without notifying the local supervising authority. Mary Jane Evans, that being in attendance as a midwife at a confinement, the patient suffering from severe rigor and vomiting, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Sarah Hook, that she was uncleanly in her person, clothing, and house. Sarah Jarvis, that being in attendance as a midwife at a confinement, the patient suffering from constant diarrhœa and from pain in the breasts during her attendance, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Susannah Longney, that being in attendance as a midwife at a confinement she was under the influence of drink, and incapable of performing her duty as a midwife. Mary Staveley, that notwithstanding repeated warnings she persistently neglected to provide herself with the bag, appliances, and antiseptics required by Rule E. 2. Jane Taylor, that being in attendance as a midwife at confinements she did not take the temperature of her patients, being unable to use a clinical thermometer, having neglected to learn how to do so in spite of previous warnings. Isabella Tinker, that having been engaged to attend a woman in an approaching confinement, and having been sent for on March 21st, 1910, when she ascertained that the presentation was abnormal, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Rachel Yates, that being in attendance as a midwife at a confinement, the patient suffering from persistently offensive lochia with high temperature, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor. Charlotte Bates, that being in attendance as a midwife at a confinement, the child suffering from inflammation of the eyes, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help properly filled up and signed by her in order that this might be immediately forwarded to a medical practitioner, as required by Rule E. 19 (5). Ada Chivers, that she persistently neglected, after being duly warned, to provide herself with the equipment, appliances, and antiseptics required by Rule E. 2. Emma Frost, that being in attendance as a midwife at a confinement, the patient being ill suffering from headache, abdominal pains, and vomiting, she did not act as required by Rules E. 18 and 19 in regard to sending for a doctor.

Margaret Aldred, Louisa Thomas, Elizabeth Jane Haines, Sarah Harvey, and Ellen Potter were censured after charges alleged against them had been considered.

Mary Ann Byfield, Christian Shaw, Mary Warburton, and Annie Jane Hewitt were cautioned after charges alleged against them had been considered.

A meeting was held at Caxton House, Westminster, on July 28th, Sir FRANCIS CHAMPNEYS being in the chair.

A letter was considered from the Clerk of the Council, transmitting a copy of a letter addressed to him by the Lord Mayor of Manchester with a copy of a resolution passed by the city council suggesting the omission of the words "conducted for profit" in Clause 15 of the Midwives Bill, 1910, as introduced into the House of Lords by Lord Wolverhampton. It was agreed that the reply be that the Board observes that the suggested amendment has been carried out in the Midwives (No. 2) Bill, 1910.

A letter was considered from the medical officer of health of Leicester as to the "covering" by a certain certified midwife of a woman whose name was removed from the Roll. The Board decided that inquiries be made as to whether the woman has in fact ever delivered a patient by herself since her name was removed from the Roll, and whether she has ever visited a patient without being accompanied by the other midwife.

A letter was considered from the General Secretary of the Medical Defence Union calling attention to an advertisement and the issue of circulars by a certified midwife. The Board decided that the reply be that the midwife did not appear to have infringed any of the rules of the Board.

A letter was considered from the medical officer of health of Manchester calling attention to a number of advertisements by certified midwives in Manchester papers. The Board decided that the medical officer of health of Manchester be referred to Rule E. 26 as the governing rule in relation to the proper description of a midwife.

A letter was considered from the clerk of the London County Council as to a charge of misconduct brought by a certified midwife against another certified midwife formerly in her employment. The Board decided that the local supervising authority for the county of London be requested to trace the midwife if possible, and, if she can be communicated with, to consider whether a *primâ facie* case of misconduct has been established against her.

A letter was considered from the clerk of the Hants County Council as to the construction of Rule E. 5. It was agreed that the Board approves the secretary's reply, stating that the clear intention of the rule is that the midwife should not attend another case until the local supervising authority are satisfied that she herself, her instruments, and other appliances have been properly disinfected.

A letter was considered from a certified midwife inquiring as to the necessity of notification of intention to practise where, though a doctor is always engaged for a case, she herself habitually delivers the patient. The Board decided that the midwife be informed that, inasmuch as her question involves points of law, the Board did not consider it its province to advise.

A letter was considered from the honorary secretary of the Derby County Nursing Association, complaining of the action of the local supervising authority in interfering with the work of the association. The Board decided that the Derby County Nursing Association be informed that the Board has no power to control the actions of the officers of the local supervising authorities, nor has it any jurisdiction in the matter.

THE ROMFORD GARDEN SUBURB.—The public inauguration on July 28th of the new garden suburb by Mr. John Burns, President of the Local Government Board, marks one more step forward of the garden city movement. The new suburb is within easy reach of London, the station at Squirell's Heath is five minutes' walk from it, and Romford Station only a mile. The streets are planned out to make Gidea Hall, a fine early Georgian house, the central building of the suburb, and to use the trees of the park to form avenues and add attractiveness to the gardens. On one side of the estate is the Romford public park and on the other the golf course, open surroundings thus being assured, while every house is to have ample garden space and pleasant views. No kind of overcrowding or speculative jerry building is to be allowed. Such a suburb cannot fail to be more healthy and more generally conducive to well-being than the usual ill-regulated overgrowth of streets and houses with which the surroundings of London abound. For not alone will the sanitary supervision be easier, but, as pointed out by Dr. John Robertson in a paper on Town Planning read at the meeting of the British Medical Association, amenity has a powerful indirect effect upon the public health.

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

City of Glasgow.—The urgent need for a quinquennial census, as well as the danger of relying upon estimates of populations based upon the Registrar-General's methods, is abundantly manifest from the current report of Dr. A. K. Chalmers, the medical officer of health of Glasgow. The Registrar-General's estimate of population for 1909 is 872,021, that of the medical officer of health only 800,410. In other words, the first estimate shows an excess of over 70,000 as compared with the second estimate, which is based upon the actual number of inhabited houses, such number of houses showing a decrease of 547 as compared with those of 1908. On a basis of inhabited houses alone there was a decrease in the population since 1908 of 2501, but there has been an increase in institutional population which reduces the actual decrease to 840, as compared with an estimated increase by the Registrar-General of 12,306. In these circumstances there is obviously need for caution in accepting the several rates until the next census shall have revealed the actual population. There has been a decrease in the marriage-rate during the last 39 years of 27 per cent. based upon the population at all ages, but of 29 per cent. if the rate be calculated upon the unmarried and widowed female population between 15 and 45 years of age. Similarly, the birth-rate when calculated over the whole population shows a fall of 35 per cent. below the rate for 1870–72, whereas when calculated on the number of women of child-bearing ages the rate is 41 per cent. The death-rate for 1909 on the Registrar-General's estimate was 17·5 per 1000, a rate which was exceeded by Dundee in Scotland and Liverpool and Manchester in England. It may be here pointed out that the population of Glasgow, however estimated, exceeds that of Liverpool or Manchester, but if all the extension asked for by Birmingham is granted by Parliament, Birmingham is likely to be the largest extra-metropolitan city in the United Kingdom. It will then remain for Glasgow, Liverpool, or Manchester to take the next move as regards borough extension, and it would appear to be competent for any of the three to force the pace in the matter of population by a liberal extension of its limits. Of the 23,503 births notified in 1909, there were 46·9 per cent. attended medically, while 53·1 had no medical attendance, the percentage medically attended varying markedly in the several wards, the maximum being 90·4 per cent. and the minimum 22·2 per cent. Dr. Chalmers observes that until the advantages of the Midwives Act are extended to Scotland it will not be possible to distinguish between the births attended by certified and uncertified women. Some instructive curves are furnished showing the average weight of children fed on breast milk only and on breast and artificial foods combined, as well as the relation obtaining between children fed on artificial foods only and depôt milk alone. These curves indicate that any diet into which breast milk enters is better than any form of food which is wholly artificial, but they show also that a child whose food has been mainly artificial from the beginning does not suffer at the period of weaning from the disturbances which beset the breast-fed child. As regards the depôt-fed child, the curves appear to suggest that although during the first three months its condition compares favourably with that of other artificially fed children, its weight is afterwards uniformly lower, a fact which appears to point to the conclusion that the depôt milk is not a better substitute for breast milk than certain artificial foods which have here been employed. Dr. Chalmers gives the figures for vaccination exemption certificates in Glasgow, and he shows that although it is asserted in England that the withdrawal of compulsory vaccination resulted in the extension of vaccination, the contrary has been the case in Scotland since the exemption facilities have been extended across the Tweed, and in 1908 9·2 per cent. of the births were exempted by statutory declaration. As Dr. Chalmers observes, Glasgow is preparing a population "amongst which small-pox will spread in a manner of which this present generation has had no experience." Probably a similar statement, but in more pronounced fashion, may be made with respect to England, as from the reports of many medical officers of health it is clear that exemptions are

increasing at a rapid pace. There were 26 cases of typhus fever in Glasgow in 1909, the fatality-rate being 11·5 per cent. The after-history of 272 tuberculous patients discharged from Bellefield Sanatorium prior to midsummer, 1910, is of interest, and certain of the figures may be quoted:—

Of 51 discharged under	3	months,	11	are at work and	17	are dead.	
41	,,	6	,,	4	,,	18	,,
65	,,	12	,,	14	,,	24	,,
46	,,	2	years,	10	,,	18	,,
33	,,	3	,,	9	,,	9	,,
28	,,	4	,,	10	,,	5	,,

The differences in each case between the totals discharged are made up under the headings "Not at work," "Gone to country," "Abroad," and "No information." The incidence of puerperal fever in relation to the attendance at birth was carefully studied during 1909, with the result that 3·21 per 1000 was found amongst cases attended by doctors, as against 5·7 per 1000 amongst those attended by midwives. But Dr. Chalmers very rightly observes that caution in drawing inferences from these figures is necessary, since the midwives more frequently practise amongst the poor and in smaller houses than do the doctors. The advantage of hospital treatment of enteric fever cases as compared with home treatment is emphasised by the fact that in 1909 the fatality-rate of the former was 15 per cent. and of the latter 55 per cent., and a table is furnished in the report before us showing that since the year 1901 the hospital fatality-rate has always been below that of the home fatality-rate.

City of Worcester.—The medical officer of health of this city, Dr. Mabyn Read, has evidently some misgivings as to the purity of the water-supply, which is presumably derived from the river Severn. The filtered water occasionally contains too many bacilli coli, and it is evidently considered desirable to provide increased facilities for the storage of this same river water. It must certainly be said that storage of river water is at the present day one of the first essentials of purification, as such storage for a few days serves to bring about a large reduction in the total number of micro-organisms and the destruction of pathogenic bacteria; in fact, if adequate storage be provided the risks attending filtration are very materially reduced, as has been shown by Dr. A. C. Houston in connexion with the waters of the Thames. As the result of the voluntary notification of pulmonary tuberculosis 41 cases were reported during 1909, and under the new regulations the district medical officers notified 16 cases. Of these latter, all except 2 were admitted to the workhouse infirmary, and 9 of them died before the end of the year, a fact which shows, Dr. Read thinks, that the patients sought the assistance of the Poor-law only at the last extremity.

City of London.—Dr. W. Collingridge, in presenting his annual report for 1909 to the corporation, gives expression to the opinion that "matters connected with the public health will be neglected or treated as of minor importance in the councils of the nation until the election of a Minister of Public Health is advocated by all parties," and the public health committee appears to have endorsed this sentiment. The court, however, decided upon the report coming before it to express no opinion with regard to the above suggestion. Whatever may be the general opinion held in the public health service with respect to this important but very difficult subject, everyone will agree with Dr. Collingridge in his remarks as to the manner in which sanitary administrators are hampered in their work by the prevalence of legislation by reference, and that our sanitary laws generally require codification. All teachers of sanitary law experience very great difficulty in teaching students on account of the maze of cross-references which is rendered necessary by the present accumulation of separate Acts amending previous statutes, and these criticisms have special application to our statutes relating both to housing and to food. There will also be general approval of Dr. Collingridge's advocacy of a Court of Reference which should have power to fix standards of purity for foods and drugs. The steady diminution of the night population of the City from 112,063 in 1861 to 26,923 in 1901 is as interesting a fact as is the increase of its day population from 170,133 in 1866 to 301,384 in 1891, and there will be general regret that there was no day census in 1901. The death-rate of the City for 1909 is estimated at 16 per 1000 and the infantile mortality at 106 per 1000 births. Examination of the milk-supply entering the City was made during March and April, 1909, and 32 samples were examined bacteriologically. Of these, 43·7 per cent. were "fairly clean and pure," 43·8 per cent. unclean, and 12·5 per cent. tuberculous. As regards the latter, the percentage was the largest found since the commencement of the inquiry, but it must be remembered that the number of samples examined was small. During November and December a further series of samples—42 in all—were collected from churns at Liverpool-street Station and examined by Dr. Klein, and of these only 4·7 per cent. were found to be tuberculous. The number of cremations carried out at the Corporation cemetery at Ilford in 1909 was 24, as compared with 19 in 1908, the total number of cremations in the United Kingdom having been 855, as against 795 in 1908. With the view of popularising cremation the Corporation has reduced its inclusive charges to £2 15*s.* 6*d.*, a fee which includes all attendance after the body is placed on the catafalque table by the undertaker, the provision of a plain urn for the remains, and its storage for three months. Cremation in this country as a whole makes very slow progress, although there are now in all 13 crematoriums in different parts of the country. While discussing this subject of the disposal of the dead reference may be made to some experiments carried out in the City mortuary for the preservation of bodies. Refrigeration, which is practised at the Paris Morgue, was not adopted because of the space which the necessary apparatus would occupy, the cost of working, and the fact that decomposition commences directly the body is removed from the apparatus. An arrangement in operation at Brussels was therefore visited and inspected. This apparatus, which was invented by Dr. G. De Rechter, consists of an air-tight case communicating with a smaller chamber in which formalin vapour is generated, the vapour being circulated by means of an electric fan. The body can be viewed through glass windows provided for the purpose, and provision is made for illuminating the interior of the chamber by electricity. The formalin vapour is neutralised by ammonia before opening the chamber in order to avoid inconvenience from the fumes. This apparatus was procured on the advice of Dr. Collingridge and was used on March 16th upon the body of an unknown man who had been drowned on March 10th and who had been the subject of a necropsy on March 12th. At the end of seven weeks the body, being in a good state of preservation, was removed to the mortuary, where it remained in good condition without further treatment until June 16th. As bodies are usually kept one month for identification Dr. Collingridge regards this apparatus as fulfilling all requirements.

Borough of Batley.—In his discussion of the subject of infantile mortality in Batley during 1909 Dr. J. M. Clements frankly accepts the fact that the diminution in the rate for the year in question was due very largely to the cool and wet summer, which limited or prevented the annual outbreak of diarrhœa, but he thinks that the preventive measures adopted also exercised a powerful influence. The rate for 1909 was only 117 per 1000 births, which represents an enormous reduction upon the average of 185 per 1000 for the preceding five years. Dr. Clements observes that on reading over the family histories of 86 infants who died in 1909 he was struck by the large number of children that die in infancy in certain families and the marked contribution which some mothers make to the infantile mortality-rate. He furnishes a number of illustrative cases, of which one or two examples may be quoted. No. 1: 8 children; 4 dead, 3 under 7 months of age, 1 stillborn. No. 19: 4 children; all dead, 3 under 5 months old, 1 lived a few hours only. No. 27: 11 children; 6 dead, 5 under 8 months old. No. 39: 13 children; 10 dead, 8 under 1 year old. No. 68: 5 children; all dead under 6 months of age. On the other hand, he could, he says, cite numerous examples of mothers who have reared large families and who live under precisely similar circumstances, and who possess about the same weekly wage upon which to bring up their young. He thinks that the determining factor is the mother herself. Some women are "born mothers" whom nature has endowed with the instincts of motherhood; others are not naturally so gifted and they have received no education upon the subject. Dr. E. W. Hope of Liverpool has drawn attention to precisely the same disparities in this respect of child rearing even in adjacent houses in the same street and all the circumstances similar save that of motherhood. It would enhance the value of similar comparisons in future if the health and physical condition of the mother were given in each instance, and

possibly also the midwife identified, as all these points have some bearing upon the question. Dr. Clements reports that a very successful baby-show was held during 1909, at which some 500 babies were shown. This exhibition was regarded as being of great educational value. Efforts are apparently being made to establish a *crèche* at which mothers could obtain advice at fixed times.

Borough of Bootle.—The estimated population of this borough is 71,500, a fact which shows how substantially the city of Liverpool would gain numerically by such an extension of its limits as would embrace Bootle, and it is interesting to reflect whether, in view of the efforts of Birmingham to become the largest city in the United Kingdom outside the metropolis, the corporation of Liverpool will be stimulated to make another attempt to maintain its premier position. An inquiry was carried on during 1908 and 1909 as to the relation between the industrial employment of women and infantile mortality, and the statistics so far obtained do not support the previous experience of some manufacturing towns that the mortality amongst the infants of mothers employed in factories is substantially greater than that amongst women solely engaged in household duties. So far as the Bootle figures go, the infant mortality rate amongst the children of industrially employed women was 136 per 1000 births, as against 191 per 1000 where mothers were engaged in household duties. The type of scarlet fever prevailing in Bootle in 1909 was a very mild one, and amongst the 186 patients above the age of 7 years there was no death. The enteric fever death-rate has shown a marked fall for many years past, and Mr. W. Daley, the medical officer of health, is inclined to ascribe the reduction largely to the substitution of a water-carriage system of excrement disposal for the conservancy system which formerly obtained.

Metropolitan Borough of Woolwich.—Out of 3137 births in this borough during 1909 there were no less than 535 concerning whom vaccination exemptions were procured, as compared with 109, 170, and 257 in the three preceding years, a fact which leads Dr. Sidney Davies to predict another epidemic of small-pox "before very long owing to the increase of unprotected children." But it should be held in mind that prophecies of this nature have not yet been fulfilled in the practically unprotected population of Leicester. Probably other factors than the absence of vaccination—an absolute protection against small-pox for many years—are required to produce an epidemic of small-pox. Since the year 1904 the council of this borough has made arrangements with the Maitland Cottage Sanatorinm at Peppard for the maintenance of seven beds, the charge being 28*s.* per week per bed when occupied and 20*s.* when unoccupied, and in reference to the Woolwich cases treated in that institution Dr. Davies furnishes a very instructive table in the form recommended in the Local Government Board report relative to the after-results of the treatment during the last seven years:—

Of 11 cases discharged in 1904,	4	were at work or seeking work in [January, 1910.							
,, 16	,,	,,	1905,	2	,,	,,	,,	,,	,,
,, 29	,,	,,	1906,	13	,,	,,	,,	,,	,,
,, 37	,,	,,	1907,	15	,,	,,	,,	,,	,,
,, 30	,,	,,	1908,	14	,,	,,	,,	,,	,,

The remainder in each case were either dead (the majority), not well enough to work, or lost sight of; but of these latter most are believed to be well and at work. Dr. Davies then goes on to make some very instructive comments upon the economic aspect of sanatorium treatment, and in view of the interest being manifested in the subject at the present moment they are well worthy of serious attention. He gives reasons for concluding that at least one-third of the patients are well and at work three years after leaving the sanatorium, and they may therefore, he thinks, be regarded as permanently cured. The other two-thirds, who are now either dead, unwell, or lost sight of, are known to have performed on an average nine months' work each subsequent to leaving the sanatorium, and for this reason they may, he considers, have justified the cost of sanatorium treatment (£14) upon themselves. Assuming, therefore, that the above proportions hold good for the patients treated each year, there are two-thirds of the patients sufficiently restored to health to work for nine months, and consequently, he says, earning four times the amount that their treatment cost. He then turns to the economic aspect of what he claims to be the restoration to health of the remaining third—i.e., 12 patients every year—and he infers that had they been left untreated most of them would have died within two or three years, many (perhaps a half) after spending an average of six months in the infirmary. He estimates that two-thirds would be adult men, and one-third would have on an average a wife and three children each who would in all probability become chargeable to the guardians when the wage-earner went to the infirmary. A rough estimate of the cost to the rates is given as follows:—

Cost of six months' infirmary treatment of six men	£156
Out- or in-door relief of four wives at 1*s.* a week for ten years	104
Out- or in-door relief for 12 children at 10*s.* a week for five years	1560
	£1820

His conclusion is that an expenditure of £500 not only makes 24 men wage-earners for nine months and postpones and diminishes their chargeableness to the guardians in that time, but it also makes eight men permanent wage-earners and saves an expense from the rates within the next ten years of £1820. This is, on the whole, a very moderate statement and it was well worth making. But it must, we are afraid, be admitted that the critics would quarrel with some of the data and inferences. In the first place, evidence would be asked for in support of the conclusion that the majority of the two-thirds who worked for nine months after leaving the sanatorinm would not have done approximately the same had they never entered it. The data furnished by Dr. Davies do not enable a judgment to be formed, but we should not be surprised to hear that many of these patients were capable of work when they entered the institution. In the same fashion information would be asked for in support of the opinion that if the remaining third—those who are regarded as having been restored to health—had been left nntreated most of them would have died within two or three years instead of being well and at work at the end of three years, but here again the data do not suffice for an answer. All depends upon the nature of the cases on admission. Possibly they were very promising cases selected from a large number of applicants, and if so the expectation of continued life and usefulness was considerable. Those who a few years ago would have been admitted to a sanatorium are now regarded as too advanced, and as the result the standard for sanatorium treatment is steadily being raised. With respect to the relief afforded to the relatives, ought not something to be charged for their support during the stay of the patients in the sanatorium—i.e., ought not six months' keep for wife and children to be charged to the debit account in certain instances? But we hope that Dr. Davies will continue these investigations and discussions, as he sets out his data in the only way in which their value can be properly appraised, and he himself is clearly anxious to arrive at the real truth whatever it may be.

Borough of Bethnal Green.—The estimated population of this borough for 1909 was 131,316; the census population of 1901, 129,680. The birth-rate was 31·47 per 1000, the marriage-rate 13·9 per 1000, and the infantile mortality-rate 129·25 per 1000 births. The infantile death-rate from premature birth and congenital defects was 29·2, from diarrhœal diseases 26·9, from respiratory diseases 21·1, from wasting diseases 12·6, and from the common infectious diseases 8·5 per 1000 births in each instance. Dr. G. Paddock Bate regards 22·5 per cent. of the total infantile mortality as due to antenatal causes, and he thinks that it is not the employment in factories of prospective mothers which is responsible for the birth of premature or deformed children so mnch as unsuitable home-work of various kinds. There were 297 cases notified as pulmonary tuberculosis in 1909—i.e., 241 from the local infirmary and workhouse, 44 from their homes, and 12 from other institutions. There were 258 cases under treatment in the infirmary during the year. Of the infirmary cases 43 per cent. left the infirmary once or more than once; 41 were admitted on two or more occasions. At the time of admission 44 per cent. of the cases were too advanced for useful treatment, and of 112 cases which left the infirmary 80 per cent. had derived improvement, 14 had considerably improved, 12 per cent. showed no change, and 8 per cent. were worse. Dr. E. Taunton, the deputy medical officer of health, who writes this section of the report, points to the fact that of the large number of patients who on admission to the infirmary were beyond all hope of permanent improvement, 45 per cent. developed a restless tendency and left the

institution. This restless tendency, so common to phthisical patients, is liable, he thinks, to considerably diminish the benefit derivable from treatment in sanatoriums, hospitals, and infirmaries, although the educational value of these institutions is great.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 77 of the largest English towns 7014 births and 3476 deaths were registered during the week ending August 6th. The annual rate of mortality in these towns, which had been equal to 11·1 and 11·3 per 1000 in the two preceding weeks, declined to 10·7 in the week under notice, and was lower than in any previous week of this year. During the first five weeks of the current quarter the annual death-rate in these towns averaged only 11·1 per 1000, and in London during the same period the death-rate, calculated on the probably over-estimated population, did not exceed 10·5 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 4·3 in Handsworth, 4·7 in Leyton, 5·5 in Walthamstow, and 5·8 in Hornsey, all being suburban districts; the rates in the rest of the 77 towns ranged upwards to 15·9 in Sunderland, 16·2 in Brighton, 16·3 in Dewsbury, and 17·0 in Merthyr Tydfil. In London the reported death-rate last week did not exceed 10·2 per 1000. The 3476 deaths registered last week in the 77 towns showed a decrease of 189 from the low number in the previous week, and included 347 which were referred to the principal epidemic diseases, against 361 and 353 in the two preceding weeks; of these 347 deaths, 115 resulted from diarrhœa, 87 from measles, 78 from whooping-cough, 33 from diphtheria, 19 from scarlet fever, and 15 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·1 per 1000, and corresponded with the rate in each of the two preceding weeks. No death from any of these epidemic diseases was registered last week in Brighton, Plymouth, Norwich, Northampton, York, or in nine other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·6 in Preston, 2·8 in Liverpool, 3·4 in Burnley, and 4·9 in Barrow-in-Furness. The deaths attributed to diarrhœa in the 77 towns, which had been 63, 103, and 120 in the three preceding weeks, declined again last week to 115; the highest annual rates from this cause during the week were 1·5 in Middlesbrough, 1·8 in Aston, and 1·9 in Burnley. The 87 fatal cases of measles exceeded by 2 the low number in the previous week; this disease showed last week the greatest fatality in Oldham and in Barrow-in-Furness. The deaths from whooping-cough, which had been 106 and 87 in the two previous weeks, further declined last week to 78, and were fewer than in any previous week of this year; they caused the highest rates in Manchester and Burnley. The 33 deaths from diphtheria showed a further slight increase upon recent weekly numbers, and included 11 in London and its suburban districts, 4 in Salford, and 2 each in Stoke-on-Trent, Birmingham, and Hull. The 19 fatal cases of scarlet fever included 5 in London and 4 in Birmingham and its suburban districts. Of the 15 deaths referred to enteric fever, showing a slight further increase upon the low numbers in recent weeks, 2 occurred in Sheffield. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had increased in the six preceding weeks from 1353 to 1563, had declined again to 1523 on Saturday last; 165 new cases of this disease were admitted to these hospitals during last week, against 249, 173, and 179 in the three preceding weeks. Only 1 case of small-pox was under treatment in the Metropolitan Asylums at the end of last week. The 956 deaths registered in London during last week included 124 which were referred to pneumonia and other diseases of the respiratory system, showing an increase of 13 upon the low number in the previous week, and corresponding with the corrected average number in the corresponding week of the five years 1905–09. The causes of 37, or 1·1 per cent., of the deaths registered during the week in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, Nottingham, Leicester, and in 50 other smaller towns; the 37 uncertified causes of death in the 77 towns included 6 in Birmingham, 4 in Sunderland, and 3 both in Blackburn and in Liverpool.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 854 births and 445 deaths were registered during the week ending August 6th. The annual rate of mortality in these towns, which had been equal to 12·0 and 12·7 per 1000 in the two preceding weeks, declined again to 12·3 in the week under notice. During the first five weeks of the current quarter the death-rate in these towns averaged 12·3 per 1000, and exceeded by 1·2 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 7·2 and 11·0 in Leith and Aberdeen to 16·8 in Perth and 17·5 in Dundee. The 445 deaths from all causes in the eight towns last week showed a decline of 15 from the number in the previous week, and included 44 which were referred to the principal epidemic diseases, against 58 and 46 in the two preceding weeks; of these 44 deaths, 26 resulted from diarrhœa, 5 from measles, 4 from whooping-cough, 4 from diphtheria, 3 from "fever," and 2 from scarlet fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·2 per 1000, against 1·1 from the same diseases in the 77 English towns. The 26 deaths attributed to diarrhœa in the eight towns last week showed an increase of 6 on the number in the previous week, and included 17 in Glasgow, 4 in Dundee, and 2 in Edinburgh. Two of the 5 fatal cases of measles occurred in Glasgow. The deaths from whooping-cough, which had been 12 and 11 in the two previous weeks, declined last week to 4. The 4 deaths resulting from diphtheria corresponded with the number in the previous week, and included 2 in Glasgow. The 3 deaths referred to "fever" were all returned in Glasgow; 1 was certified as typhus and 2 as cerebro-spinal meningitis. The deaths referred to diseases of the respiratory system in the eight towns, which had been 50 and 61 in the two preceding weeks, were 59 last week; they exceeded by 8 the number in the corresponding week of last year. The causes of 9, or 2·0 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 1·1 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 564 births and 337 deaths were registered during the week ending August 6th. The mean annual rate of mortality in these towns, which had been equal to 16·3 and 16·2 per 1000 in the two preceding weeks, further declined to 15·3 in the week under notice, and was lower than in any previous week of this year. During the first five weeks of the current quarter the annual death-rate in these Irish towns averaged 16·1 per 1000; the mean rate during the same period did not exceed 11·1 in the 77 largest English towns and 12·3 in the eight principal Scotch towns. The annual death-rate during last week was equal to 17·2 in Dublin, 15·3 in Belfast, 6·8 in Cork, 19·2 in Londonderry, 12·3 in Limerick, and 19·5 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 13·6 per 1000. The 337 deaths from all causes in the 22 town districts last week showed a decline of 21 from the number in the previous week, and included 35 which were referred to the principal epidemic diseases, against 48 and 32 in the two previous weeks; these 35 deaths were equal to an annual rate of 1·6 per 1000; the rate last week from the same diseases did not exceed 1·1 per 1000 in the 77 English towns and 1·2 in the eight Scotch towns. The 35 deaths from these epidemic diseases in the Irish towns last week included 16 from diarrhœa, 10 from measles, 6 from whooping-cough, 2 from scarlet fever, and 1 from diphtheria; but not one either from enteric fever or from small-pox. The deaths attributed to diarrhœa, which had been 12 and 9 in the two previous weeks, rose to 16 last week, of which 10 occurred in Belfast and 2 both in Dublin and in Waterford. The 10 fatal cases of measles exceeded those in the previous week by 1, and included 7 in Belfast.

Of the 6 deaths from whooping-cough, 3 occurred in Dublin and 2 in Belfast. The 2 fatal cases of scarlet fever occurred in Dublin and Belfast. The deaths in the 22 towns included 44 which were referred to pneumonia and other diseases of the respiratory system, against 48 and 59 in the two preceding weeks. The causes of 8, or 2·4 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 1·1 per cent., and 2·0 per cent. in the eight Scotch towns.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified: Staff-Surgeons: J. Macdonald to the *Vivid*, additional, for disposal; and A. J. Hewitt to the *Jupiter*, additional, for disposal. Surgeons: H. Burns to the *Halcyon*, additional, for the *Spanker;* and K. D. Bell to the *Andromache*, additional, for the *Niobe*.

ARMY MEDICAL SERVICE.

Colonel Daniel O'Sullivan is placed on retired pay (dated August 8th, 1910).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Captains to be Majors: George B. Crisp and Cecil W. Mainprise (dated July 27th, 1910); Alic L. Scott, Lionel E. L. Parker, and Gerald H. Goddard (dated July 28th, 1910).

The undermentioned Lieutenants to be Captains: Winfrid K. Beaman, Colin Cassidy, Alexander D. Fraser, Archer Fortescue, Howard G. Gibson, Stephen Field, Frederick H. M. Chapman, Henry M. J. Perry, John L. Wood, Frederick T. Turner, Michael P. Leahy, William G. Aviss, John E. M. Boyd, Donald F. Mackenzie, Richard D. O'Connor, Owen R. McEwen, Malcolm O. Wilson, John du P. Langrishe, John C. Hart, Thomas H. Scott, Gerald F. Rudkin, Leopold A. A. Andrews, John H. Gurley, Alfred C. Elliott, William B. Purdon, Francis Casement, Edward M. Middleton, Vincent T. Carruthers, and Harold W. Farebrother (dated July 28th, 1910).

Colonel R. H. S. Sawyer, on promotion, has been appointed Administrative Medical Officer of Dublin District in place of Colonel E. North, who has retired. Lieutenant-Colonel T. O. O'H. Hamilton, C.M.G., on the expiration of the tenure of his appointment as staff officer to the Principal Medical Officer of the Aldershot Command, has been transferred to the Colchester District and posted to Warley. An exchange of stations has been approved between Lieutenant-Colonel H. Cocks from the Western Command and Major B. W. Longhurst from the Eastern Command. Lieutenant-Colonel S. E. Duncan has been appointed to the medical charge of the troops at Shrewsbury. Lieutenant-Colonel H. Scott has been appointed to the medical charge of the Military Hospital at Landguard Fort. Lieutenant-Colonel H. J. Fletcher has been granted three months' general leave in India. Lieutenant-Colonel H. O. Trevor has arrived home on leave from Jamaica. Major A. F. Tyrell, from Fermoy, has been placed in medical charge of Kilworth Camp. Major A. E. Milner, from London District, has taken up duty at Tidworth, Salisbury Plain. Major H. W. Grattan, Sanitary Officer of the 8th (Lucknow) Division, has been transferred to Naini Tal. Captain F. W. Cotton, on the termination of his leave, has been posted to the Western Command. Captain G. F. Sheehan, from Calcutta, has been posted to Barrackpore. Captain T. T. H. Robinson, from Mhow, has taken up duty at the Station Hospital, Neemuch. Captain H. C. Hildreth, from Dublin, has been appointed to the medical charge of the troops at Glen Island. Captain T. E. Harty, on return from a tour of service at Mandalay, has been posted for duty to Woolwich. Captain E. D. Caddell, from Subathu, Simla Hills, has taken up duty at the Station Hospital, Ambala Cantonment. Captain J. W. S. Seccombe has been transferred from Jullundur to Kasauli. Captain T. J. Wright, from Bere Island, has been posted to Dublin District. Captain S. M. W. Meadows has joined at Chatham from Landguard Fort. Captain J. T. McEntire, on arrival from Potchefstroom, South Africa, has been appointed to the Northern Command and posted to York. Captain K. A. C. Doig, from Shahjahanpur, has been posted to the station hospital at Muttra. Captain M. H. G. Fell and Captain L. Bousfield have arrived home on leave from Egypt, and Captain W. L. Baker and Captain T. H. Gibbon have arrived home on leave from Malta. Captain H. O. M. Beadnell, Lahore Division, has been granted two months' extension of his leave on medical certificate. Lieutenant M. O. Wilson has been permanently transferred from the 4th (Quetta) Division to the 7th (Meerut) Division for special duty in connexion with the anti-typhoid inoculation of the Fourth Battalion Worcestershire Regiment. Lieutenant T. B. Nicholls, from Hilsea, has joined at Tidworth. Lieutenant J. J. H. Beckton has been transferred from Dover to Canterbury. Lieutenant A. D. Stirling, from Aston, has been posted to Edinburgh. Lieutenant R. M. Davies, from Chatham, has taken up duty at Gravesend.

INDIAN MEDICAL SERVICE.

Colonel G. W. P. Dennys, Principal Medical Officer of the Aden Brigade, has been granted three months' privilege leave from India. Lieutenant-Colonel J. A. Burton has been granted five months' leave home from India. Major W. H. Cox, D.S.O., has been detailed to carry on the duties of Principal Medical Officer, Aden Brigade, in addition to his own duties, as a temporary measure. Major G. Tate has been appointed a Specialist in Midwifery and Diseases of Women and Children to the Second (Rawalpindi) Division. Major E. Wilkinson, Officiating Sanitary Commissioner of Eastern Bengal and Assam, has been selected to carry on the duties of Sanitary Commissioner of the Punjab, vice Colonel C. J. Bamber, promoted. An extension of two months' leave has been granted to Major L. J. N. MacLeod, Bombay. On the termination of a course of instruction at Amritsar, Major W. H. Kenrick has been posted as Civil Surgeon to Nimar District, Central Provinces. Major T. Jackson, Major A. Hooton, and Major J. M. Crawford, Bombay, have arrived home on leave from India. Captain E. Whitworth Jones has been permitted by the Secretary of State to return to India. The services of Captain A. F. Babonau have been placed at the disposal of the Government of India for employment on plague duty in the Punjab. Captain H. S. Hutchinson has been appointed to the substantive medical charge of the 23rd Sikh Pioneers, vice Captain H. M. M. Melhuish, transferred permanently for employment under the Civil Department. Captain C. R. O'Brien, Officiating Civil Surgeon of Jailpaiguri, has been transferred to Barisal, Captain C. Godson from Barisal to Silchar, and Captain H. Tunes from Kachar to Mymensingh, Eastern Bengal. Captain W. H. Hamilton has been appointed Specialist in Ophthalmology to the Second (Rawalpindi) Division. Captain J. E. Clements, Civil Surgeon of Montgomery and Superintendent of the Central Jail, has been granted 18 months' combined leave home from India; Captain N. H. Hume has been appointed to relieve him. Captain W. H. Tucker has been granted 19 months' combined leave out of India. Captain N. E. H. Scott, Agency Surgeon of Maskat, has been granted combined and special study leave from India for 12 months. Captain T. W. Harley, Captain H. Hay Thorburn, Captain J. W. McCoy, Captain L. B. Scott, Captain A. W. Greig, and Captain W. M. Houston have arrived home on leave from India. Lieutenant J. J. H. Nelson, in charge of the Brigade Laboratory at Bangalore, has been appointed a Specialist in the Prevention of Disease to the 9th (Secunderabad) Division. Lieutenant G. F. James, Officiating Civil Surgeon of Mymensingh, has been transferred to Jailpaiguri, Eastern Bengal. Lieutenant R. E. Wright has been appointed Specialist in Otology, Laryngology, and Rhinology to the Burma Division.

The King has approved of the promotion of George William Patrick Dennys from Lieutenant-Colonel to Colonel (dated June 16th, 1910).

TERRITORIAL FORCE.

Royal Garrison Artillery, Hampshire.

Surgeon-Captain Alexander A. McKeith to be Surgeon-Major (dated Nov. 1st, 1909).

Wessex Divisional Engineers.

Surgeon-Captain Edward G. Stocker, from the 2nd Wessex Field Company, Wessex Divisional Engineers, Royal Engineers, to be Surgeon-Captain (dated July 15th, 1910).

Infantry.

6th Battalion, The Prince of Wales's Own (West Yorkshire Regiment): Surgeon-Lieutenant Richard Bladworth to be Surgeon-Captain (dated July 14th, 1910).

Royal Army Medical Corps.

2nd East Lancashire Field Ambulance: Captain Harry Washington Pritchard, from the 3rd East Lancashire Field Ambulance, Royal Army Medical Corps, to be Captain (dated March 7th, 1910). Andrew Walker Buist Loudon to be Lieutenant (dated May 10th, 1910).

1st Lowland Field Ambulance: Lieutenant Ernest Augustus Boxer, from the list of Officers attached to Units other than Medical Units, to be Lieutenant (dated May 24th, 1910).

2nd Welsh Field Ambulance: Captain Evelyn J. R. Evatt to be Major (dated June 27th, 1910).

4th Southern General Hospital: The officers and men of the 4th Southern General Hospital (commanded by Lieutenant-Colonel C. E Russell Rendle) completed their course of training at the Military Hospital, Devonport, on July 24th. They were inspected on July 21st by Colonel R. Jennings, Administrative Medical Officer and Commanding R.A.M.C. of the Devonport District, and on July 22nd by Lieutenant-Colonel Sir J. R. A. Clark, Bart., C.B.

2nd Southern General Hospital: The unit, consisting of 40 non-commissioned officers and men of the 2nd Southern General Hospital, commanded by Lieutenant-Colonel J. Paul Bush, C.M.G., left Bristol on July 23rd for 15 days' training at the Military Hospital, Devonport.

1st Northumbrian Field Ambulance: Major (Honorary Lieutenant in the Army) John Clay, to be Lieutenant-Colonel (dated July 9th, 1910).

2nd Northumbrian Field Ambulance: Major Lawrence J. Blandford to be Lieutenant-Colonel (dated July 9th, 1910).

1st London (City of London) Sanitary Company: Joseph Grounds to be Lieutenant (dated May 31st, 1910).

Attached to Units other than Medical Units.—Lieutenant-Robert H. Gilbert-Bruce to be Captain (dated August 24th, 1909). Lieutenant William J. Caie to be Captain (dated June 15th, 1910). Lieutenant Andrew Currie resigns his commission (dated August 10th, 1910). Lieutenant Alexander Cruickshank to be Captain (dated April 1st, 1908). Lieutenant John Stewart resigns his commission (dated August 6th, 1910). Lieutenant Norman S. Carmichael resigns his commission (dated August 6th, 1910).

MEDICAL BRANCH OF THE NAVY LEAGUE.

We briefly referred to the formation of this branch of the Navy League in THE LANCET of August 6th, p. 431. We have now received a report of the meeting inaugurating the branch which was held on July 29th at the Imperial Institute. Dr. W. P. Herringham, chairman of the provisional committee, explained that some months ago it was thought advisable to form a branch of the Navy League for medical men. They saw a good deal of the world and could thus influence many people. Notices suggesting the formation of a branch were issued and a considerable number of members had already joined. Dr. Maurice Craig moved and Dr. Percy M. Smith seconded: "That a medical branch of the Navy League be and is hereby formed." This was unanimously agreed to. The chairman announced that Sir Richard Douglas Powell had consented to act as president of the branch. Sir Richard Douglas Powell then took the chair. The following were elected as officers and committee:—President: Sir Richard Douglas Powell. Treasurer: Dr. Smith. Honorary Secretary: Dr. Craig. Committee: Mr. G. Lenthal Cheatle, Dr. W. H. Clayton-Greene, Dr. Fawcett, Sir Alfred D. Fripp, Dr. W. P. Herringham, Dr. A. Latham, Mr. W. T. Lister, Dr. Macnamara, Mr. H. S. Pendlebury, Mr. Hugh M. Rigby, Dr. J. S. Risien Russell, Dr. H. Scurfield, Dr. Lewis A. Smith, Mr. J. M. G. Swainson, Dr. Campbell Thomson, and Dr. H. G. Turney. Sir Richard Douglas Powell stated that the Prime Minister observed some time ago that the maintenance of a sufficiently powerful Navy was essential for the preservation of the vital interests of 40,000,000 of people in these islands. He might also have said it was necessary for the vital interests of many more millions of imperial and colonial subjects of the King. The Chancellor of the Exchequer said he regretted that matters of social reform had to be deferred for the building of "Dreadnoughts." The nation felt that social security must have precedence of social reform. Reforms were no good unless they were based on the security of the country. The Medical Branch of the Navy League was not for the purpose of supplying medical aid and comforts in time of war, but for the purpose of securing the interest and advocacy of medical men in favour of the provision of a strong Navy. Commander Crutchley (secretary to the Navy League) also addressed the meeting, and Dr. Craig, in moving a hearty vote of thanks to Sir Richard Douglas Powell, stated that the membership was steadily increasing. The five-shilling members were as important as the guinea ones, and it was felt that a large number of medical men would pay the smaller subscription in order to further the welfare of a great cause. Application for membership should be sent to the honorary secretary at 54, Welbeck-street, London, W.

Surgeon-General William W. Kenny has been appointed an Honorary Surgeon to the King in the place of Surgeon-Major-General J. G. Faught, deceased.

Correspondence.

"Audi alteram partem."

INTERNATIONAL CONGRESS ON DISEASES OF OCCUPATION, BRUSSELS.

To the Editor of THE LANCET.

SIR,—I have pleasure in forwarding you a list of contributions by English experts to the International Congress on Diseases of Occupation to be held in Brussels from Sept. 10th to 14th. It will be noted that the honorary secretaries have succeeded in obtaining papers under every heading, and the names of the writers should be sufficient to vouch for their high standard. French, English, German, and Italian are the official languages of the Congress, and each contribution will be printed in the language in which it is written; abstracts in the other three languages will be distributed along with the paper. The business-like method of sending out printed copies of all papers and abstracts to members before the Congress meets, and of allowing each contributor to expound on his subject for ten minutes when brought up before the Congress, has been adopted.

All the questions taken up by our own experts are important, though probably the most interesting from a national point of view will be that of medical service. Every class of medical supervision and aid adopted in connexion with industrial pursuits in different countries will be explained and discussed from an international standpoint, and a special effort is being made to obtain as much information as possible on the methods adopted on the leading railway systems of the world. To the latter part of the subject eight of our principal railway companies have contributed valuable data. The duties of the certifying surgeon, along with all other national systems of medical inspection, are to be explained and discussed, so that there will be every opportunity for making comparisons, and those of our own legislators who have recently shown so much interest in the Home Office Vote will be able to ascertain if our continental friends have been able to achieve anything more economical than a sixpenny medical examination or a shilling certificate of industrial poisoning.

The Congress is being very well supported from this country, a considerable number of certifying surgeons, insurance medical officers, and medical referees having already signified their intention to be present. Applications for membership can be obtained from Dr. W. F. Dearden, 15, Salisbury Buildings, Trafford-road, Manchester.

I am, Sir, yours faithfully,

Manchester, August 9th, 1910. W. F. DEARDEN.

PAPERS FROM BRITISH CONTRIBUTORS.

Question I.

"The English Workmen's Compensation Act; With Special Reference to Hernia, Lumbago, Heat Stroke, and Caisson Disease." Dr. R. J. Collie, Medical Referee under the Workmen's Compensation Act, Medical Examiner to the London County Council.

"Small-pox as an Industrial Accident." Dr. H. E. Corbin, Medical Officer of Health, Stockport.

Question II.

"The Function of the Certifying Factory Surgeon." Dr. . F. Dearden, Honorary Secretary, Association of Certifying ıctory Surgeons.

"Certificates of Fitness in the Cotton Trade." Dr. A. Glen ırk, Certifying Surgeon, Bolton.

"Statistical Studies of Phthisis as an Occupational isease." Dr. T. D. Lister, Consulting Medical Officer to e Royal Exchange Assurance Corporation.

"Descriptions of Systems of Medical Service Adopted by ading British Railway Companies." Dr. J. G. McBride, edical Inspector to the North-Eastern Railway Company; r. T. M. Watts, Medical Officer to the Great Central Rail-ay Company's Employees' Friendly Society; and Dr. W. F. earden, on behalf of a number of Companies.

Question III.

"Experience of Ankylostomiasis in Cornwall." Dr. A. E. ycott, Lecturer on Pathology, Guy's Hospital.

"Incidents in the Life-history of Ankylostoma Duode-le." Professor Sir Thomas Oliver.

Question IV.

"Glass Worker's Cataract." Dr. W. Robinson, Surgeon the Sunderland and Durham Eye Infirmary, &c.

Question V.

"Caisson Disease." Lieutenant G. C. C. Damant, R.N., .M.S. *Excellent*, Portsmouth.

Question VI.

"Gaseous Poisons: With Special Reference to Hydrogen rsenide and Hydrogen Phosphide." Professor John aister.

"A Contribution to the Study of Aniline Poisoning." Dr. Prosser White, Surgeon to the Roburite Explosives Com-ny, &c.; and Dr. A. Sellers, Public Health Laboratory, anchester.

"Some Unusual Features of Lead Poisoning." Professor r Thomas Oliver.

"Ten Years' Experience of Notification of Lead Poison-g." Dr. T. M. Legge, H.M. Medical Inspector of ıctories.

"Early Indications of Lead Poisoning." Dr. S. King cock, Certifying Surgeon, Burslem; Medical Referee ıder the Workmen's Compensation Act, &c.

THE SUPPRESSION OF QUACKERY.

To the Editor of THE LANCET.

SIR,—The question raised by Mr. P. M. Yearsley is one of tal importance to the welfare of the people of this nation. ıe length which quackery has reached is most serious. The næsthetic Report of the Coroners' Committee, which calls tention to the fact that any Dick, Tom, or Harry can lminister anæsthetics, and the decision of the Lord ıancellor in the case of Bellerby *v.* Heyworth that the edical and Dental Acts only protect "titles," prove con-usively that the public has no protection from those who, ıving had no medical education, and therefore are unregis-red practitioners, profess to be curers of disease.

Mr. Churchill, in answer to a pertinent question asked in e House of Commons by Mr. Marshall Hall, said that gislation is to be introduced dealing with the anæsthetic ıestion. It must be obvious to all unprejudiced people that legislate on this question only and to leave untouched the r more important one of the professed cancer and consump-on curers and the rest of the unregistered practitioners is ıdesirable; the whole question needs Governmental treat-ent. We ask for protection of the public and not of the ofession; the practice of unregistered persons increases ther than decreases the work of the qualified practitioners 'hen the quack has done his worst or his best the poor retches who have been victimised invariably turn for help the qualified, but only in most cases when it is too late. is an open secret that there are British Medical Associa-on and British Dental Association Bills being promoted by ıe two associations respectively. I suppose it is equally rtain that neither will become law. In consequence of the oroners' report and the Lord Chancellor's decision a great pportunity has arisen for the profession to promote legis-tion on the whole subject, and I for one am a "whole ogger."

How best to deal with the subject is a question that might well be ventilated in your columns, and as one who has for many years considered the problem, due to the fact that as honorary secretary of the British Dental Association some years since I had to face it, I am venturing to throw out my own conclusions upon the question in the hope that many others with larger experience and greater knowledge may be led to do the same. My suggestions are: That we should not attempt to rescind past legislation or suggest radical changes in the methods of qualification and registration, but endeavour to secure the introduction of a Governmental measure to deal with unregistered practice only. That the Presidents of the General Medical Council, the Royal College of Surgeons of England, and the Royal College of Physicians of London, the Regius professors of medicine of Oxford and Cambridge, together with similar representatives from the provincial universities, should go as a deputation to the Prime Minister and Home Secretary and state our case and our requirements. That the demand made to them should be: (1) the restriction of medical and dental practice to registered practitioners; (2) a penal clause; and (3) a clause to deal with vested interests —viz., that all unregistered practitioners now in practice should be permitted to obtain registration, on condition that they pass the respective examinations for medical or dental registration, without requiring them to fulfil the respective curricula.

It appears to be necessary that the Bill should be so short and so worded that no explanatory clauses are needed, in order that there may be no possibility of legal evasions of it.

I am, Sir, yours faithfully,

Cavendish-square, W., August 8th, 1910. MORTON SMALE.

To the Editor of THE LANCET.

SIR,—For some time I have not troubled you on this subject, but the back volumes of THE LANCET can testify that it has engaged my attention for at least 30 years. With this experience I do not hesitate to affirm that a society for the suppression of quack advertisements such as Mr. Macleod Yearsley proposes to start must prove a failure; but if a society for the suppression of quackery can be founded and provided with ample funds it could bring about legislation which would put an end to most of the evils and abuses complained of. The vast majority of newspapers, including many of those that stand in the front rank of journalism, are virtually suborned by quackery. I use the word advisedly. The conduct of the bulk of the press in this connexion forms one of the greatest scandals of the present day. They set themselves up as censors of morals, guardians of the public welfare, protectors of the national honour; the majority are supporting themselves or amassing wealth by aiding and encouraging the army of adventurers which by one or another cynical dodge preys upon the simple public. The papers I allude to not only fill their pages with advertisements the fraudulent character of which is evident to their managers and editors, they suppress or curtail all matter, including law proceedings, through which the victims of quackery, mostly the poorer classes whose interests they profess to have at heart, might perchance gain the knowledge they so sadly lack. The attitude of these papers towards fraudulent commercial enterprises is much the same. With the exception, perhaps, of the *Spectator*, papers whose pages are undefiled decline to criticise their brethren, and restraint from that direction cannot be looked for. Quackery, practice by unqualified pretenders, and the traffic in secret remedies and bogus apparatus, under the cloak of which much illicit practice is carried on, constitute one of the greatest evils of the present day. The benevolent public do not know its secrets; if they did we might soon see established societies to attack it. It is not only fraudulent, it is cruel and murderous, and its chief and most pitiable victims are among the poor. An anti-quackery society would probably produce from amongst its more impressionable members fanatics like those that devote their lives to antivivisection and similar causes, and a great noise would be made, perhaps with the effect of making itself heard in time by statesmen and the Legislature. A society supplied with enough money might at least prepare a case which would prove the urgent necessity for a Government inquiry. I have long advocated the promotion of a Royal Commission to inquire into the whole question of medical law, including the traffic in

quack remedies. The movement has now really got a start, and if the profession had any political power, if it possessed any organisation capable of making its voice audible, there would be no doubt that this necessary preliminary step would soon be taken. The case for legislation is overwhelming; it needs only authoritative statement to compel the attention of Parliament. It can be proved that the suppression of coarse quackery would not, from the sordid point of view, constitute an unmitigated advantage to doctors. Quackery forms a potent cause in deterioration of the public health, and, if checked, the income doctors now derive from invalids with maladies created or aggravated by quackery would at any rate be cut off. Nor would the question of legitimate medicine and surgery as science and art come within the scope of the proposed inquiry. If there did not exist one single scientific fact on which to base the practice of our profession throughout, it would still be easy to make plain to all intelligent minds the quality of quackery—a mass of falsehood, undiluted, gross as a mountain, open, palpable. The appointment of a public prosecutor charged to put in force existing statutes would enable proceedings to be taken against many quack medicine proprietors for getting money under false pretences. This was proved in the well-known case at the Lewes assizes three years ago. Amendment of the Food and Drugs Acts would provide further powers in the same direction; and there can be no doubt that Parliament once resolved upon action would find no difficulty in constructing effectual legislation. If, thanks to simple laws, an unqualified solicitor cannot live under any false pretence, it ought not to be difficult to construct a Medical Act which should at least prevent a fraudulent pretender from palming himself off even upon educated people as a legally qualified practitioner.

I am, Sir, yours faithfully,

HENRY SEWILL.

Earlswood Common, Surrey, August 6th, 1910.

GRAIN ITCH.

To the Editor of THE LANCET.

SIR,—I notice in THE LANCET of July 9th that you refer to "grain itch," and consider it might be of interest to hear of cases occurring in this country. I had a case last year which I strongly suspected to be of that nature. A vessel arriving here from Quebec reported having a case of variola on board. On visiting the vessel I found that the patient was a passenger who had come from a district in Canada where some small-pox had occurred, and that she had passed a night or two in Montreal, where she had slept on a straw mattress. She was taken ill on July 17th, one day after sailing, with malaise, fever, a temperature of 103° F., and an eruption.

The eruption was extremely itchy and was distributed irregularly on the face, neck, and trunk, and also on the arms. It was papular in form, but became vesicular within 24 hours, the change occurring first on the face. These vesicles rapidly dried up. Both the ship's surgeon and the patient's own medical attendant, who happened to be on the boat, were of the opinion that she was suffering from small-pox, and she was, of course, isolated. At the time I saw her, eight days after onset, the rash had completely disappeared from the face, and only a blotchy discolouration of the skin marked the site of the lesions on the trunk. Considering the rapid development, irritability, and evanescent character of the rash, I was extremely doubtful of a diagnosis of small-pox, but as a precautionary measure she was isolated in hospital. Within four or five days a fresh rash appeared, mainly on the face, arms, and upper chest, and consisted of large wheals and blotches of a pink colour. They did not become vesicular. They were excessively itchy, so that the patient could not sleep and wanted to "tear herself to bits." The rash rapidly disappeared with disinfecting baths and the patient was allowed to proceed.

At the time I was unable to give a name to the disease, but I saw a note by Dr. Goldberger and Dr. Schamberg in the United States Marine Hospital Report for July 9th, 1909, under the heading "Urticarioid Dermatitis." It is there mentioned that the disease has occasionally been taken for small-pox, but more often for chicken-pox. The itchiness alone should differentiate it from either. But the presence of fever and the eruption is very suggestive, to anyone unacquainted with the disease, of an acute specific feve I have very little doubt that the case I saw was of the natu described by Dr. Schamberg, though I did not verify it b finding the parasite. A further description of the disea with plates, under the title "Straw Itch," occurs in tl United States Marine Hospital Reports for June 10th of th year.

I am, Sir, yours faithfully,

C. O. STALLYBRASS, M.D. Lond.,
Assistant Port Medical Officer.

Liverpool, August 6th, 1910.

HEART PUNCTURE.

To the Editor of THE LANCET.

SIR,—Direct puncture of the heart for therapeutic pu poses, as related in Mr. J. Wallace Milne's interestir communication in THE LANCET of August 6th, p. 377, hi rarely been done, and details of every such case are therefo desirable. It would be of interest to know more particular what the heart-rate and rhythm of this case were. If ar reliable tracings were taken they would also be of interes I conclude there was no post-mortem examination of tl body, but it would be of interest to learn definitely wheth the pericardial sac remained free from any evidence effusion after the puncture and also what the *immedia* consequences of that procedure were on the position, siz and action of the heart. I feel sure that a reply to thes questions would interest your readers and add to the value Mr. Milne's important communication, as his present note though highly interesting, are expressed, if I may say so, i too general language for scientific record. A surgeon wi pardon the curiosity of a physician.

I am, Sir, yours faithfully,

ALEXANDER MORISON.

Upper Berkeley-street, August 6th, 1910.

PSYCHO-THERAPEUTICS AND MEDICAL EDUCATION.

To the Editor of THE LANCET.

SIR,—The recent appreciative notices of the power of th mind in medicine in our leading medical journals encourag me to bring before your readers an important matter in cor nexion with the subject. For five-and-twenty years I have bee fully convinced that the absence of any instruction in ment therapeutics in our medical curriculum resulted in a three fold evil to our profession: (1) It left them in ignorance o the powers and right use of a force which they *unconsciousl* employed every day; (2) it enabled many quacks, by exploit ing this power for their own ends, to rob doctors of many o their best patients; and (3) it resulted in a large loss o money and prestige to the profession.

The *first* needs little proof. The mind can as readily b made to do evil in medicine as to do good, and the person ality of the physician has a constant power for good or evi with his patients of which he may be but little aware, bu which not only may affect their recovery, hut undoubtedly i the leading factor in the doctor's own success or failure The *second* is the subject of a remarkable letter from Si James Paget to Sir H. Acland of Oxford as follows: "Wha unsatisfactory ..... cases these are! This clever, charming and widely known lady will some day disgrace us all by bein juggled out of her maladies by some bold quack, who b mere force of assertion will give her the will to bear, o forget, or suppress, all the turbulences of her nervou system."[1] The *third* is known and deplored everywhere, bu no real remedy exists save what I suggest—viz., the study and knowledge of psycho-therapeutics.

That this is not done I proved last year at Belfast, whe as the result of an exhaustive inquiry at the medical school of the United Kingdom and Ireland I found that nowhere with one exception, was applied medical psychology (of th sane mind) taught. Without, therefore, saying more a present, I would again urge upon the profession, as I did a Sheffield, to consider whether the time has not now arrive for including definite instruction in the powers of the min in medicine in our medical curriculum. There can be n doubt that before long we shall look back on our presen

[1] Sir James Paget: Life and Letters. Longman, fourth edition, p. 277.

tate of ignorance of this important branch of medicine vith amazement.—I am, Sir, yours faithfully,

ALFRED T. SCHOFIELD, M.D. Brux.

Harley-street, W., August 5th, 1910.

A STEAMER WITH SPECIAL MOSQUITO SCREENS.

To the Editor of THE LANCET.

SIR,—Referring to the letter from Dr. H. Wolferstan Thomas, published in THE LANCET of July 9th, p. 130, it vill possibly be of interest to your readers to learn that our .s. *Vincent* therein referred to has just returned to Liverpool rom Porto Velho, River Madeira, and during the whole oyage no single case of fever was contracted on board, hanks to the very effective anti-mosquito screening which)r. Thomas fully describes. We believe the *Vincent* to be the irst steamer to have navigated the Madeira without the crew ontracting malaria.—Yours faithfully,

THE BOOTH STEAMSHIP COMPANY, LIMITED.
CLEMENT W. JONES, Director.

Liverpool, August 3rd, 1910.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Glanders among Colliery Horses.

A FEW months ago the medical officer of health of Ebbw Vale, Mr. J. W. Davies, in a report upon the condition of he underground colliery workings in the district, referred to he suspected existence of glanders among the pit horses nd suggested that steps should be taken to ascertain the ruth or otherwise of the suspicions. Mr. Davies was not ermitted by the colliery managers to visit the workings, ut the chief veterinary inspector of the Monmouth county ouncil recently made an inspection of all the horses work- ng in the collieries concerned. He tested 281 horses with allein, and in 94 instances the test reacted. All hese horses were slaughtered, and in every instance post- ortem examination revealed the existence of disease, lthough while alive there were no definite clinical signs bserved. In his report to the county council on the question he veterinary inspector stated that the Blaenavon Colliery Company since early in 1904 had tested before purchase all orses used in their collieries, and he suggested that this ourse should be followed in all collieries. He also urged hat the testing of "cast-offs" before sale should be made ompulsory.

Country Nursery for Poor-law Children.

The Cardiff board of guardians has given favourable con- ideration to the suggestion of Mr. Andrew Fuller, one of the Poor-law medical inspectors of the Local Government Board, hat there should be provided at the Children's Homes at Ely, near Cardiff, a nursery for the weaned children who at resent remain in the workhouse at Cardiff. The surround- ngs of these babies will undoubtedly be improved, and it is urther proposed that the older girls at the homes shall be rained as nursemaids, the transferred babies being used as raining material. A one-storey pavilion surrounded by a erandah is to be erected at a cost of £1500, and will be sed as a nursery.

The Water-supply of the Western Valleys of Monmouthshire.

For several years past attempts have been made to obtain he consent of Parliament to a comprehensive scheme for he supply of water to certain portions of the thickly opulated districts in the western valleys of Monmouthshire. n 1908 the county council was unsuccessful in its endeavour o provide a supply for a large portion of the coalfield n the county, including the western valleys, but in ejecting the council's Bill the Parliamentary Committee, who ad it under consideration, suggested that a joint water board ormed from certain of the district councils might very properly romote a scheme which would probably be favourably eceived by Parliament. A Bill with this end in view was ccordingly promoted in the current session and has received he Royal assent. The localities to which the supply is to be rovided are the urban districts of Abertillery, Abercarn, Risca, and Mynyddislwyn. At the census of 1901 they had an aggregate population of over 60,000, and the number is now probably approaching 100,000. The scheme provides for a large impounding reservoir and for four service reservoirs.

August 9th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Progress of Depopulation.

THE number of births in France has never been lower than in 1909, only 769,969 live births having been registered, which is a decline of 21,743 on the previous year. The excess of births over deaths was only 13,242, an increase of the population of France to the extent of 3 per 10,000. The excess of births is about 33,000 less than in 1908. Although in 1909 the population increased by only 13,242, there had been an increase of 46,411 in the previous year. This diminution of the excess of births was caused to the extent of about one-third by an increase of the number of deaths, which were more numerous by 11,274 in 1909 than in 1908; and to the extent of two-thirds by an actual decrease in the number of births (769,969 births in 1909, as compared with 791,712 in 1908). The annual increase of the population is from six to ten times more rapid in other countries than in France. In the northern parts of France, in Brittany, on the eastern frontier, in Limousin, and in Corsica the birth-rate was higher than the death-rate, but, on the other hand, in the basins of the rivers Garonne and Rhone there were more deaths than births. In the department of the Seine 73,466 live births and 74,576 deaths were registered in 1909, the net result being an excess of 1110 deaths.

The Pathogenetic Relations of Variola and Vaccinia.

At a meeting of the Academy of Medicine held on July 19th M. Kelsch made a communication on the subject of the pathogenetic relations of variola and vaccinia confirming his previous researches. He said that heifers inoculated with the virus of human small-pox did not contract vaccinia if care was taken to isolate them. The positive results obtained elsewhere, which have led to a belief in the identity of the two diseases, could only occur in heifers left in contact with other animals suffering from vaccinia. In this case mere inoculation with glycerine was sufficient to cause the appearance of vaccinia in these heifers by contagion; in the experience of M. Kelsch this result happened three times out of four. Some experimenters have inoculated vaccinia in these circumstances, and have come to the conclusion that effects which would have been produced equally well with ordinary glycerine were to be interpreted in a positive sense. They had, however, make the mistake of adopting a faulty method, and the inferences arrived at were inadmissible.

Surgical Treatment of Renal Calculus.

For the surgical removal of renal calculi Dr. Bazy is not in favour of nephrectomy or opening of the kidney with a search for the calculus, followed by suture of the kidney. He prefers pyelotomy or opening the renal pelvis, performed by preference on its posterior aspect. This operation has the advantage of not disturbing the tissues of the kidney and of not interfering with its functional action in the future—a consideration which is of importance when the other kidney is impaired. Even when the pelvis contains infective products the cicatrisation proceeds normally. The operation is of only average duration and not severe. A preliminary radiographic examination might be made for the purpose of determining whether nephrectomy or pyelotomy is the preferable operation.

Public Health in Algeria.

The Governor of Algeria has issued a public notice in French and Arabic to the effect that flies, mosquitoes, fleas, bugs, and lice (the latter alike of man and of the domestic animals), are not only troublesome from the bites which they inflict, but are dangerous from their power of communicating illness, and ought therefore to be destroyed. Among certain tribes there is a disease called "typhus," which especially attacks persons addicted to self-neglect. It is disseminated by insects, fleas, bugs, and more particularly by lice, which draw blood and the germs of disease from patients and afterwards bite and infect healthy individuals. Habits of personal cleanliness, washing and boiling clothes, frequent

bathing and house cleaning will almost certainly prevent infection. Patients ought to have well-ventilated rooms. Healthy persons ought not to sleep with them or to use their linen until it has been boiled for the purpose of destroying the insects.

The Etiology of Cirrhosis of the Liver.

From the clinical observation of several hundred cases of retractile cirrhosis of the liver, Dr. Lancereaux has come to the conclusion that it is due not so much to the alcohol contained in wine and beer as to the preservative processes (*plâtrage et sulfatage*) to which these beverages have been subjected. In the interests of public health, if this view can be upheld, the metbods are to be deprecated.

August 9th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

A Case of Chloroform Habit.

Dr. Storath, assistant physician to the St. Rochus Hospital at Mayence, has described in the *Deutsche Medizinische Wochenschrift* a case of chloroform habit lasting for 15 years. Tbe patient was a woman of 51 years of age who had suffered from migraine since childhood. In the year 1895, wben she was 36 years of age, a medical man prescribed for her an ointment consisting of chloroform, oil, and spirit to be applied on the forehead. She very soon found that this had a narcotic action and sbe accordingly inbaled the vapour instead of applying the ointment on the skin. From 1895 to 1897 50 grammes were taken daily and from 1897 to 1901 three or four times a week, the result being that the headache disappeared. From December, 1901, till April, 1902, she was in a hospital under treatment for hysterical fits, and afterwards did not take chloroform for two years, but then again resumed her previous habit. She was again twice in the hospital, the last time being from December, 1905, till March, 1906, wben she was transferred to an invalids' home where she at first abstained from the inhalation of chloroform, but began to indulge in the drug again after nearly two years. It was in that home tbat her habit was first detected, as she was once found in her room by the house physician in a state of deep narcosis with abolition of the reflexes. She was therefore again admitted to a hospital and her supply of chloroform was effectually stopped without any symptoms of excitement ensuing. She did not exhibit any characteristic symptoms of poisoning; her mental condition was completely normal, and, apart from slight hyperæsthesia on the left leg and an increased reflex irritability due to the coexisting hysteria, sbe appeared quite healthy and in a comparatively good state of nutrition. The characteristic feature of the case was that although the chloroform habit had persisted for 15 years the dose was not increased but remained nearly the same all the time, therein differing from what is usually observed in cases of the abuse of morphine and otber drugs; the chloroform, moreover, did not produce any morbid condition in the body either of a somatic or of a psychic nature, and no harm seemed to result when the use of the narcotic was abruptly discontinued.

Statistics of German Universities.

The number of students matriculated at the 21 German universities during the present summer semester was not less than 54.854 (of whom 2169 were women), as compared with 51,700 in the year 1909, and 33,700 in 1900. Apart from tbe matriculated students 2686 men and 1226 women were allowed to attend lectures without matriculation. The increase of students since the preceding year was principally in the faculty of philosophy, where the nnmber rose from 13,911 to 15,475, and in tbe medical faculty, where it increased from 9462 to 10,682. The four largest universities are those of Berlin with 7902 students, Munich witb 6890, Leipsic with 4592, and Bonn with 4070. Next in order come those of Freiburg with 2884 students, Halle with 2451, Breslau with 2432, Heidelberg with 2413, Göttingen with 2353, Marburg with 2192. Tübingen with 2061, Münster with 2007, Strasburg with 1964, Jena with 1817, Kiel with 1760, Würzburg with 1429, Königsberg with 1381, Giessen with 1334, Erlangen with 1030, Greifswald with 1029, and Rostock with 834.

The Position of Extraordinary Professors in the Universities.

It has for a long time been an object witb the extraordinary professors to enjoy the same privileges as the ordinary professors. The former are not eligible for tl office of dean or rector and have no votes in questions co cerning their respective universities, the administration which is exclusively in the hands of the ordinary professor This undesirable state of things is now somewhat improve as far as Prussia is concerned. A recent Royal order entitle the extraordinary professors to a vote in subjects concernin their special branch of science, provided that no ordinar professor exists for that branch. They are further authorise to vote in the election of the rector and of the deans, bu with the restriction that the number of their votes mus never exceed half the number of the votes of the ordinar professors. When the latter is the case the junior extra ordinary professors must abstain from voting.

Disinfection of the Surgeon's Hands before Operating.

Opinion with respect to the most efficacious mode of dis infecting the skin for surgical purposes is undergoing remarkable alteration. Washing and brushing, which hav hitherto formed a principal feature in the operation room, wil soon be a thing of the past here. The painting of the fiel of operation with tincture of iodine, devised by Dr. Grossich has more and more replaced the modes of disinfectio formerly in use. Dr. Schumburg of Strasburg, a staff-surgeo of the army, has recently warned surgeons against reliance on washing their hands with soap and water. He has found by bacteriological research that brushing the hands witb soap and hot water does not destroy the germs, even wher continued for 15 or 20 minutes, but that washing with 20 grammes of absolute alcohol destroys 99 per cent. of the germs. Instead of a brush, a piece of gauze moistened witb the alcohol is used. According to him the soap softens the skin and tbe capsules of the bacteria so that the latter stick to the skin and cannot be removed by the brush. The alcohol, on the contrary, hardens the skin and the capsules of tbe bacteria so that the adbesion between them decreases, the result being that the bacteria can be easily removed from the skin by a piece of gauze. Preliminary wasbing with soap and water is to be avoided because the alcohol becomes diluted and the skin damaged. By order of the Army Medical Department the new method has been tried in the large military hospitals and the reports are very favourable.

August 8th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENT.)

The Public Health of Cuba and Porto Rico.

WHEN the United States Government first occupied Cuba, following the Spanish war, yellow fever, small-pox, and tuberculosis were the prevailing and most fatal diseases of the island. Tbey were indeed a constant menace to the prosperity of the people both in their social and commercial relations with neighbouring nations. Every season the seaports of the United States exercised quarantine against vessels from Cuban ports to prevent the introduction of yellow fever. The measures of prevention of these pestilences, inaugurated by the United States military authorities and continued under the present Department of Public Health, have so reduced their prevalence as completely to relieve public apprehension and allow of free intercourse of the people and of transportation in commerce, to the great improvement of the economic conditions of the island. Dr. Juan Guiteras, director of public health, in reply to criticisms of his management of the department, can refer with pride to the increment in the Cuban population owing both to the increase of births and the decrease of mortality; to the disappearance of small-pox; to the reduction of the mortality from malaria, bringing it down from the first to tbe eighth place in the mortality records; to tbe eradication of yellow fever, with its average yearly record of 600 deaths in the city of Havana alone; to the disappearance of the borras fever so fatal to children; to tbe gradual decrease of the mortality from infantile tetanus and tuberculosis. All this you have allowed me to say before in your columns, but I should like now to point out that not less striking has been the improvement of the public health of Porto Rico under the control of the United States Government. Dr. Pedro Gutierrez Igaravidez, Director of the Service of Tropical and Transmissible Diseases of Porto Rico, and Dr. Bailey K. Ashford, of the United States army, in a recent report, "Summary of a Ten Years' Campaign against Hookworm Disease in Porto Rico," give the history of tbe work of the

health authorities in the effort to exterminate this cause of national ill-health and the chief source of an excessive mortality. It should be stated that during the period of ten years of occupation small-pox and yellow fever, formerly very prevalent and fatal, have disappeared altogether from the mortality records. The national disease of the Porto Ricans was anæmia which chiefly affected the poor classes. The authorities created an "Anæmia Commission" to study the cause of this disease, and the result was the discovery of the hookworm parasite. It was estimated that this parasite was the scourge of 90 per cent. of the agricultural labouring population of the island, a class representing at least 600,000 souls out of a million population, and that it caused 30 per cent. of the deaths. The next step was to discover a successful method of treatment and this inquiry resulted in the adoption of thymol as the special remedy. The commission stated in its second report that "five doses of thymol given a week apart are sufficient to practically cure nearly every patient and to reduce the power of infectivity of the patient to the soil about 19-20ths." To reach the people dispensaries were established in all of the principal towns, printed circulars were widely distributed, and sanitary inspectors were sent out to give lectures to the people. The result of the sanitary work in Porto Rico may be seen in the following. During the five years of Spanish rule preceding its occupation by the United States the death-rate averaged 28·9 per 1000 population, but during the last five years of American rule it averaged 23·3 per 1000 population. The report states that "it can sincerely be stated that the fall in mortality can be attributed almost entirely to the campaign of these five years against the disease, which more than all else has given a mortality far above what Porto Rico, a naturally healthy country, should have." The results of the relief of the agricultural labouring class from the crippling effects of the anæmia due to the hookworm parasite are seen in the greatly increased products of the land reported by the Government.

July 20th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THERE were 891 deaths from plague reported as having occurred in all India for the week ending July 2nd, as compared with 979 in the preceding week. The Punjab returned 582 deaths, Bombay Presidency 114, Burma 102, Madras Presidency 34, the United Provinces 22, Mysore State 16, and Bengal Presidency 11. The reports that plague has been virulent of late in Southern Persia have not been confirmed by any official information in the possession of the Government of India. The latest returns available from Bushire show 43 cases and 34 deaths during the month of May, and it is not likely that there has been any increase during the great heat of June and July.

Improved Pay for Assistant Surgeons.

A resolution in the *Calcutta Gazette* lays down new rules regarding the prospects of sub-assistant surgeons. Existing grades of pay are from Rs. 25 to Rs. 70. The new grades will be from Rs. 30 to Rs. 100. Revised rules are laid down as to free quarters, house rent, and other allowances, while pay fines have been much reduced. The Inspector-General of Hospitals has been instructed to rearrange the service in new grades.

The Health of the Army in India.

In a circular memorandum recently issued by the Commander-in-Chief attention is drawn to the notable reduction in the disease, mortality, and invaliding prevalent in the European army of India. The figures show a progressive and very marked diminution both in the total number of cases coming under treatment and the deaths from all causes. Thus, among British troops the death-rate per 1000 in 1909 was but 6·23, as compared with 9·1 in 1908 and 17·18 in the decade 1894–1903. Similarly, the number of men constantly sick has been reduced from 5374 in the same period to 2879 for last year. These two sets of figures mean a saving of some 600 lives annually and an addition to the fighting strength of the British garrison of about 2400 men. Enteric fever between 1894–1903 caused on an average 1476 attacks and 380 deaths yearly. In 1909 there were only 636 cases with 113 deaths. Similarly, the amount of dysentery has been reduced to one-half, of malaria to two-thirds, and of venereal diseases to one-fifth. In corroboration of these facts the number of invalids sent home has fallen considerably. Thus, as compared with five years ago the number of officers invalided has dropped from 119 to 40, of women and children from 276 to 50, of non-commissioned officers and men from 2105 to 534, and of insanes from 75 to 50. For the causes which have led up to this remarkable amelioration in the sanitary state of the European army in India the Commander-in-Chief ascribes the foremost place to the evidently whole-hearted acceptance by all ranks of the principles of wholesome living in wholesome surroundings so long urged by those whose technical knowledge made it clear that radical changes were necessary. In no sphere of activity are greater changes for the general good noted than in that of cantonment administration, and indirectly much of the present good health of British troops must be credited to the sustained coöperation which is manifest between cantonment magistrates, commanding officers, and the medical officers. The figures quoted warrant the anticipation that the high standard now attained will be improved upon, and that it is not too much to hope for even better returns. The figures for last year relating to the Indian army are not yet available, but the effects of better knowledge and wider activities in the directions of sanitary effort will probably show corresponding reductions in both disease incidence and mortality among the Indian troops.

Station Hospitals for Indian Troops.

A committee comprising Surgeon-General C. P. Lukis, C.S.I., Director-General of the Indian Medical Service, as President; Lieutenant-Colonel W. A. Morris, R.A.M.C., commanding the Station Hospital at Cawnpore; Lieutenant-Colonel C. M. Moore, I.M.S., and Major Jay Gould, I.M.S., as members, has been appointed by the Government of India to meet at Simla to consider the possibility of converting the present regimental hospital system of the native army into a station hospital organisation somewhat on the lines at present existing under the Royal Army Medical Corps in the case of the British Army. Major Bruce G. Seton, I.M.S., Secretary to the Director-General of the Indian Medical Service, has been selected to act as secretary of the committee.

July 9th.

FOREIGN UNIVERSITY INTELLIGENCE.—*Algeria:* Dr. Curtillet has been appointed Professor of Clinical Surgery and Orthopædics.—*Athens:* Professor M. Sternberg of Vienna has been offered the Chair of Children's Diseases.—*Berlin:* Dr. Olshausen, who is retiring from the Chair of Midwifery and Gynæcology, has been granted a patent of nobility.—*Bordeaux:* Dr. Lagrange, *agrégé*, has been appointed Professor of Clinical Ophthalmology in succession to Dr. Badal. Dr. Auché, *agrégé*, has been appointed Professor of Hygiene in succession to Dr. Layet. Dr. Petges and Dr. Carles have been appointed (after *concours*) *agrégés* of General Medicine.—*Budapest:* Dr. M. Pauncz has been recognised as *privat-docent* of Laryngology and Otology, Dr. O. Ranschburg as *privat-docent* of Psychiatry, Dr. Z. Lénárt as *privat-docent* of Laryngology, and Dr. B. Alexander as *privat-docent* of Radiology.—*Gratz:* Dr. H. Pfeiffer, *privat-docent* of Forensic Medicine, and Dr. T. Pfeiffer, *privat-docent* of Medicine, have been promoted to Extraordinary Professorships.—*Lille:* Dr. Lambret has been appointed Adjunct Professor of Clinical Surgery, and Dr. Deléarde Adjunct Professor of Clinical Medicine, of Children's Diseases, and of Infantile Syphilis. Dr. Minet has been appointed (after *concours*) *agrégé* of General Medicine.—*Lyons:* Dr. Cade, Dr. Mouriquand, and Dr. Arloing have been appointed (after *concours*) *agrégés* of General Medicine.—*Montpellier:* Dr. Euzière has been appointed (after *concours*) *agrégé* of General Medicine.—*Nancy:* Dr. Hoche, *agrégé*, has been appointed Professor of Pathological Anatomy. Dr. Perrin has been appointed (after *concours*) *agrégé* of General Medicine.—*Paris:* Dr. Marfan, *agrégé*, has been appointed Professor of Therapeutics in succession to Dr. A. Gilbert. Dr. G. Ch. Guillain, Dr. Leon Bernard, Dr. Léri, Dr. Gougerot, and Dr. Rathery have been appointed (after *concours*) *agrégés* of General Medicine.—*Pisa:* Dr. Giuseppe Tusini has been appointed Ordinary Professor of Pathology.

Obituary.

GEORGE DANFORD THOMAS, M.R.C.S. ENG., M.D.,

CORONER FOR CENTRAL LONDON.

THE public have lost a valuable servant and the medical profession a distinguished member by the death of Dr. George Danford Thomas, the well-known coroner for Central London, which occurred on Friday last, August 5th, at Hastings, where he had gone to spend a brief holiday in the hope that he would benefit by the rest and change. He was 63 years of age and failed in health suddenly about five years ago, but he rallied from the attack and was able to resume his duties. Latterly, having been again unwell, he had gone to stay at his sister's residence in Hastings, and there he died, the end coming somewhat unexpectedly.

Dr. Danford Thomas received his medical education at St. Mary's Hospital, obtaining the M.R.C.S. Eng. in 1871. He was one of a large family and maintained himself in his student days by acting as an assistant to two well-known general practitioners in Paddington. The experiences of these days led him to found the Medical Students' Union, with offices and rooms, which flourished for some years, until the various medical schools provided common rooms and social requirements for their charges. Five years after qualification he graduated at the University of Brussels with honours in medical jurisprudence, and he had the advantage of a certain amount of legal training, having been a student at the Inner Temple. In these days he would certainly have concluded his legal studies and been called to the Bar, but 30 or 40 years ago, when the contest between medicine and law for the position of coroner was most acute, the solution of a double professional qualification had not been arrived at. He early developed a taste for public work and was the first medical officer of health for Willesden, an appointment which he resigned when he became coroner for the Central London district an area comprising such large and populous parts as Islington, Clerkenwell, Holborn, St. Pancras, Marylebone, Paddington, Hampstead, and Hornsey. He followed in his scope of duty some distinguished men, for "Central Middlesex," as the district was called before the creation of the London County Council, has been fortunate in its coroners since the days of Thomas Wakley, the Founder of this journal. In the early "seventies" the position was occupied by Dr. Edwin Lankester, F.R.S., the father of Sir E Ray Lankester, and afterwards by Dr. William Hardwicke, who was succeeded in 1881 by Dr. Danford Thomas, who had acted for several years as the deputy coroner. He was the last of the metropolitan coroners to be elected by the "vote of the freeholders," and the circumstances of his election, surrounded as it was with ancient customs and anomaly, form an interesting note upon municipal ritual. The antiquated formalities entailed costs and an amount of trouble on the candidate that would have seemed out of all proportion to the emoluments of the office if we did not remember that those emoluments were considerable. There was at that time an attempt to recover the post as a prize for the legal profession, from which it had been wrested by Thomas Wakley, who counted it among the triumphs of his energy to have secured this office for the medical profession and to have been the first medical coroner. THE LANCET called upon members of the medical profession to enter into the contest with unwonted alacrity and earnestness and give their support to Dr. Danford Thomas, the deputy of the late Dr. Hardwicke, who was the only medical candidate in the field. A meeting of freeholders was convened to promote the election of Dr. Danford Thomas, with Sir Benjamin Ward Richardson as chairman. How well this succeeded was shown in the result—the return of Dr. Danford Thomas by a majority of votes numbering more than 5 to 1 of those polled for his opponent.

In commenting on the preference in the metropolis for a medical coroner and Dr. Danford Thomas's election, we felt it necessary to state what was expected of him. "We expect, above all things, that the work he has to do will be so done as to bear the criticism of the medical profession. Every week brings us reports and complaints of the perfectly useless and formal way in which inquests are conducted without eliciting any data for an intelligent opinion as to the cause of death. We have a right to expect from a coroner of Dr. Thomas's character, and elected as he has been, that inquests shall be so conducted as to carry the respect of those best able to judge. Where an inquest can be dispensed with, for the sake of friends and human feelings, by all means let it be dispensed with; but when it cannot, let the evidence taken be of the best. It often lies entirely in the discretion of a coroner to select persons to make post-mortem examinations, on the revelations of which the accuracy of the conclusions of the jury entirely depends. He may leave this selection to a subordinate, whose choice may turn upon very irrelevant considerations. This is a duty which should be discharged not by the officer of the coroner, but by himself. On other occasions, too, even medical coroners, for the sake of a little passing popularity, have dispensed with medical evidence altogether, when without it an inquest was an unmeaning farce. We trust Dr. Thomas to avoid such errors." How well Dr. Danford Thomas fulfilled the hopes which the members of his own profession had of him is known to almost every medical man in the central districts of London, for very many of them at one time or another have been before him in their capacity as medical witnesses. Those who have had the opportunity of making a personal judgment can testify to his excellent qualities in the examination of witnesses and the instruction of the jury, and to his unfailing courtesy to the medical profession, whose services he was most punctilious in requiting. His kindly sympathy with the distressed was also shown by the enormous amount of personal time and trouble which he expended in the interests of those whom he learned to be in need or sorrow.

In the course of his 30 years of duty Dr. Danford Thomas is believed, upon an estimate of his own, to have held some 45,000 inquests, and it fell to him to make the preliminary inquiries in many sensational cases of murder—notably, the murders of Mrs. Hogg and her infant by Mrs. Pearcey, of Mr. William Whiteley, the Muswell Hill murder, and the undiscovered crimes in Bernard-street and Whitfield-street, while he had opened the investigation into what are believed to be the remains of Mrs. Crippen. It will be seen, therefore, that he was at work until the very end, and probably he would have better consulted his chances of a long life had he resigned his appointment, but the London County Council appeared to be without the power to grant him a retiring allowance, and owing to his charitable disposition and his belief that he held a life office he preferred to spend his income for the general good of his fellow men, and had therefore little private means. This fact, coupled with his long and unimpeachable public career, no doubt influenced the Lord Chancellor in his decision not to remove him, and we understand that he received from the Lord Chancellor a most sympathetic letter.

Apart from his official duties Dr. Danford Thomas took an active part in political life. He was a Conservative, and contested West Islington in that interest in 1885. He was also interested in medical organisation and education, and on several occasions made contributions to the debates at general meetings of the Royal College of Surgeons of England. As a young man he served with distinction in the post of medical officer to the British National Society for Relief to the Sick and Wounded during the Franco-Prussian War. His interest in military matters did not cease with the conclusion of that war, for he served for many years with the North London Volunteer Rifle Brigade, retiring with the rank of brigade surgeon-lieutenant-colonel and the Volunteer Decoration.

Dr. Thomas was a strong advocate of the quick dissolution of human remains, whether by cremation or by earth-to-earth burial, and in accordance with his wishes the latter form of burial was carried out at St. Leonards-on-Sea, and the funeral was as quiet as he would have wished it to be. He leaves a widow and one son, Mr. F. Danford Thomas, a barrister and deputy coroner for the City of London.

J. E. PLATT, M.D., M.S. LOND., F.R.C.S. ENG., &c.,

SURGEON TO THE ROYAL INFIRMARY, MANCHESTER.

MANCHESTER has again to lament the death of a distinguished medical man, who has been cut off in his prime when many years of active and useful work might have been looked for. John Edward Platt was born in 1866 at Saddleworth, and about the year 1884 became a student at the Owens College before the amalgamation of the medical school with the University. In 1888 he qualified as M.R.C.S. and

L.R.C.P. In 1891 he became B.S. Lond. and F.R.C.S. Eng., and in 1894 he obtained the M.S. and in 1900 took the degree of M.D. Lond. He was regarded as one of the most brilliant students of the school, and won many academic distinctions, among which were the exhibition and gold medal in anatomy of the University of London and the position of Turner Medical Scholar. After qualifying he soon became connected with the Manchester Royal Infirmary, in which institution he held nearly every surgical position, being appointed in 1900 assistant surgeon to the infirmary on the death, during the war in South Africa, of Professor Tom Jones; while in 1905 he succeeded the late Mr. Joseph Collier as full surgeon. He was a member of the board of management of the infirmary, and at the time of his death was chairman of the medical board. He was lecturer on practical surgery at the Victoria University of Manchester, and his teaching of surgery was closely followed and very highly valued. He was associated with the various medical societies of Manchester, and for many years held the position of honorary secretary to the Manchester Medical Society and did much valuable work to forward its interests. He was also an honorary consulting surgeon to the Manchester Hospital for Consumption, while he held the commission of major in the reserve of officers for the Second Western General Hospital (Territorial Force), in case of mobilisation.

In addition to this far-reaching public work he found time to attend to the claims of an extensive consulting practice. He was an able man of high character, and therefore gained the confidence of his patients in both hospital and private practice; he revelled in hard work and took the keenest interest in every development of his profession. A friend who knew him well speaks of "his gentle, unassuming manners, coupled with firmness of purpose and clearness of view," qualities which won for him "universal respect and the admiration of those with whom he came into contact" Another of his friends, this one a surgical colleague, writes that "as a surgeon his work was mainly characterised by extreme carefulness and attention to detail, the qualities which above all others probably ensured the excellence of his results." Appreciations of his personal worth might easily be multiplied, but we do not think that we should in such a way draw a clearer picture of the valuable career that has thus come to so untimely a close. Those who knew his private life can alone appreciate the quiet courage with which for more than a year he had faced the fate which he himself foresaw. About a year or so ago he underwent an operation rendered necessary by what was probably a malignant growth, and further relief had to be obtained, but unhappily the attempt was not successful. His death, however, came as a shock to very many, for he was at work within a few days of the end.

His funeral, which took place on Saturday last at St. Paul's, Kersal, was attended by a large concourse of his colleagues of the University and the Royal Infirmary, by members of the governing bodies, by numbers of friends of his own profession, and by many of his infirmary patients. Deep sympathy is felt for the widow and the three young children who are left.

WILLIAM BERRY, F.R.C.S. IREL., D.P.H., &c.

MEDICAL OFFICER OF HEALTH OF WIGAN.

WE regret to report the death of Mr. William Berry, medical officer of health of the county borough of Wigan and honorary surgeon to the Royal Albert Edward Infirmary. Mr. Berry had been in indifferent health for several years, but the end came with startling suddenness on July 29th. Two days previously he had spent the day with friends in the Lake District, and appears to have contracted a chill. This was followed by pneumonia, and the attack proved rapidly fatal.

Mr. Berry was a native of Wigan, and commenced practice in that town in 1874. In 1880, a vacancy occurring on the infirmary staff, he was elected thereto. He was a careful and skilful surgeon, and acquired a high reputation in the neighbourhood for his dexterity in abdominal surgery. In 1895 he was appointed medical officer of health of Wigan, and for the past ten years had devoted himself largely to public health work. This department in the borough he developed to a high state of efficiency. His reports were always valuable contributions to sanitary science. In 1898 Mr. Berry was elected President of the Lancashire and Cheshire Branch of the British Medical Association, and for many years was an active member of the branch council. He was a J.P. for the borough and ex-President of the Wigan Medical Society. He was also a frequent and valued contributor, particularly upon public health topics, to the columns of THE LANCET.

The funeral took place on August 2nd, and was attended by almost all his professional brethren in the district, the alderman and members of the town council, the borough magistrates, corporation, and other officials. Mr. Berry was twice married, but had been a widower for some years. He leaves three sons and three daughters, two of the former being members of the medical profession.

HENRY SANDFORD JOHNSON, M.R.C.P. IREL., L.F.P.S. GLASG.

Mr. H. S. Johnson, who died at his residence, "Rushbrook," Totnes, Devon, on August 3rd, had been for many years in practice at Totnes, had held several public appointments, and was in every way a prominent citizen. He was on the honorary staff of the Totnes Cottage Hospital, and at the time of his death was medical officer of health for the Totnes rural district council and also for the Ashburton urban district council. He took a great interest in the town of Totnes, and was at different times a member of the town council and of the Buckfastleigh district council. Outside his public and professional interests he was a keen sportsman, formerly captain of the Dart Rowing Club, and president of the local Rugby football team, while his horses were frequent competitors at the local race meetings. He was also chairman of the Totnes Unionist committee, so that it can be easily understood that on public and private grounds alike his death is felt in the neighbourhood as a severe loss.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: Dr. Ferdinand Plehn, who for many years practised as an ophthalmic surgeon in Paris. His hobby, which he was able to follow out since his retirement to Steglitz, was astronomy, in which subject he was no mean proficient.—Dr. Tiburtius, a well-known Berlin practitioner whose books written in platt-deutsch are recognised as having considerable literary value.

THE OXFORD OPHTHALMOLOGICAL CONGRESS.—The Oxford Ophthalmological Congress assembled at Keble College on July 21st and 22nd. The meeting was well attended, and several foreign guests and members were present, including Professor Lagrange (Bordeaux), Professor Holth (Christiania), Professor Heine (Kiel), Professor Stanculeanu (Bucharest), and Professor Remy (Dijon). Professor W. Osler delivered the opening address on the morning of the 21st. He was followed by Professor Arthur Thomson, who demonstrated and illustrated by lantern slides a structure which he had observed to lie at the sclero-corneal junction around the circumference of the anterior chamber of the eye. To this groove he has given the name, "sulcus circularis corneæ." Dr. J Mackenzie Davidson and Professor Holth next demonstrated their methods of Localising Foreign Bodies in the Eye by means of X rays. The afternoon of July 21st was devoted to the demonstration of operations by Sir Anderson Critchett, Professor Lagrange, Professor Heine, and Mr. R. W. Doyne. In the evening the inaugural dinner of the Congress took place in Keble College Hall. The chair was occupied by Sir Anderson Critchett, who was supported by Mr. Doyne (master of the Congress), Professor Osler (Regius professor of medicine), Professor Arthur Thomson (professor of anatomy), Mr. Charles Higgens (President of the Section of Ophthalmology, British Medical Association), Mr. Sydney Stephenson (honorary secretary of the Congress), together with a number of distinguished ophthalmic surgeons, numbering about one hundred. The chief guest was Dr. T. H. Warren, D.C.L., Vice-Chancellor of the University of Oxford. In replying to the toast of his health, proposed by Sir Anderson Critchett, the Vice-Chancellor extended a hearty welcome to the members of the Congress. He spoke of the growth of the medical school under the guidance and influence of Sir Henry Acland, Sir John Burdon-Sanderson, and Professor Osler. It had again taken a lead in establishing a diploma in ophthalmology, the examinations for which had just ended. The Vice-Chancellor was in favour of the granting of other special diplomas in special branches of medicine and surgery should the need for such be made out.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of the Council of the Royal College of Surgeons of England on July 25th, and of the Comitia of the Royal College of Physicians of London on July 28th, Diplomas of Member and Licences to practise were respectively conferred upon the undermentioned gentlemen, who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Examining Board, and have complied with the necessary by-laws:—

Edwin Augustus Attenborough and Gerald Waddington Beresford, London Hospital; Claude Alexander Birts, University College Hospital; Julius Gottlob Blechschmidt, Jefferson Medical College and Guy's Hospital; William Stanley Boothman, Manchester University; Richard Frederick Butlin Bowes, B.A. Oxon., Oxford University and St. Thomas's Hospital; Stanley Eric Vincent Brown, M.B., Ch.B. New Zealand, New Zealand University and London Hospital; John Capell, St. Bartholomew's Hospital; Richard Christopher Clarke, Bristol University; *Robert Edward Collins, M.B., Ch.B. Edin., Edinburgh University; Edward George Huxley Cowen, Charing Cross Hospital; Frank Elton Cox, M.B., B.S. Melb., Melbourne University and St. Bartholomew's Hospital; Thomas Ronald Davey, St. Mary's Hospital; Frederick Adolph Dick and Henry William Doll, Guy's Hospital; Robert Drummond, Glasgow University and University College Hospital; Edwin Charles East, Birmingham University; John Adamson Edmond and Frederick Charles Endean, Guy's Hospital; Bertie Cecil Eskell, Bristol University and Middlesex Hospital; Walter Andrew Fernando, Ceylon Medical College and University College Hospital; Charles Joshua Fox, Charing Cross Hospital; Arehibald Louis George, L.D.S. Eng., Guy's Hospital; Eraeh Pestonji Ghadiala, L.M. & S. Bombay, Bombay University and King's College and Middlesex Hospitals; Charles Gibson, London Hospital; Archibald John Gilchrist, M.B. Toronto, Toronto University and London Hospital; Bernard Goldsmith, L.D.S. Eng., Middlesex Hospital; Alfred Hope Gosse, M.A. Cantab., Cambridge University and St. Mary's Hospital; Charles D'Oyly Grange, Leeds University and St. Bartholomew's Hospital; Henry Edwardes Griffiths, Cardiff and King's College Hospital; Benjamin Herald, Manchester University; Sydney James Higgins, B.A. Cantab., Cambridge University and London Hospital; Reginald Melville Hiley, Bristol University and King's College Hospital; John Brook Henderson Holroyd, Sheffield University; William Henry Hooton, Leeds University; Arthur Noel Houghton, M.B., Ch.B. New Zealand, New Zealand University; *Ceeil Augustus Joll, M.B., B.S. Lond., B.Se. Lond., F.R.C.S. Eng., L.D.S. Eng., Bristol University; *Arthur Roeyn Jones, University College, Cardiff, and University College Hospital; Mirza Mohammed Khan, University College Hospital; Walter Shirley Kidd, Guy's Hospital; Charles Haley Knowles, Leeds University; Weston Krupp, M.B. Toronto, Toronto University and London Hospital; Andrew Bonar Lindsay, New Zealand University and London Hospital; James Parkinson Lupton, St. Thomas's Hospital; †William Macewen, M.B., Ch.B. Glasg., Glasgow University and Charing Cross Hospital; Colin McIver, Madras University and University College Hospital; Patriek Andrew Maekay, Glasgow University and St. Mary's Hospital; John Charsley Maekwood, London Hospital; John Roy McRae, M.D., C.M. Trinity University, Toronto, St. Bartholomew's and Middlesex Hospitals; Horaee Lloyd Mann, St. Thomas's Hospital; Henry Linnington Martyn, King's College Hospital; Guy Matthews, King's College Hospital; Thomas Clarkson Maxwell, St. Bartholomew's and Charing Cross Hospitals; Arthur Oscar Mitchell, Westminster Hospital; Charles Gordon Holland Moore, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Adrian Leonard Moreton, St. Bartholomew's Hospital; Arthur Morgan, Cambridge University and Charing Cross Hospital; *Damodar Narayenswamy Mudliar, Bombay and Manchester Universities and University College Hospital; Humphrey Neame and Hubert Lewis Clifford Noel, London Hospital; Robert Sydney Overton and Adrian Charles Paterson, St. Thomas's Hospital; Edward Austen Penny, Guy's Hospital; John Frederick Penson, B.A. Oxon., Oxford University and London Hospital; Alfred Spearman Pern, St. Thomas's Hospital; Edward Palmer Poulton, B.A. Oxon., Oxford University and Guy's Hospital; Leslie Powell, Cambridge University and London Hospital; ‡Ernest Arthur Ramsden, Oxford University and Charing Cross Hospital; Srikantai Subba Rao, M.B. Madras, Madras University and University College Hospital; Alfred Henry Richardson, M.A. Cantab., Cambridge University and St. Thomas's Hospital; Ceeil George Richardson, Westminster Hospital; Arthur Stanley Roe, B.A. Oxon., Oxford University and Guy's Hospital; Alec Linford Saul, L.D.S. Eng., Guy's Hospital; Charles Frank Schuler, St. Thomas's Hospital; Sumner Hugh Smith, King's College Hospital; Ralph Martin Soames, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; William Boys Stones, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Robert Stout, Guy's Hospital; Frans Karel te Water, M.B., Ch.B. Edin., Edinburgh University; Harold William Tilling, Charing Cross Hospital; Richard Herbert Vercoe, B.A. Cantab., Cambridge University and University College Hospital; Harvey Henry Vincent Welch, St. Thomas's Hospital; Arthur John Ormsby Wigmore, Bristol University; William Stanley Wildman, London Hospital; Frederic Jeune Willans, Durham University and London Hospital; Arthur Donald John Bedward Williams, B.A. Cantab., Cambridge University and Guy's Hospital; Walter Frederick Wise, Middlesex Hospital; and Charles Woollard, M.D. Manitoba, Manitoba University and London Hospital.

* M.R.C.S. diploma granted previously.
† M.R.C.S. diploma not yet granted.

Diplomas in Public Health were conferred upon the following 24 candidates:—

Alec Barber, M.B., B.S. Lond., M.R.C.S., L.R.C.P., St. Bartholomew's Hospital and University College; Thomas David Collis Barry, Lieutenant-Colonel I.M.S., M.R.C.S., L.R.C.P. Irel., Liverpool University, University College, and Middlesex Hospital; Kul Bhushan, L.R.C.P. & S. Edin., L.F.P.S. Glasg., Edinburgh University and University College; Robert Cameron, M.D., Ch.B. Edin., Edinburgh University and Cardiff; William Henry Cazaly, Captain I.M.S., M.B., B.S. Lond., M.R.C.S., L.R.C.P., Netley and St. Bartholomew's Hospital; John Thomson Clark, M.B., Ch.B. Glasg., Glasgow University and Guy's Hospital; James Kilian Patrick Clarke, M.B., B.Ch. R.U.I., Dublin University and University College; James Crawford Craig, M.B., Ch.B. Edin., Edinburgh University and University College; John Findlay, M.B., Ch.B. Edin., Edinburgh University and University College; John Neville Griffiths, M.B. Sydney, Sydney University and University College; Arthur Herbert Hayes, Captain R.A.M.C., M.R.C.P., M.R.C.S., St. Bartholomew's Hospital and Royal Army Medical College; Henry Holroyd, M.B., B.S. Lond., Middlesex Hospital; Shivax Kaikhosro Nowroji Kabraji, L.M. & S. Bombay, Bombay University and Royal Institute of Public Health; Robert Craske Leaning, M.B., B.S. Lond., M.R.C.S., L.R.C.P., St. Mary's and St. George's Hospitals; Helen Nora Payne, M.D., B.S. Lond., Royal Free and Middlesex Hospitals; John Rose, M.B., Ch.B. Aberd., Aberdeen University and University College; Erach Dinshaw Shroff, L.R.C.P. & S. Edin., L.F.P. S. Glasg., Edinburgh University and University College; Alfred Christopher Herman Suhr, M.B., B.C. Cantab., M.R.C.S., L.R.C.P., Cambridge University, St. Thomas's Hospital, and Royal Army Medical College; Chandiprasad Trivedi, L.R.C.P. & S. Edin., L.F.P.S. Glasg., Edinburgh University and University College; Alfred Charles Foster Turner, M.B., B.S. Lond., St. Thomas's Hospital, Birmingham University, and Royal Institute of Public Health; Aliee Mauricia Van Ingen, L.M. & S. Madras, L.S.A., M.D. Brux., Royal Free Hospital and University College; Joseph Walker, M.D., Ch.B. Glasg., Glasgow University and University College; Hilda Kate Whittingham, M.B., B.S. Lond., Royal Free and Middlesex Hospitals; and Alfred Carleton Williams, M.R.C.S., L.R.C.P., King's and University Colleges.

UNIVERSITY OF OXFORD.—In the recent examination for the Diploma in Ophthalmology the following candidates were approved:—

P. E. H. Adams, Exeter; M. E. D. Allen, J. Burdon-Cooper, A. B. Cridland, E. J. Curran, H. A. J. Gidney, F. A. Newman, S. Stephenson, and R. G. Waddy.

UNIVERSITY OF LONDON.—At examinations for medical degrees held in July the following candidates were successful:—

FIRST EXAMINATION.

Arthur Wilfrid Adams, University of Bristol; ‡B. Pulvermaeher Allinson, University College; Donald Aucutt, King's College; Augustus Rollo Balmain, University Tutorial College and private study; Herbert Edward Bamber, Worcester College, Oxford, and University Tutorial College; *Gregory Lawson Barnes, St. Bartholomew's Hospital; Stanley Batchelor, London Hospital; †Mauriee Senior Beaumont, Epsom College; Christian Frederick Beyers and Douglas Arthur Blount, St. Bartholomew's Hospital; *Arthur Leslie Blunt, St. Thomas's Hospital; Margaret Stote Glen Bott, University of Liverpool; Frederiek Hubert Bray, London Hospital; Mauriee Charles Breese, King's College and Westminster Hospital; Cyril Mary Brophy, University College; John Edward Clark, Guy's Hospital; Lilian Annie Clark, City of London School for Girls; Mabel Campbell Clark, University College; Philip Cyril Powter Cloake, B.Se., London Hospital; William Edward Kyte Coles, University of Edinburgh and private tuition; *Clement Cooke, St. Bartholomew's Hospital; Cyril John Chesterfield Cooke, Derby Technical College; Albert William Abell Davies, Guy's Hospital; Peter Gerald Stevenson Davis, St. Thomas's Hospital; Alexander Decimus d'Avray, University College; John Nissen Deacon, Epsom College; Graee Mary Denham, London (Royal Free Hospital) School of Medicine for Women; Cedric Rowland Denny, London Hospital; Robert William D. Calladine Easom, Guy's Hospital; John Alfred Wylde Ebden, King's College and private tuition; Harold Ellis, University College, Cardiff; ‡James Fanstone and Israel Feldman, London Hospital; Hugo Rudolph Friedlander, St. Thomas's Hospital; Douglas Hugh Aird Galbraith, Guy's Hospital; Edmund Douglas Granger, St. Thomas's Hospital; Arthur Edwards Gravelle, University College, Cardiff; Herbert Stuart Griffith, St. Bartholomew's Hospital; Grace Mary Gulston and *‡Ernest Frederick Guy, University College, Cardiff; Stanley Allman Hall, private study; Francis Joseph Hallinan, Charing Cross Hospital; †Norah Hamill, London (Royal Free Hospital) School of Medicine for Women; Ranald M. Handfield-Jones, Epsom College; Arthur Geoffrey P Hardwick, London Hospital; Cyril Edward Harrison, Middlesex Hospital and Walthamstow Technical Institution; Jessie Eva Hart, London (Royal Free Hospital) School of Medicine for Women; Frank Keith Hayman, University of Bristol; Henry Franeis Thomas Hogben, Guy's Hospital; William Audrew Hotson, King's College and Westminster Hospital; William Vincent Hughes, St. Bartholomew's Hospital; Ronald Nelson Hunter, London Hospital; George Maudsley Jackson, University of Bristol; Llewellyn Price Johns, King's College; Hilda Grace Johnson, London (Royal Free Hospital) School of Medicine for Women; Mary Emmeline Joll, University of Bristol; Cyril Osear Howe Jones, Middlesex Hospital; Rhys Trevor Jones, University College, Cardiff; Samuel Walter Jones, Middlesex Hospital; Thomas Anstey Jones, University College, Cardiff; Guy Melville Kendall, Epsom College; Nicholas Edward Kendall, Guy's Hospital; Robert Kerr, B.Se., University of Leeds and private tuition; James Kyle, William Morris Lansdale, Ernest Alfred Leviseur, and Herbert John Leviseur, Guy's Hospital; *†‡Geoffry Challen Linder, St. Bartholomew's Hospital; Edward Riehardson Lovell, Middlesex Hospital; ‡Helen Marion M. Maekay, London (Royal Free Hospital) School of Medieine for Women; Showkiram S. Malkani, University Tutorial College and University College; Philip Sydney Marshall, University College; Alexander Menzies and Duncan

Menzies, St. Mary's Hospital; Vivian Mercer Métivier, St. Bartholomew's Hospital; Desmond G. Fitzgerald Moore, Bedford Grammar School; John Branwell Mudge, St. Bartholomew's Hospital; Violet Newmarch, London (Royal Free Hospital) School of Medicine for Women; ‡William Howard Nicholls, Brighton Municipal Technical College; Kathleen Hazel Parkinson, London (Royal Free Hospital) School of Medicine for Women; Owen Parry-Jones, London Hospital; Margaret Russell Paterson, London (Royal Free Hospital) School of Medicine for Women; Arthur Henry Pemberton, University College; Alan Cecil Perry, London Hospital; Leslie Ellis Pimm, Victoria Tutorial College; Mary Constance Poonen, London (Royal Free Hospital) School of Medicine for Women; Charles Leslie Grove Powell, St. Thomas's Hospital; Arthur Lisle Punch and Kenneth Noel Purkis, Guy's Hospital; John Bromley Rawlins, St. Mary's Hospital; Violet Ione Russell, London (Royal Free Hospital) School of Medicine for Women; Pinthu Sai, St. Thomas's Hospital; Basil Sampson, Guy's Hospital; Eric Arthur Langford Sansom, University College; Saroz Kumar Sanyal, London Hospital; Farid Henein Abdel Sayed and James Ernest Scanlan, St. Mary's Hospital; †Hilda Mary Scarborough, London (Royal Free Hospital) School of Medicine for Women; Clive Justin Hicks Sharp, University College; Edith Annie Shaw, London (Royal Free Hospital) School of Medicine for Women; Bertram Baber Silcock, University Tutorial College; Alfred George Simmins, Guy's Hospital; John Frank Herbert Stallman, Dulwich College and Guy's Hospital; John Greet Stevens, Guy's Hospital; Thomas Collyer Summers, Coopers' Company's School and King's College; Godfrey Trehane Symons, King's College; Edward Willett Tait, St. Bartholomew's Hospital; *William Edward Tanner, Guy's Hospital; Douglas George Clutsam Tasker, University of Bristol; Leonard Hankinson Terry, St. Bartholomew's Hospital; John Oscar Thomas, King's College; Ralph Reakes Thompson, London Hospital; Harry Cecil Craven Veitch, University College; Geoffrey Marr Vevers, St. Thomas's Hospital; Katharine Ada Waring, University College, Aberystwyth; Cyril James Berkeley Way, William Ellis Endowed School and University Tutorial College; Hugh Wearne, Epsom College; Cyril Mathias Williams, University College, Cardiff, and University Tutorial College; Leslie Herbert Worthy Williams, University College, Cardiff; Harold Williamson, Charing Cross Hospital; James Montagu Wyatt, St. Thomas's Hospital; and Cecil Fewster Boynton Wyborn, Middlesex Hospital.

* Awarded a mark of distinction in Inorganic Chemistry.
† Awarded a mark of distinction in Physics.
‡ Awarded a mark of distinction in General Biology.

The following students who took a portion of the examination under Old Regulations have now completed it:—

John William Heekes, Charing Cross Hospital; and John Alexander Pridham, St. Bartholomew's Hospital.

SECOND EXAMINATION.

Part I., Organic and Applied Chemistry.—Herbert Archer, University Tutorial College; Thomas David Collis Barry, University of Liverpool; *Geoffrey Andrew Bird, St. Thomas's Hospital; Ursula Poussett Blackwell, London (Royal Free Hospital) School of Medicine for Women; William Roy Blore, Victoria University of Manchester; John Prichard Bracken, University College; Owen Deane Brownfield, St. Thomas's Hospital; Isabel Florence Buckle and Gwendolyn Margaret Burns, London (Royal Free Hospital) School of Medicine for Women; Marion Mildred Barrow Burt, University of Birmingham; Noel St. John G. Dudley Buxton, University College; F. Wyndham Chamberlain, Middlesex Hospital; Ying-Jue Cieh, King's College; Richard Challoner Cobbe Clay, King's College and private study; Donald Murray Connan, King's College; Meherjibhoy Bomanji Cooper, University College; Frederick Hugh L. Cunningham, St. Bartholomew's Hospital; John Horace Dancy, King's College; Thomas William David, University College, Cardiff; Richard Feltrim Fagan, University College; Victor Feldman, London Hospital; Joseph Fielding, Victoria University of Manchester; Frank Brayshaw Gilhespy, University College; Samuel Lionel Green, Stonyhurst College; Henry Little Hardy Greer, St. Bartholomew's Hospital and Queen's University, Belfast; David William Griffith and Hugh Ernest Griffiths, University College, Cardiff; Alec George Holman, London Hospital; Sydney Colin W. Iredale, St. Bartholomew's Hospital; Arthur Maddock Jones, Charing Cross Hospital; William Arthur Edward Karunaratne, University College; Geoffrey T. Loughborough, St. Bartholomew's Hospital; Robert John McNeill Love, London Hospital; William Francis MacAlevey, St. Mary's Hospital; Hugh James McCurrich, University of Bristol; Owen Sidney Martin, University College; Arthur Daniel Morris, University College, Cardiff; Thomas Bond Paul, Middlesex Hospital; John Ernest Pearce, St. Bartholomew's Hospital; Innes Hope Pearse, London (Royal Free Hospital) School of Medicine for Women; Frederick Tavinor Rees, University College, Cardiff; William Leonard Eliot Reynolds, Guy's Hospital; Robert Edward Roberts, University of Liverpool; *Gordon Wilfrid R. Rudkin and Erie Arnold Scott, University College; Philip Dennis Scott, Guy's Hospital; John Hunter Sewart, University College; William Goodman Shakespeare, King's College; Edith Grace Sherwood, London (Royal Free Hospital) School of Medicine for Women; Hector Smith, Charing Cross Hospital; Henry James Drew Smythe, University of Bristol; Joseph Bulmer Thackeray, London Hospital; Humphrey Q. F. Thompson, Guy's Hospital; Harold Vickers, St. Mary's Hospital; *William Leslie Webb and Henry Parks Whitworth, Guy's Hospital; Frederick Edward Saxby Willis, St. Bartholomew's Hospital; Maurice Ulick Wilson, King's College; William Pridham Wippell, St. Bartholomew's Hospital; and Siong Yew Wong, St. Thomas's Hospital.

* Awarded a mark of distinction.

Part II.—*†Walter Martin Ash, London Hospital; Vicente Aticnza, Guy's Hospital; Mabel Kate Bishopp, London (Royal Free Hospital) School of Medicine for Women; Raymond Brewitt-Taylor, St. Bartholomew's Hospital; Noel Hawley Michael Burke, King's College; Frederick William Theodore Clemens, University of Bristol; Rolf Creasy, Guy's Hospital; Michael Joseph Cronin, London Hospital; Lionel Gordon Crossman, University College, Cardiff; ‡Francis Eldon Daunt, St. Thomas's Hospital; John Prosser Davies, University College, Cardiff; Lionel Alfred Dingley, University College; Robert Joel Cazalet Douty, Middlesex Hospital; Victor William Draper, B.Se., King's College; William Henry Edmunds, University College, Cardiff; *Andrew Royston Elliott, London Hospital; Pattie Ruth Elliott, London (Royal Free Hospital) School of Medicine for Women; Thomas Leslie Ellis, University College, Cardiff; Abraham Solomon Erulkar, Guy's Hospital; Herbert Thomas Evans, King's College; Aubrey George Clifton Findlay, University College; Frank Rex Fletcher, London Hospital; Gertrude May Flumerfelt and Katherine Mary Lovell Gamgee, London (Royal Free Hospital) School of Medicine for Women; Edward Alexander Marie J. Goldie and Aubrey Goodwin, University College; Frank Arthur Grange, London Hospital; Philip Withers Green, St. Mary's Hospital; Cyril James Anthony Griffin, University College; Malcolm Gross, King's College and Westminster Hospital; Alfred Ernest Hallinan, Charing Cross Hospital; Reginald Simpson Harvey, University of Leeds; George Murray Heiron, Philip Henry Henson, and Melville Hocken, London Hospital; James Moncrieff Joly, Guy's Hospital; Thomas Pomfret Kilner, Victoria University of Manchester; Leslie Mordaunt Ladell, London Hospital; Thomas Percy Lewis, St. Mary's Hospital; Muriel Annie Lloyd, London (Royal Free Hospital) School of Medicine for Women; James Duncan Lyle, London Hospital; Gerald Roche Lynch, St. Mary's Hospital; †Fede Margherita Mackenzie, London (Royal Free Hospital) School of Medicine for Women; ‡Charles Jennings Marshall, University College, Cardiff; *Lionel Arthur Martin and Pestanji Manekji Masina, University College; William Matthews, Guy's Hospital; *Jivraj Narayan Mehta, Grant Medical College, Bombay, and London Hospital; †Harold Leonard Meyer and Alexander Geo. Hains Moore, Guy's Hospital; *Donald Ewart Morley, London Hospital; Ernest Mannering Morris, Charing Cross Hospital; Edith Mary Nesbitt Moss, London (Royal Free Hospital) School of Medicine for Women; William David Owen, University College, Cardiff, and St. Bartholomew's Hospital; Richard Douglas Passey, Guy's Hospital; Purushottam Tulsidas Patel, Grant Medical College, Bombay, and London Hospital; Gwilym Rhys Pennant, University College, Cardiff; Edna Mary Powell, London (Royal Free Hospital) School of Medicine for Women; John Beaufoy Randall, St. Bartholomew's Hospital; Leslie Norman Reece and George Henry Roberts, St. Thomas's Hospital; James Ewen Robertson-Ross, King's College and Westminster Hospital; John Alfred Ryle, Guy's Hospital; William Barwise Sanders, University College; Arthur Richard Sharrod and William Geoffrey Shaw, London Hospital; Cyril Sherris and Arthur Joseph Eagleton Smith, Guy's Hospital; Sidney Smith, King's College; William Henry Dakin Smith, University College; Ernest Nedwons Snowden, St. Bartholomew's Hospital; James Lennox Stewart, Guy's Hospital; Agnes Priscilla Taylor, London (Royal Free Hospital) School of Medicine for Women; ‡James Robert Karran Thomson, London Hospital; Charles Edgar Thornton, Middlesex Hospital; Joseph Alexander Tsoi-A-Sue, London Hospital; Thomas Burdock Vaile, St. Bartholomew's Hospital; John Richard Menzies Whigham, St. Mary's Hospital; Aubrey Harrison White, University of Bristol; Cecil Leonard Williams, St. Bartholomew's Hospital; Alfred Wills, Guy's Hospital; ‡Alan Wilson, University College; Arthur Wai-tak Woo, London Hospital; and William Arthur Young, Guy's Hospital.

* Distinguished in Anatomy. † Distinguished in Physiology.
‡ Distinguished in Pharmacology.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

UNIVERSITY OF DURHAM.—At a Convocation held on July 23rd the following degrees were conferred:—

Doctor of Medicine (Essay).—Neville Avory Eddlestone, Herbert Max Levinson, Richard Oswald Mather, Herbert Richard McAleenan, Robert Reid Pirrie, Stanley Robson, Andrew Smith, and James Wilkie Smith.

Degree of Doctor of Medicine for Practitioners of 15 Years' Standing.—Walter Whitmarsh Bell, Henry Collier, Henry Hugh Powell Cotton, William Burwell Darroll, and Walter Herbert Hargreaves.

Degree of Master of Surgery (M.S.).—Herbert Max Levinson and Stanley Robson.

Degree of Bachelor of Medicine (M.B.).—Isaac Bainbridge, John Akilade Caulcrick, Helen Grace Clark, and Robert Vickers Clayton, College of Medicine, Newcastle-upon-Tyne; Sebert Francis St. Davids Green, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; John Hare, Samuel Littlewood, Eva Lumb, and George Cuthbert Mura M'Gonigle, College of Medicine, Newcastle-upon-Tyne; Charles Elias Reindorf, College of Medicine, Newcastle-upon-Tyne, and St. Bartholomew's Hospital; and Erie Hemingway Shaw, Stanley Worthington, and James Carruthers Young, College of Medicine, Newcastle-upon-Tyne.

Degree of Bachelor of Surgery (B.S.).—Isaac Bainbridge, Helen Grace Clark, Robert Vickers Clayton, John Hare, Samuel Littlewood, Eva Lumb, and George Cuthbert Mura M'Gonigle, College of Medicine, Newcastle-upon-Tyne; Charlias Elias Reindorf, College of Medicine, Newcastle-upon-Tyne, and St. Bartholomew's Hospital; and Eric Hemingway Shaw, Stanley Worthington, and James Carruthers Young, College of Medicine, Newcastle-upon-Tyne.

Degree of Bachelor of Hygiene (B.Hy.).—William George Thomas Hepplewhite and Friederike Rahtkens.

Diplomas in Public Health (D.P.H.) were granted to the following:—

William George Thomas Hepplewhite, Sophia Bangham Jackson, Kaikhosru Jamset, John Alexander Neilan, Friederike Rahtkens, and Henry Martyn Stumbles.

QUEEN'S UNIVERSITY, BELFAST.—At examinations held recently the following candidates were successful in the subjects mentioned:—

FIRST MEDICAL EXAMINATION.

Physics, Chemistry, Zoology, and Botany.—W. K. Campbell, A. Fullerton (honours), C. M'N. M'Cormack, E. B. C. Mayrs (honours

and first scholarship), G. R. B. Purce (honours and fourth scholarship), Eliz. M. Robb, James Tate (honours and second scholarship), and Owen Wilson (honours and third scholarship).

Physics.—W. K. Campbell, A. Fullerton, C. M'N. M'Cormack, E. B. C. Mayrs, Herbert Moore, George R. B. Purce, Eliz. M. Robb, James Tate, and Owen Wilson.

Chemistry.—Alfred Black, R. G. Blair, W. K. Campbell, H. M. Coulter, F. J. Devlin, Edmond Doherty, John Duffin, A. Fullerton, Margaret Gorman, Thomas Grimson, W. H. Hardy, W. S. B. Hay, Mary M. Keirns, John J. Kerr, Beattie Lyons, C. M'N. M'Cormack, J. M. M'Cormack, W. T. M'Curry, J. R. M. Mackenzie, F. M'Kibbin, Robert N. M'Kinistry, Terence P. M'Quaid, E. A. Mallon, E. B. C. Mayrs, John O'Connor, G. R. B. Purce, George W. Rea, Eliz. M. Robb, John C. Robb, John S. Savage, A. F. L. Shiels, F. A. E. Silcock, F. G. Smyth, J. Tate, O. Wilson, and P. P. Wright.

Zoology.—S. T. Alexander, A. W. Bourke, W. K. Campbell, A. E. M. Carleton, J. W. Carson, H. T. Chatfield, W. M'N. Chesney, R. Coudy. H. M. Coulter, J. Cullenan, C. F. Davey, W. W. Dickson, J. W. Donald, A. Fullerton, D. Gaston, M. Gilligan, G. Gordon, C. C. Humphries, J. F. D. Hunter. D. Jamison, Mary M. Keirns, William J. Lascelles, C. M'N. M'Cormack, J. M. M'Cormack, J. M'Kay, J. R. M. Mackenzie, H. F. M'Nally, E. B. C. Mayrs, Herbert Moore, J. O'Connor, M. G. Paul, G. R. B. Purce, Eliz. M. Robb, William Russell, James Smyth, J. K. Stewart, James Tate, D. B. L. Walker, Denis Watterson, N. W. F. Wheeler, Owen Wilson, R. H. Wilson, W. R. E. Wilson, and A. A. Woods.

Botany.—R. G. Blair, Albert W. Bourke, W. K. Campbell, W. J. Carson, H. T. Chatfield, W. M'N. Chesney, R. Coudy. J. Cullenan, F. J. Devlin, W. W. Dickson, E. Donerty, J. Duffin, A. Fullerton, D. Gaston, M. Gilligan, Margaret Gorman, Thomas Grimson, W. H. Hardy, W. S. B. Hay, J. F. D. Hunter, David Jamison, Mary M. Keirns, William J. Lascelles, B. Lyons, C. M'N. M'Cormac, John M. M'Cormack, W. T. M'Curry, James M'Kay, T. B. M Kee, F. M'Kibbin, R. N. M'Kinestry, H. F. M'Nally, T. P. M'Quaid, E. A. Mallon, Sylvia Marsh, E. B. C. Mayrs, J. J. Murray, J. O'Connor, M. G. Paul, G. R. B. Purce, G. W. Rea, Eliz. M. Robb, John C. Robb, J. S. Savage, A. F. L. Shields, F. A. E. Silcock, F. G. Smith, James Smyth, J. K. Stewart, J. Tate, D. B. L. Walker, J. C. Wilson, Owen Wilson, R. H. Wilson, W. R. E. Wilson, F. N. Woods, and P. P. Wright.

SECOND MEDICAL EXAMINATION.

Francis L. P. Bennett, W. W. Blair, W. A. L. Dunlop, J. M'K. Ferguson, Stafford Geddis, T. W. G. Hogg, *Gordon D. Latimer, J. B. Lyle, W. J. M'Cracken, J. J. H. Mitchell, Matthew Neilson, †Robert L. Rea, Edith Robinson, ‡Thomas Walker, and Thomas H. Wilson.

* Recommended for Scholarship of £15.
† First Scholarship (£40).
‡ Passed with honours and awarded Second Scholarship (£30).

Physiology.—Thomas M. Adamson, David M. Clements, James E. Finlay, William M'Dermott, E. C. MacWilliam, Samuel E. Picken, and Herbert R. Sinclair.

THIRD MEDICAL EXAMINATION (*Old Regulations*).

Peter A. Clearkin, *T. F. S. Fulton, *Norman B. Graham, and W. M. O'Farrell.

* Passed with honours and recommended for prize of £10.

Anatomy and Physiology.—Henry A. Gillespie, L. D. J. Graham, J. V. Holmes, Hugh A. Skillen, and James R. White.
Anatomy.—George E. Hull.
Materia Medica.—S. Armstrong, S. H. Davidson, J. M. Gibson, J. R. Henry, Frederick Jefferson, Samuel M'Comb, John M'Fadden, R. C. M'Millan, Michael M'Ging, Edward M'Sorley, Ivan W. Magill, and W. M'N. Walker.

THIRD MEDICAL EXAMINATION (*New Regulations*).

W. K. Calwell, *George Cooper, †Frederick Crooks, T. D. Graham, W. S. Haydock, B. C. Letts, W. M. Millar, W. Paul, W. C. Wilson, and F. J. Wiseley.

* Passed with honours and awarded First Scholarship (£40).
† Passed with honours and awarded Second Scholarship (£30).

Medical Jurisprudence and Hygiene.—D. R. Acheson, J. S. Bellast, J. L. Brown, E. S. Dixon, Herbert Emerson, T. H. Houston, Richard M'Culloch, William Megaw, Joseph Patrick, S. J. Turkington, and William Wilson.
Pathology and Hygiene.—Edgar Morison.
Pathology.—John F. Craig.

M.B., B.CH., AND B.A.O. DEGREES.

*Harold Black, Victor L. Connolly, Francis P. Ferran, Samuel K. M'Kee, †Robert A. Kerr, ‡C. Irwin Melville, T. P. M'Murray, Harold D. Manderson, Charles J. Simpson, Walter Stevenson, Robert S. Taggart, and Robert W. Vint.

* First-class honours and Special Scholarship in Medicine (£30).
† First-calss honours and First Scholarship (£20) and Special Scholarship in Midwifery (£30).
‡ Second-class honours and Special Scholarship in Surgery (£30).

Pathology, Medical Jurisprudence, and Hygiene.—Philip J. Gaffikin, George Shaw Glass, Robert J. M'Feeters, U. J. G. Mulligan, and E. F. Ward.
Medical Jurisprudence and Hygiene.—William Boyd.

D.P.H. DIPLOMA.

William Burns, L.R.C.P. & S.E., William Godfrey, M.B., Brian O'Brien, M.B., James Shaw, M.B., and Andrew Trimble, M.B.

M.D. DEGREE (*by Thesis*).

*James Stuart Dickey, †Samuel Hamilton, †Robert Foster Kennedy, Marion B. Andrews, Denis J. Collins, Hugh M. M'Crea, and Ernest H. M. Milligan.

* Gold medal. † With commendation.

M.D. DEGREE (*by Examination*).

W. A. M'Kee.

ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.

—A general meeting of this association was held at the Council Chamber of the British Medical Association office on July 29th, with Dr. F. G. Crookshank in the chair. The chairman outlined the position that had arisen in consequence of the recent action taken by the representative meeting of the British Medical Association, and pointed out that the Council of the Association would probably draft a new resolution relating to part-time medical officers of health, to be submitted to the next annual representative meeting. It was proposed by Mr. Fremantle and seconded by Dr. Robert Wilkinson that the following resolutions be sent to the Central Council of the British Medical Association and also the divisions:—

This meeting expresses its extreme regret that the representative meeting has not rescinded Minute 234, but welcomes its reference to the Council for reconsideration, and trusts that the whole question will now be considered in the light of the general interests of the medical practitioner and his varied appointments in the public service.

It was also resolved:—

That in the opinion of this meeting no evidence has yet been adduced to show that the interests of the public health suffer when, as is usually the case, a medical officer of health engages in work other than the restricted duties of his office, and no reason exists for differentiation in respect of conditions of tenure or superannuation between part and whole-time medical officers.

Mr. C. H. W. Parkinson suggested the feasibility of a federation of all the various societies of part-time medical officers such as Poor-law, police surgeons, public vaccinators, &c. He urged that one large society would be much more likely to effect good than many smaller ones. General approval was expressed, and it was agreed to refer the matter to the council for consideration at its next meeting in October. In the evening a dinner was held at the Holborn Restaurant, Dr. Crookshank in the chair, at which Mr. A. G. R. Foulerton, county medical officer of health of Sussex, in proposing the toast of "The Association," said that he was opposed to the municipalisation of medicine which would result if part-time appointments were abolished. In some appointments whole-timers were necessary, but in small districts part-time appointments were better for the public. He had never had any complaints of unfair conduct on the part of part-time men towards the other practitioners of the district. Dr. Crookshank, in reply, emphasised the change in profession opinion that had taken place during the year, and the importance of the present part-time system to the public as well as the profession. Mr. Arnold Ward, M.P., said that he was in favour of the general principles of the Association and of individualistic as against socialistic efforts. He advised the Association to obtain the support of their profession in Parliament. Mr. Fremantle proposed "The Kindred Societies," and Dr. A. Drury, president of the Association of Public Vaccinators of England and Wales, replied in sympathetic terms. The honorary secretary of the Association of Medical Officers of Health, Mr. D. A. Belilios, briefly responded to the toast of "The Officers."

DONATIONS AND BEQUESTS.

—The late Mr. Enoch Hendy, of Fishponds, Bristol, willed nearly £17,000 to charities. He bequeathed £2000 each to the Bristol Royal Infirmary, Bristol General Hospital, and Jubilee Convalescent Home, Durdham Downs, Bristol; £1000 to Müller's Orphanage, and £500 to the Brompton Consumptive Hospital. After giving £1600 to various religious schools, the residue is to be divided equally between the Bristol Eye Hospital, Bristol Eye Dispensary, Bristol Blind Asylum, Deaf and Dumb Institution, Bristol Children's Hospital, and the Bristol Dispensary.—The late Mr. Francis Palmer of Tidenhall, Gloucestershire, has bequeathed £500 to the Fielding Palmer Cottage Hospital, which institution was built by her.—The late Mr. Richard Peyton of Edgbaston, Birmingham, has bequeathed £3000 to the Birmingham General Hospital; £2000 to Queen's Hospital, Birmingham; £3000 to the Birmingham Midland Free Hospital for Sick Children (providing that the erection of the new hospital be begun within three years of the testator's death); £2000 to the Birmingham and Midland Hospital for Women; £1000 each to the Birmingham and Midland Counties Sanatorium, Blackwell; the Deaf and Dumb Institute, Edgbaston; the General Institute for the Blind, Edgbaston; and the Birmingham General Dispensary. The testator has also left several smaller sums to medical charities.—Miss H. Crooke has presented to the Royal Surrey County Hospital, in memory of her father, £1000 for

X ray and electrical department.—The following gifts have been made to the undermentioned institutions by Mr. J. Ephraimson of Bradford: Royal Infirmary, Leeds, £2500; Children's Hospital, Leeds, £250; and Royal Infirmary Samaritan Society, Leeds, £100.—The committee for the removal of King's College Hospital to South London has received a cheque for £1000 from an anonymous donor for the purpose of naming a bed (to be called the "Inter Cruces" bed) in the new hospital at Denmark Hill.—The late Mr. John Harris has bequeathed £500 to the Jewish Hospital and Home for Incurables, and £200 each to the London Hospital, the Victoria Park Hospital, the Jewish Orphan Asylum, Norwood, and the Jews' Deaf and Dumb Home.—The late Miss Ann Woodward has bequeathed £500 each to the Birmingham General Hospital, the Birmingham and Midland Skin and Urinary Hospital, and the Birmingham and Midland Eye Hospital; and £200 each to the Birmingham General Dispensary, the General Institution for the Blind, Edgbaston, and the Deaf and Dumb Institution, Edgbaston; and £100 to the Royal Orthopædic and Spinal Hospital, Birmingham.

A REMARKABLE case, once more illustrating the need of legislation to protect the public against themselves and against "quacks," was heard on July 25th at the Basingstoke county court. Mr. C. H. Stevens, of Worplesdon, Wimbledon, who described himself as "an unregistered lung specialist," was sued by Mrs. Bramley of Cliddesden for £10, a sum promised by the defendant in his advertisements to any patient whom he did not cure of consumption. Mr. Bramley answered Mr. Stevens's advertisement and was under treatment for a year, when he died from pulmonary tuberculosis and acute bronchitis. The defendant denied any contract to forfeit £10 in case of failure, and said these advertisements with that offer did not appear till after Mr. Bramley's death. Bramley paid £2 for three months' treatment; that was all there was between them. After evidence showing that defendant offered the widow 25*s.* to withdraw her case, Stevens (who carries on an extensive business in Wimbledon and has "Consumption and Lung Specialist" on a brass plate) was closely pressed by judge and counsel as to the composition of his "medicine" and its curative merits. After heated protests and long hesitation he said he studied the curing of consumption under Dr. Stuart, of Somerset Hospital, Cape Town. Fifteen years ago, quite by accident, he came across a native remedy at Maseru, Basutoland. A native quack doctor, he said, gave him the recipe for nothing—not in writing, but showed him the plants it was made from. After great pressure Stevens declared that he still imported these Basuto plants to Wimbledon, but he would not say when the last consignment arrived; he wrote this on paper, and the judge said the railway books could be consulted. Further questioned, Stevens said he had been making the £10 no-cure-no-pay offer since last September, but had not yet paid £10 to a failure case; the reason was that he had cured every patient except one. In giving judgment for the payment of the £10 to the widow Judge Gye made some very strong comments. He said it was one of a class of cases of the gravest importance to the public. Quack remedies for consumption were constantly put forward to play upon the fears and hopes of despairing sufferers and their friends. In the majority of cases the persons offering these remedies were wholly unqualified and were simply impostors. These quacks traded intentionally upon the fears and hopes of sufferers. In this case he considered there had been intentional and well-considered fraud. Defendant: I am sorry, your Honour. His Honour: It is a scandalous thing that poor people should be imposed on and led to hope that those near and dear to them will be cured of this disease when it is perfectly obvious that it is nothing in the world more than a quack advertising remedy of not the slightest use. The judge ordered the letters and documents in the case to be impounded.

AYRSHIRE SANATORIUM.—The second annual "Report of the Ayrshire Sanatorium presented to the Pulmonary Phthisis Board" by the medical superintendent, Dr. E. E. Prest, is interesting reading. Before giving an account of the working of the sanatorium, Dr. Prest dwells on certain aspects of the treatment of pulmonary tuberculosis which are well worthy of attention by those who are responsible for the management of similar institutions throughout the country. He points out that when the disease has advanced far enough to cause definite symptoms it becomes highly desirable that some prolonged course of efficient treatment should be undertaken; he also rightly urges that ephemeral periods of improvement in the patient's condition should not allow him or her to imagine that all is well. He adds that it is usually fairly easy to restore a patient to a feeling of well-being by a few weeks' residence in a sanatorium; the difficulty arises when it becomes necessary to persuade him that he is not perfectly well, and that a slight indiscretion on his part may bring on a fresh spread of the trouble. These remarks apply more especially to patients among the working classes, but even in the case of individuals in private sanatoriums the same objections may be raised against a stay of some months after the acute symptoms have abated. Since the last report the accommodation has been doubled. The sanatorium has been open to receive patients since July 16th, 1906, and up to March 31st, 1910, there have been 208 patients admitted; of these, 121, or a little over 58 per cent., were males, and 87, or a little over 41 per cent., were females. Of the male patients one was found to be suffering from malignant disease of the lung; in addition, four of the males and six of the females represent re-admissions. The actual number of patients suffering from pulmonary tuberculosis treated was therefore 197, made up of 116 males and 81 females. Some interesting tables of results are printed in this report. The tables, however, are only compiled with regard to cases which were admitted prior to July, 1909, as no good purpose could have been served by accounting for admissions beyond that time. The published results of discharged patients deal with 140 cases, of which 61 were women and 79 men. Of the female patients 31, or slightly over 50 per cent., were engaged in various employments; 7, or about 11 per cent., were alive but not working; 23, or over 37 per cent., were dead. Of the male patients 30, or nearly 38 per cent., were able to work; 11, or nearly 14 per cent., were alive but not working; and 38, or over 48 per cent., were dead. The somewhat high death-rate is accounted for by the stages of the disease during which the patients were admitted. Of the women, 37 per cent. were in the first stage, 29 per cent. in the second, and 32 per cent. in the third. Of the men, 26 per cent. were in the first stage, 33 per cent. in the second, and 40 per cent. in the third. The classification was adapted from that of Dr. Turban. These figures plainly demonstrate the better results which are obtained when the disease is met with in the early stage. Of the female patients admitted in the first stage over 73 per cent. are working, and of the male patients over 85 per cent.

BOOKS, ETC., RECEIVED.

ALPHA UNION, THE, Letchworth, Herts. HEADLEY BROTHERS, London.
Applied Religion. By W. Winslow Hall, M.D. Price 1*s.*

AMERICAN DERMATOLOGICAL ASSOCIATION (Secretary: Grover W. Wende, M.D., Buffalo).
Transactions of the American Dermatological Association at its Thirty-third Annual Meeting held in Philadelphia, June 3rd, 4th, and 5th, 1909. Price not stated.

ARNOLD, EDWARD, London.
Physical Chemistry, its Bearing on Biology and Medicine. By James C. Philip, M.A., Ph.D., D.Sc. Price 7*s.* 6*d.* net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.
Tropical Medicine and Hygiene. By C. W. Daniels, M.B. Cantab., M.R.C.P. Lond. With a chapter on Snakes, by A. Alcock, C.I.E., M.B., F.R.S., Lt.-Col. I.M.S. (retd.). In three parts. Part II., Diseases due to the Metazoa. Price 7*s.* 6*d.* net.
How to Cut the Drug Bill. By A. Herbert Hart, M.D. Price 2*s.* 6*d.* net.

BOOTHROYD, ELIOT, London.
Low's Handbook to the Charities of London. 1910. (75th Year of Publication.) Price 1*s.*

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, and Melbourne.
Movable Kidney, its Etiology, Pathology, Diagnosis, Symptoms, and Treatment. By William Billington, M.S. Lond., F.R.C.S. Price 7*s.* 6*d.* net.

CHURCHILL, J. AND A., London.
Saint Thomas's Hospital Reports. New Series. Edited by Dr. H. G. Turney and Mr. W. H. Battle. Price 8*s.* 6*d.* net.

CINCINNATI MEDICAL BOOK COMPANY, Cincinnati, U.S.A. SIEGLE, HILL, AND CO., London.
Practical Hydrotherapy. A Manual for Students and Practitioners. By Curran Pope, M.D. Price 27*s.* 6*d.* net.

DUCKWORTH AND CO., London.

Agricultural Bacteriology, Theoretical and Practical. By John Percival, M.A., F.L.S. Price 7*s.* 6*d.* net.

FALCONER, JOHN, Dublin. BAILLIÈRE, TINDALL, AND COX, London. JAMES THIN, Edinburgh. JOHN WRIGHT AND CO., Bristol.

Transactions of the Royal Academy of Medicine in Ireland. Vol. XXVIII. Edited by James Craig, M.D., F.R.C.P.I., General Secretary. Price not stated.

FROWDE, HENRY (OXFORD UNIVERSITY PRESS), London, New York, Toronto, and Melbourne.

The Ruins of Fountains Abbey. By the Rev. A. W. Oxford, M.A., M.D. With Illustrations and Photographs by J. Reginald Truelove, A.R.I.B.A. Price 3*s.* 6*d.* net.

GRIFFIN, CHARLES, AND CO., LIMITED, London.

The Work of the Digestive Glands. Lectures by Professor I. P. Pavlov. Translated by W. H. Thompson, Sc.D., M.D., F.R.C.S. Eng. Second English edition. Price 10*s.* 6*d.* net.

HANCOCK PRESS, THE, Post Office Box 2789, Boston, Mass., U.S.A.

The Religio-Medical Masquerade. A Complete Exposure of Christian Science. By Frederick W. Peabody, LL.B., of the Boston Bar. Price $1.00.

HARPER AND BROTHERS, New York and London.

The Science of Happiness. By Henry Smith Williams, M.D., LL.D. Price 7*s.* 6*d.* net.

KIMPTON, HENRY, London. STENHOUSE, ALEXANDER, Glasgow.

A Practical Treatise on Fractures and Dislocations. By Lewis A. Stimson, B.A., M.D., LL.D. (Yale). Sixth edition, revised and enlarged. Price 25*s.* net.

KING, P. S., AND SON, London.

Medical Examination of Schools and Scholars. Edited by T. N. Kelynack, M.D. With an Introduction by Sir T. Lauder Brunton, Bart., M.D., F.R.S. Price not stated.

LAURIE, T. WERNER, London.

The Law of the Bolo. By Stanley Portal Hyatt. Price 6*s.*

Verity Lads: Being Letters of Harry Verity to his Uncle Donty. By Keighley Snowden. Price 6*s.*

LEWIS, H. K., London.

The Extra Pharmacopœia of Martindale and Westcott. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B. Lond., D.P.H., H.M.'s Coroner for North-East London. Fourteenth edition. Price 12*s.* net.

Organic Analysis Chart. By W. Harrison Martindale, Ph.D., Marburg, Pharmaceutical Chemist. A Supplement to The Extra Pharmacopœia. 14th Edition. Price 3*s.* 6*d.* net.

Vaccine Therapy, its Theory and Practice. By R. W. Allen, M.D., B.S. Lond. Third edition. Price 7*s.* 6*d.* net.

Mentally Deficient Children, their Treatment and Training. By G. E. Shuttleworth, B.A., M.D., &c., and W. A. Potts, B.A., M.D., &c. Third edition. Price 5*s.* net.

LIPPINCOTT (J. B.) COMPANY, Philadelphia and London.

Diseases of the Heart and Aorta. By Arthur Douglass Hirschfelder, M.D. With an Introductory Note by Lewellys F. Barker M.D., LL.D. Price 25*s.* net.

LONGMANS, GREEN, AND CO., London, New York, Bombay, and Calcutta.

The Principles of Gynæcology. By W. Blair Bell, B.S., M.D. Lond. Price 21*s.* net.

Sanitary Law in Question and Answer. For the Use of Students of Public Health. By Charles Porter, M.D., B.Sc., M.R.C.P. Ed. Price 2*s.* 6*d.* net.

Wounds in War. The Mechanism of their Production and their Treatment. By Colonel W. F. Stevenson, C.B., K.H.S., R.A.M.C. (retd.). Third edition. Price 16*s.* net.

MACKENZIE, JOHN F., Edinburgh.

Three Lectures on Epilepsy. Being the Morison Lectures delivered before the Royal College of Physicians of Edinburgh in 1910. By William Aldren Turner, M.D., F.R.C.P. Lond. Price 3*s.* 6*d.* net.

MACMILLAN AND CO., LIMITED, London.

A System of Medicine. By Many Writers. Edited by Sir Clifford Allbutt, K.C.B., M.A., M.D., LL.D., F.R.S., &c., and Humphry Davy Rolleston, M.A., M.D., F.R.C.P. Vol. VII., Diseases of the Muscles, The Trophoneuroses, Diseases of the Nerves, Vertebral Column, and Spinal Cord. Price 25*s.* net.

MILLS AND BOON, LIMITED, London.

The Parson's Pleasance. By P. H. Ditchfield, M.A., F.S.A., F.R.S.L., F.R.Hist.S. Price 10*s.* 6*d.* net.

REBMAN, LIMITED, London.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by Leighton F. Appleman, M.D. Volume II. June, 1910. Price 12*s.* net per volume, or £2 net, annual subscription.

SCIENTIFIC PRESS, LIMITED, London.

Medical Homes for Private Patients, 1910. A Classified Directory with Lists of Medical Consultants. Edited by R. Pritchard Binnie. Price 6*d.* net.

WALKER, JOHN, AND CO., LIMITED, London.

Walker's Medical Loose-Leaf Pocket Book. Prices, 8*s.* 6*d.*, 11*s.* 6*d.*, or 12*s.* 6*d.*, according to binding. (Refills and Transfer Cases also supplied.)

WOOD, WILLIAM, AND COMPANY, New York.

American Practice of Surgery. Editors: Joseph D. Bryant, M.D., LL.D., and Albert H. Buck, M.D., of New York City. Complete in eight volumes. Vol. VII.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institution and others possessing information suitable for this column, a invited to forward to THE LANCET *Office, directed to the Su Editor, not later than 9 o'clock on the Thursday morning of ea week, such information for gratuitous publication.*

BEATTIE, THOMAS, M.D. Durh., has been elected Professor of Ther peutics in the Durham College of Medicine, Newcastle-on-Tyne.

LAWTON, CHARLES W., has been appointed Clinical Assistant to tl Chelsea Hospital for Women.

LOVETT, T., M.B., B.S. Glasg., has been appointed Certifying Surge under the Factory and Workshop Act for the Ollaberry District the county of Shetland.

MAGAREY, A. CAMPBELL, M.B., B.S. Adelaide, M.R.C.S., L.R.C. Lond., has been appointed House Surgeon at St. Mark's Hospit for Cancer, Fistula, and other Diseases of the Rectum.

OATES, GEOFFREY E., M.D., B.S. Lond., M.R.C.P. Lond., D.P.I Cantab., has been appointed Medical Officer to the Birmingha Education Committee.

O'NEILL, S. H., M.D., has been appointed Clinical Assistant to tl Chelsea Hospital for Women.

RANKINE, ROGER AIKEN, M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond has been appointed Assistant Physician at the Crichton Roy Institution, Dumfries.

STALEY, J. D, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has be appointed Certifying Surgeon under the Factory and Worksh Act for the Youlgreave District of the county of Derby.

TAGGART, C. C., M.D., has been appointed Clinical Assistant to tl Chelsea Hospital for Women.

Vacancies.

For further information regarding each vacancy reference should b made to the advertisement (see Index).

BIRMINGHAM GENERAL HOSPITAL.—House Surgeon, Resident Path logist, and House Physician for six months. Salary £50 per annum with residence, board, and washing. Also Two Assistant Hou Surgeons for three months. Salary £40 per annum, with residenc board, and washing.

BOOTLE, BOROUGH OF, HOSPITAL FOR INFECTIOUS DISEASES.—Resident Medical Officer. Salary £120 per annum, with board, washing, an apartments.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar. Al Resident Casualty Officer for six months. Salary at rate of £50 p annum, with board, lodging, and washing

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—Hou Surgeon, unmarried. Salary £100 per annum, with board, lodgin and washing.

CANCER HOSPITAL, Fulham-road, London, S.W.—House Surgeo Salary £70 per annum. Also Director of the Electrical and Radi Therapeutic Department. Salary £150 per annum.

CARMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medic Officer, unmarried. Salary £160 per annum, with board, apar ments, laundry, &c.

CUMBERLAND COUNTY COUNCIL.—Assistant to the County Medic Officer of Health. Salary £225 per annum and out-of-pock expenses.

CHELTENHAM GENERAL HOSPITAL.—House Surgeon, unmarried. Sala £75 per annum, with board and lodging.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medic Officer, unmarried, for six months. Salary at rate of £50 p annum, with board, apartments, and laundry.

DURBAN, NATAL, CORPORATION PUBLIC HEALTH DEPARTMENT.—Medic Officer for Municipal Tuberculosis Bureau. Salary £600 per annu

DURHAM COUNTY HOSPITAL.—House Surgeon. Salary £120 per annu with board and lodging.

FRENCH HOSPITAL, 172, Shaftesbury-avenue, W.C.—Resident Medic Officer, unmarried. Salary £100 per annum, with full board an laundry.

GLASGOW, WESTERN INFIRMARY.—Visiting Physician, also Visitin Surgeon.

GREENOCK (BURGH) SCHOOL BOARD.—School Medical Inspector. Sala £300 per annum, rising to £350.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant Hou Surgeon. Salary £50 per annum, with board, residence, an laundry.

HEREFORD, HEREFORDSHIRE GENERAL HOSPITAL.—House Surgeo unmarried. Salary £100 per annum, with some extra emolument board, apartments, and washing.

LANCASTER (ROYAL) INFIRMARY.—House Surgeon, unmarried. Sala £100 per annum, with residence, board, attendance, and washing.

LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Sala £100 per annum, with board and lodging.

LINCOLN GENERAL DISPENSARY.—Resident Junior Medical Officer, u married. Salary £175 per annum, with apartments, fire, an lighting.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Physicians an Three House Surgeons. Salary at rate of £60 per annum, wit board and residence.

MACCLESFIELD GENERAL INFIRMARY.—Senior House Surgeon. Sala £100 per annum, with board and residence.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—House Surgeon. Al Assistant House Surgeon. Salaries £100 and £60 respectively, wit board, residence, and washing.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Par place, Cheetham Hill-road.—House Surgeon. Salary £80 per annum with apartments and board.

MANCHESTER ROYAL INFIRMARY AND DISPENSARY.—Honorar Assistant Surgeon.

MEDICAL DEPARTMENT OF THE NAVY, London, S.W.—Dental Surgeon for duty with the Naval Forces in the United Kingdom. Salary £1 per diem.

MIDDLESEX HOSPITAL.—Assistant Anæsthetist. Salary £40 per annum.

NORFOLK AND NORWICH HOSPITAL, Norwich.—Honorary Pathologist and Bacteriologist.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL. — House Surgeon, unmarried, for six months. Also Junior House Surgeon, unmarried, for six months. Salary in each case at rate of £80 per annum, with board, &c.

PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—Assistant House Surgeon. Salary £75 per annum, with board, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

REDHILL, EARLSWOOD ASYLUM.—Assistant Medical Officer, unmarried. Salary £130, rising to £150 per annum, with board, lodging, washing, &c.

ROXBURGH AND SELKIRK COUNTY COMMITTEES ON SECONDARY EDUCATION.—School Medical Inspector. Salary £300 per annum with out-of-pocket expenses.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Bridge-road, S.E.—Junior Resident Medical Officer. Salary at rate of £50 per annum, with board and washing.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, all found.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.

SHEFFIELD ROYAL INFIRMARY.—Seventh Resident Medical Officer. Salary £60 per annum, with board and residence.

SHREWSBURY, SALOP INFIRMARY (THE COUNTY HOSPITAL).—House Physician. Salary at rate of £70 per annum, with board and apartments.

SOUTH AFRICA, SOUTH AFRICAN COLLEGE, Capetown.—Professors of Human Anatomy and Physiology. Salary in each case at rate of £500 per annum, with free passage to Capetown.

SUNDERLAND INFIRMARY.—House Surgeon. Salary £80 per annum, with board, residence, and washing.

SUNDERLAND, MONKWEARMOUTH AND SOUTHWICK HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board and lodging.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Surgeon.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Midhurst, in the county of Sussex.

THE Secretary of State for the Home Department, Whitehall, S.W., gives notice of a vacancy as Medical Referee under the Workmen's Compensation Act, 1906, for ophthalmic cases, including cases of miners' nystagmus, arising in County Court Circuit No. 25.

Births, Marriages, and Deaths.

BIRTHS.

DOBLE.—On August 9th, at The Firs, Reedham S.O., Norfolk, the wife of F. Carminow Doble, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

ELLIS.—On August 2nd, at 3, Maple-road, Bournville, near Birmingham, the wife of F. W. Ellis, M.D., F.R.C.S. Eng., of a son.

GARDNER.—On August 4th, at 23, St. John's-hill, Shrewsbury, the wife of Dr. H. Willoughby Gardner, of a son.

HOLMES.—On July 31st, at Down Hall, Rippingale, Lincs, the wife of A. Hewston Holmes, M.D., of a son.

LOCKWOOD.—On August 8th, 1910, at 19, Upper Berkeley-street, Portman-square, W., the wife of Charles Barrett Lockwood, of a son.

WROUGHTON.—On August 4th, at "Boroughfield," Bricket-road, St. Albans, the wife of Captain A. O. B. Wroughton, R.A.M.C., of a daughter.

MARRIAGES.

LESLIE—HARLEY.—On August 9th, in London, W. Murray Leslie, M.D., F.R.C.S., Barrister-at-Law, of Cadogan-place, S.W., to the Honourable Mrs. Harley, the younger daughter of Lord Rotherham.

MACCORMAC—HOLLIS.—On August 4th, at Holy Trinity, Sloane-street, William L. Maccormac, M.B., F.R.C.S.E., to Maud, youngest daughter of the late John Manclerk Hollis, of Garforth.

THOMAS—LAUDER.—On August 4th, at Marylebone Parish Church, Frank Leslie Thomas, M.B., B.S. Lond., L.R.C.P., M.R.C.S., to Margaret Mary, only daughter of Alexander Lauder, of Barnstaple.

DEATHS.

HOGUE.—On August 5th, at Roxburgh, Bournemouth, D. W. Hogue, M.D., L.R.C.S. Edin., and Dentist, late of Queen-street, Edinburgh.

PLATT.—On August 3rd, John Edward Platt, M.S. Lond., F.R.C.S., of 157, High-street, Oxford-road, Manchester, aged 44 years.

THOMAS.—On August 5th, at St. Leonards-on-Sea, George Danford Thomas, M.D., M.R.C.S., Senior Coroner for the Counties of London and Middlesex, aged 63 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HEALTH OF ST. HELENA: REMARKABLE DECREASE OF DEATH-RATE.

IN the report of Lieutenant-Colonel H. L. Gallwey, C.M.G., Governor and Commander-in-Chief of St. Helena, on the Blue-book of the colony for the year 1909, the section devoted to vital statistics, hospitals, &c., contains, as will be seen by the subjoined summary, much matter of more than usual interest. The present estimated population is 3553, and the death-rate in 1909 was abnormally low, being 6·4 per 1000, as compared with 9·6 per 1000 in 1908. There were only 23 deaths. Of these, six were of children under 1 year of age and five of persons between 80 and 90 years. Excluding those 11, only 12 deaths occurred among the islanders between the ages of 1 and 80 years, a rate which works out at 3·4 per 1000. Looking at the fact that St. Helena is situated in the tropics, the figures furnish a very remarkable testimony to a wonderful climate. The death-rates among the civil population for the last eight years have been as follows: 1902, 34·8; 1903, 20·2; 1904, 14·4; 1905, 14·5; 1906, 11·9; 1907, 9·4; 1908, 9·6; and 1909, 6·4. It will be seen that the death-rate in eight years has decreased by no less than 28 per 1000. This wonderful result is not a little due to the greatly improved hygienic conditions under which the islanders live to-day as compared with a decade ago. The number of marriages solemnised during the year was 17, as against 19 in 1908. The marriage-rate among the islanders has decreased from 9·4 per 1000 in 1903 to 4·7 per 1000 in 1909, showing that poverty tends to decrease the marriage-rate among the labouring classes. This fact, no doubt, accounts for the large percentage of illegitimate births, which numbered 27 in 1908 and the same in 1909.

During the months of May and June influenza assumed epidemic proportions. Though many were severe, the bulk of the cases were mild. There were 35 cases of pneumonia, with three deaths—an old woman over 84 years of age and two others over 60 years of age, with constitutions enfeebled by long-standing poverty. In November and December, during the drought, several cases showing injurious effects from the sun's rays came under treatment. During a prolonged period of dry weather the direct solar heat was unusually intense. The most severe case was that of a healthy man, aged about 45 years, who had had fever for ten days after exposure to a hot sun. The symptoms came on suddenly, and death followed during convalescence from a sudden cerebral hæmorrhage before the patient had left his bed. These cases are worthy of note as the sun in St. Helena rarely causes inconvenience, and therefore its occasional potency is apt to be disregarded. With regard to the general aspect of the public health the colonial surgeon, Dr. W. J. J. Arnold, reports: "Frugality in eating and drinking has been a necessary consequence of the straitened economic condition of the islanders, and to this factor might be safely attributed a considerable share in the reduction of the death-rate. The mind of the average inhabitant of the island has always been swayed with the idea in regard to disease that it was the direct infliction of Heaven, and that little or nothing on the individual's part could avail to avert sickness. This idea has been persistently combated in the course of some years' daily contact with the sick and sound, and it is not altogether unwarrantable to conclude that the slow infiltration of a more reasonable view as to the influence of diet and all the habits of everyday life in preventing disease has had beneficial results. The practical application of the principles of hygiene in the schools has undoubtedly improved the standard of health amongst the children."

The Governor expresses full concurrence in these views, and adds that hygiene and sanitation in St. Helena to-day are of a higher standard than they have ever before been in the history of the colony. Although a great improvement is discernible among the poorer classes in connexion with the combating of disease and the putting into practice the simple rules of hygiene, yet amongst the more ignorant of the population, and even amongst those who have had some education, a belief in witchcraft and the power of the evil eye still survives. Different ailments are not infrequently attributed by the victims of this belief to a spell having been cast upon them by some person evilly disposed towards them. A few mischievous persons have traded on this deplorable credulity, and under the pretence of removing the spell (or "poisons," as it is called) by means of potions or herbs have received much ill-gotten gain. The harmfulness of the evil referred to has been shown in numerous instances where people have drifted into a condition of bodily and mental wretchedness through believing they were under a spell when in reality no disease of any kind was present. Many ordinary ailments attributed by the victims to "poison," or evil influence, have dragged on for weary months when by proper medical treatment they would have been speedily cured. The quacks who have enriched themselves by trading on such ignorance and credulity have in the past carried on their nefarious operations unchecked, but an ordinance

has now (1910) come into force which will restrain them. Under this ordinance it is unlawful for any person to practise medicine or surgery, or to prescribe any medical or surgical treatment in St. Helena for fee or reward unless he is possessed of one or more of the qualifications which would entitle him to practise medicine or surgery in the United Kingdom.

A case of leprosy in a child, aged 7 years, was notified. The child contracted the disease from his grandfather, who died in 1908, after having suffered many years from leprosy. Suitable quarters were erected in Rupert's Valley for the segregation of the child on a site well suited for isolation. The boy is cared for by his grandmother, who voluntarily undertook the duty, and has been under control and treatment since August, 1909. There were 164 admissions to the island hospital during the year and seven deaths. Over 3000 out-patients were treated. Chloroform was administered in 44 cases, the majority being minor surgical operations. A small fund inaugurated three years ago to assist poorer patients in defraying hospital charges has proved of great service. At a time when so many of the population are without work and lack the nourishment indispensable to recovery from illness or injury, the importance of such a fund (which is derived entirely from voluntary contributions) is apparent. The Governor further writes: "The medical care of the whole population during the year again fell entirely on Dr. Arnold's shoulders. On more than one occasion he should have laid up, but could not possibly do so. I am glad to say that provision is made in the Colony's estimates for 1910 for an allowance to the colonial surgeon to cover (in part) the salary of an assistant. I cannot testify too highly to the manner in which Dr. Arnold has performed his duties single-handed for over three years. His devotion to duty is thoroughly recognised and appreciated by the whole community."

COUNTRY HOLIDAYS FOR CHILDREN.

THE Bishop of London has issued an urgent appeal for £8000 on behalf of the Children's Country Holiday Fund, and this appeal we earnestly endorse. Out of the enormous number of the children of the poor who are compelled to spend their lives, year after year, in the grimy streets, courts, and alleys, which, alas, still remain as blots on our otherwise great and sanitary metropolis, 45,000 little ones have been selected by the voluntary workers of the fund for a few days holiday in the country. It is difficult fully to realise the great amount of good which may result to the child morally and physically by a change from a vitiated environment to one where it can obtain pure air and food, and opportunities of expanding the child mind. Already 23,000 children have been accorded such an opportunity, but there remain 22,000 who, in spite of the efforts which the parents have been induced to make in order to pay their share of the cost and to clothe the children decently, have not yet been despatched. £8000 are still required to complete the necessary payments. The cost per child is small, as every 10*s.* sent to the honorary treasurer, the Earl of Arran, at 18, Buckingham-street, Strand, W.C., ensures a fortnight's change of environment for one child. Pity itself should be an adequate appeal, but the health of the child has an important bearing on the health of the next generation, and both charity and wisdom claim that the Bishop of London's appeal should meet with a prompt response.

PARENTAL APATHY.

AT the Exeter police court recently six parents were fined from 5*s.* to 2*s.* each for allowing their children to become verminous after having been cleansed by the education authority at the cleansing station.

TWO CASES UNDER THE WORKMEN'S COMPENSATION ACT.

AT the Chippenham (Wilts) county court recently the widow of a labourer sued the Bath Stone Firms for compensation under the Act. The deceased man had sprained his lumbar muscles whilst in the employment of the firm. The medical certificate of death stated that the cause was "heart failure produced by broncho-pneumonia, which arose from the lumbar muscles having been sprained." For the defence three medical witnesses were called who contended that the sprain in the lumbar region, whilst producing general depression of the system, could not cause broncho-pneumonia; there must be a local as well as a general loss of resistance to produce broncho-pneumonia. It was also stated that there was no case on record of broncho-pneumonia following injury to the lumbar muscles. His honour Judge Gwynne James gave judgment for the respondents.—A seaman, at the Gloucester county court on July 23rd, claimed compensation under the Act from the Dale Steamship Company, Bristol. In November last the applicant, when at Alexandria, slipped whilst hoisting a barrel of flour, and as a result a hernia followed. For the defence it was contended that if applicant wore a suitable truss he could follow his employment. His honour Judge Ellicott, in awarding the seaman his case with costs, said he was of opinion that it would be highly dangerous for the man to work even with a truss on any vessel which did not carry a surgeon. These brief notes sufficiently show that a medical assessor would often be of great value in such cases.

AN OBSTINATE CASE OF PRURITUS.

To the Editor of THE LANCET.

SIR,—I should be greatly obliged if any of your readers could suggest treatment for relief of a case of general pruritus of 18 months' standing. The patient is a man 59 years old. Eight years ago he had a slight attack of a similar nature which lasted a few weeks. There is no definite eruption of the skin, but a good deal of scaling of the epidermis all over the body. The itching is so intense that he scratches himself raw in many places. His general health and appetite are good, and all the internal organs appear sound. The itching is felt even in the eyeballs, throat, and tongue; he has attacks of asthma about once or twice in five or six weeks. He has been treated as an in-patient in hospital for five months, during which time he had a course of medicated baths, thyroid tablets, and various unguents, including ichthyol ointment; he also has had salicylate and arsenical mixtures for many weeks. Nothing seems to relieve the itching or produce more than temporary abatement. Latterly he sweats profusely. There are no pediculi or acari.

I am, Sir, yours faithfully,

P.

"CHRISTIAN SCIENCE."

AN inquest was held at Chelsea on August 6th on the death of Elizabeth Rowe, aged 34 years, a nurse. She was suffering from tuberculosis, and according to the evidence of the medical man who was called after death, Mr. Randolph L. Grosvenor, she could not have lived very long, but relief could have been afforded by tapping the dropsy from which she also suffered, and proper medical treatment might have prolonged her life. Two "Christian Science" practitioners gave evidence. Mrs. Ethel Harriet Martin of Chelsea, in whose house Miss Rowe died, said that Miss Rowe agreed to pay 1 guinea a week and received "Christian Science" treatment. She had only been at the house a little more than a week. Miss Mary Elizabeth Bovet of Chelsea said she was a "Christian Science" practitioner and received 2*s.* a week for treating Miss Rowe. She had recommended the patient to Mrs. Martin. The treatment, she said, consisted to a great extent of prayer. Mr. C. L. Drew, the coroner, pointed out that a clergyman would pray gratuitously, but Miss Bovet said that the clergy did not undertake to heal by prayer. The jury returned a verdict of death from natural causes.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for the next four weeks:—

August 21st–26th (Brussels).—International Home Education Congress.
" 31st (Sheffield).—British Association for the Advancement of Science.
Sept. 5th–10th (Brighton).—Congress of the Royal Sanitary Institute.
" 10th–14th (Brussels).—Second International Congress on Occupational Diseases.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon: Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M.,: Gynæcological Operations 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Bernstein: Laboratory Aids to Diagnosis.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture: Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Diseases of Women.
THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. B. Harman: Corneal Ulcers.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—2 P.M., Clinical Demonstration: Dr. Wall: Diseases of the Lungs.
TUESDAY.—2 P.M., Clinical Demonstration: Dr. Grünbaum: Diseases of the Kidneys.

WEDNESDAY.—2 P.M., Clinical Demonstration: Dr. Hutchison: Diseases of the Digestive System and Children's Diseases.

THURSDAY.—2 P.M., Clinical Demonstration: Dr. T. Thompson: Diseases of the Nervous System.

FRIDAY.—2 P.M., Clinical Demonstration: Dr. L. Smith: Diseases of the Heart and Vessels.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (17th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (18th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (20th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 10th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 4	29·70	S.W.	...	126	71	56	57	61	Fine
,, 5	29·69	W.	0·39	94	66	58	58	61	Overcast
,, 6	29·94	W.	0·12	124	66	54	57	59	Cloudy
,, 7	29·96	W.	...	113	71	53	56	60	Cloudy
,, 8	29·86	N.	...	84	66	55	59	62	Cloudy
,, 9	29·86	NNE	...	103	67	58	57	59	Overcast
,, 10	30 02	NNE	0·12	120	68	55	56	59	Fine

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Presidential Address
ON
STRAIN.

Delivered at the Annual Meeting of the Ipswich Medical Society

BY SIR LAUDER BRUNTON, BART., M.D. EDIN., F.R.C.P. LOND., F.R.S.,
CONSULTING PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

GENTLEMEN,—The subject I have chosen for my address o-night is that of strain. We are quite familiar with strain n inorganic bodies. If we tie one end of a string to a fixed upport and load the other with increasing weights the string ill become more and more tense and by-and-bye will break ltogether. If we twist a piece of wire it yields to a certain xtent, but by-and-bye breaks off. If we lay a bar of wood r iron upon solid supports and then compress it by ncreasing weights, or by hydraulic press, it will bend omewhat and will finally break. If we pass a urrent of electricity through a wire we will for time observe no change, but as the strength of he current increases the wire will become hot, and resently, if the current is too powerful, it will melt ltogether. In every case the final breaking of the string, ire, bar, or conductor is due to an excess of the work hich each of those bodies is naturally intended to perform.

STRAIN OF TISSUES AND ORGANS.

The same holds good with the tissues and organs of the uman body. In a railway accident, if a limb is caught etween two pieces of woodwork and its ends pressed in ifferent directions, the bones are snapped just as they ould be in a testing machine. If any one of us were to lip on a greasy sidewalk, so that our foot twisted to one side nd the whole of our weight were thrown upon the ligaments f the ankle-joint, they would be strained, or, as we usually xpress it, sprained. Now, I think there is a certain ifference between strain and sprain. It is one of degree and ot of kind. If the twisting of the ankle were only slight here would be a certain amount of pain on using the joint, ut there might be no swelling and little or no tenderness on ressure, whereas both of these symptoms usually are present hen the twisting is so severe as to produce what we term a prain. Yet even a slight strain, which gives no other vidence of its presence than a little pain on exertion, may ast for a long time, and each time a fresh demand is made pon the ligaments the pain is again felt.

A severe and sudden strain may cause complete rupture of muscle. A less severe strain causes muscular pain and enderness, sometimes very acute, and usually lasting two or hree days. This condition gradually passes off, and in a hort time the muscle becomes inured to greater exertion, nd is then capable of more powerful and long-continued ontraction without fatigue. Indeed, repeated exertion within moderate limits causes a muscle to grow, or, as we rdinarily term it, to become hypertrophied. Its contractile ower and its nutrition are both greatly increased by the xertion it is called upon to make, but if the exertion be too reat, and especially if it be too long continued, a different esult ensues, and atrophy of the muscle takes place. Its utrition is impaired, its size diminishes, and it becomes eebler.

STRAIN AND THE NERVOUS SYSTEM.

The changes which occur in consequence of strain to the igaments, to the muscles, and to the bones are readily erceptible, but changes in the nervous system are not so asily appreciated. Nevertheless, they do occur, and these hanges may be even more important than those in the oarser tissues. It was formerly supposed that the nerve ells of the central nervous system were connected together y definite fibrillæ, which were constantly present, but t is now generally believed that the connexion occurs ather by means of processes which are capable of longation and contraction. At one time they connect he nerve cells together, while at another connexion may e broken, just as in a telephone office the various ubscribers may have their wires connected at one time, while at another they may be switched off altogether. In the nervous system, just as in the muscles, regular exercise, without overstrain, tends to increase both nutrition and functional activity, but excessive exercise rather leads to functional weakness and atrophy. Moreover, just as a sudden severe strain may entirely snap a muscle, so a sudden severe strain may snap some of the nervous connexions in such a way that they never again join. The analogy between the effect of a sudden shock or strain upon the nervous system is indeed very much like what we see from the melting of a fuse by an overcharge of electricity. The fuse may be repaired and the connexion again made, but it is possible that this may not occur, and in such a case the connexion is destroyed for ever.

Many instances are on record where sudden shock has for ever destroyed the mental balance and left the sufferer hopelessly insane for the remainder of life. In other cases sudden shock may have a beneficial effect, and there is the well-known instance of the son of Crœsus, who, after being dumb from birth, recovered his speech when he saw someone about to murder his father. Cases are recorded also of the cure of epilepsy by the patient falling into water and being in danger of drowning.

EFFECTS OF EMOTION.

The effect of emotions on the body has been well studied by Darwin. Both in animals and in man there is the sudden tightening of muscles in the presence of danger, or in the effort to meet some unexpected event. This is, I think, particularly noticeable if one is riding a quiet horse and the animal is suddenly startled by an unexpected sight or sound. It gives a sudden jump, and not only the muscles of the rider's legs, but those of his arms and back, tighten at once in order to prevent his being thrown off. The depression caused by bad news shows itself in the general attitude: the limp muscles, the stooping posture, and the slow or even shuffling walk; while the contrary effects, erect attitude, agile walk, and active muscles, result from good news or anything that gives pleasure to the individual. The effect of emotion upon the vascular system was well noted by Harvey, who said:—

> For every affection of mind which is attended with pain or pleasure, hope or fear, is the causo of an agitation whose influence extends to the heart. ..... And what, indeed, is more deserving of attention than the fact that in almost every affection, appetite, hope, or fear, our body suffers, the countenance changes and the blood appears to course hither and thither. In anger the eyes are fiery and the pupils contracted; in modesty the cheeks are suffused with blushes; in fear, and under a sense of infamy and of shame, the face is pale, but the ears burn as if for the evil they heard or were to hear; in lust, how quickly is the member distended and erected.

In popular language we are accustomed to note the effect of the emotions on the circulation when we say: "His heart beat high with hope or sunk within him for fear." These emotions actually do alter the pulsations of the heart, hope and joy making them stronger, while fear makes them feebler. The effect of emotions upon the body is to a great extent produced through the pneumogastric nerves, which send branches to the lungs, heart, stomach, intestines, liver, and kidneys. Each of these organs is affected by the emotions. Thus, we say a man breathes more freely when some cause of anxiety is removed. The alteration in the heart is of more than one kind, for either the rate or the power of pulsation may be affected. Excitement of various kinds, and especially pleasurable anticipation, will very often quicken the pulse, but this quickening frequently occurs from simple excitement, such as that of entering the room of a consultant. Bad news will depress the function of the stomach, entirely destroy appetite, and even cause nausea, while compassion affects the movements of the intestine to such an extent that "soundings of the bowels" was used by the Hebrew prophets as a synonym for compassion. The increased activity of the kidneys by excitement is known to most men who have passed through an examination. If the emotional excitement be not too great and not too often repeated, and if all the organs affected by it are healthy, it will do no harm, and is likely, indeed, to be beneficial, just like intellectual work or muscular exercise. But here, also, too great or too prolonged excitement are apt to be followed by functional weakness, malnutrition, and atrophy. One of the most striking examples of malnutrition due to emotion is the neurasthenic condition which sometimes comes on in girls from some disappointment in love. They lose strength, they become

emaciated, their pulse is slow and feeble, the hands and feet become cold, and the skin, instead of being soft and velvety, becomes dry, hard, and scaly. These are the cases which are usually so successfully treated by the Weir-Mitchell treatment of isolation, forced feeding, and massage.

INFLUENCE OF THE NERVOUS SYSTEM OT GLANDULAR SECRETION.

For a long time the connecting links between the nervous system and such emaciation were very obscure, and even now they have not been completely made out, but the knowledge which we have acquired of late years regarding the influence of the nervous system upon the glands and their internal, as well as their external, secretion has greatly helped us. One of the best-known evidences of the influence of the nervous system upon a gland is that of the secretion of saliva caused by the taste, smell, or even thought of appetising food, and Pawlow has shown that the secretion is not confined to the salivary glands, but that the stomach and pancreas react to the pleasant stimulus in the same way. The effect of the thyroid gland upon the general metabolism in the body is one of the most marked instances of the power of the internal secretions. With atrophy of the thyroid we find that the growth becomes stunted, the circulation languid, the mental powers feeble, the face swollen and expressionless. With hypertrophy of the thyroid, on the contrary, we find associated with the quick pulse a rapid circulation, hot and sweating skin, and an excitable nervous system. This condition is frequently brought on by a shock. The most rapid case that I have ever seen was that of a man who was frightened by a thunderstorm in the early morning, and the symptoms were well marked within 13 hours. In this case the exophthalmos and swelling of the thyroid were both very great. I do not know how long it lasted, as the patient left the hospital. In another case the disease came on in a girl within four or five days of her brother accidentally shooting himself as he was crossing a hedge, and her death occurred in the course of about five months from a diarrhœa which nothing would stop. In another case, which I described 35 years ago, both exophthalmic goitre and diabetes appeared to come on after worry, and diabetes itself is, I believe, very often due to emotional strain. The strain which leads to diabetes is, however, I think not so much sudden emotion, like that which brings on goitre, as rather long-continued worry and anxiety.

How far the action of the central nervous system in producing glycosuria may be due to an effect upon the liver or upon the pancreas through the pneumogastric nerve has not yet been determined. Years ago the prevalent idea regarding diabetes was that it was chiefly due to alterations in the internal secretion of the liver and a more rapid destruction of glycogen, but now many cases are considered rather to be due to defective metabolism in the muscles, secondary to a deficient internal pancreatic secretion. The internal secretion of the pancreas is supposed to activate a glycolytic ferment in the muscles, and when this is deficient the sugar is not split up and consumed as it ought to be. I have already mentioned that Pawlow has shown that the external secretion of the pancreas is greatly affected by mental emotion, and it is probable that the internal secretion may be so also. But it is not only the salivary glands, stomach, and pancreas which are affected by the emotions. I have seen a case in which a young lady became quite jaundiced in a few days. She had presented no other symptom and the cause of it was apparently anxiety for her only sister, who was dangerously ill.

INTESTINAL CANAL AND NERVOUS AFFECTIONS.

The effect of emotion upon the intestinal movements is a matter of common knowledge. It is probable that alterations in the secretion and movements of the intestinal canal may affect its bacterial contents and their products. On one occasion I went to see the wife of a young doctor who was suffering from pneumonia, and I was struck with the extraordinarily fœtid breath of her husband, which seemed to be due entirely to his anxiety, as it was merely a temporary occurrence. How far the toxins formed in the intestine by bacterial growth, unchecked and perhaps modified in kind by the disturbance of the digestive secretions, may react upon the central nervous system, peripheral nerves and muscles, it is hard to say, but I am inclined to think that a great number of nervous diseases really have their origin, directly or indirectly, in the intestine. Some c the most common products of albuminous decompositio are toxic amines, or compounds of ammonia, and some c these have a very powerful paralysing action both o muscle and nerve. One of the most extraordinary actior that compounds of ammonia exert upon nerves is tha of acting on the peripheral ends of the motor nerve in the same way as the charge of dynamite act upon the electric wire by which it is discharged. Th dynamite blows off the end of the wire and thus break any connexion. Many years ago I found in experimentin with salts of ammonia that when frogs were poisoned b them an electrical stimulus applied to the sciatic nerv would cause a contraction of the muscles in the frog's le quite as powerful as normally, but that sometimes a secon stimulus applied to it had no effect whatever, although th muscle still remained irritable to direct stimulation.[1] appeared as if the ammoniacal salt had combined with th end plate in such a way that the first discharge nervous energy blew it off so that the connexion betwee the nerve and the muscle was completely destroyed I think it is possible that these observations may hav a bearing upon the sudden stoppage of the heart i certain cases. I think it probable, also, that toxins forme in the intestine may have much to do with the produ tion of sclerosis in the spinal cord. When experimenting number of years ago on the action of some benzine compound in the frog, Dr. Cash and I found that some of them pr duced symptoms of sclerosis, so that the foot of the fro instead of being drawn up with a sudden jerk was drawn u in a slow and shaking fashion. Many years afterwards I ha a patient at St. Bartholomew's Hospital suffering fro disseminated sclerosis. In spite of all the ordinary remedi he was becoming rapidly worse, so that not only his extrem ties, his speech, and mastication, but also deglutition becan affected; he could hardly swallow and death seemed ve near at hand. In despair I bethought me of our experimen upon the frogs. It had occurred to me that if he we suffering from any toxic poisoning from benzine compound sulphates ought to help him as they would form an innocuo compound with the toxins. I accordingly put him sulphuric acid and sulphate of magnesia. In three mont he was well enough to go to a convalescent home.

LAPSE OF MEMORY.

How far the coöperation of toxins with mental shock excitement may be responsible for curious lapses of memo I do not know. I have had three cases in which the identi of the individual has been completely lost for a time. Th first was a stockbroker in Glasgow, who went out for a ri one morning, and being thrown from his horse fell upon a hea of stones. One of these stones caused a deep indentati just behind the left ear. He was taken up, carried hom and remained for nearly three months insensible. He th awoke to life, but it was not to the life he had before th accident. He forgot that he was a stockbroker, that he w married, and that he had several children. When he awol to life seven years had utterly passed from his memory. I thought that he was a student at college. He cou make Greek verses and remembered much of what knew as a student and had subsequently forgotte He had to be introduced to his wife and childr and told that they were his. He still continued have a sort of double existence. One morning wh he was brought to see me he was seized with a sudd panic in alighting from the cab and fled away along t streets like a lunatic. That same afternoon he wrote article on an abstruse financial subject which was print next day in the *Times*, and was regarded with great admi tion by all competent critics. Another case was that of young man who suddenly disappeared from home, leaving trace. For a fortnight nothing was heard of him, and th he wrote to his family to tell them that he had complete lost himself, until one day he awoke lying in bed in a hou in Brittany and tended by a very kind French woman. turned out that he had been pitched from his bicycle close the house and that she had taken him in and tended hi The fall from his bicycle seemed to have restored identity, but he never knew exactly when he lost it or h

[1] Lauder Brunton: Text-book of Pharmacology, Therapeutics, a Materia Medica, first edition (London: Macmillan and Co., 188 p. 567.

he had got to Brittany at all. I was not able in this case to trace a distinct relationship between mental strain and loss of identity. In the third case, however, such a connexion was easily traced. A young man had been working very hard for the Indian Civil Service and had just passed his examination. Instead of returning home, however, he disappeared and nothing was heard of him for two or three weeks when a letter came from Malta asking for money to pay his passage home. It appeared that he had completely lost his identity until one day in Mogador he suddenly awoke to find himself knocking another man down. He never knew exactly how he reached Mogador, but he learned that he had taken his passage from there to Malta and in coming out of the steamship office a man had tried to wrench his purse from his hand. The exertion of knocking the man down seemed to have restored him to himself. He then knew who he was and communicated as soon as he could to his friends. The time which elapsed between his leaving London and arriving at Mogador remained a complete blank. The immediate cause of this curious loss of identity appeared to be the strain of examination, but the fact that this result is so rare, while examinations are so very common, appears to show that some other factor was at work. It is possible, of course, that this factor may have been simply the mental constitution of the patient, but it may also have been that this was aided by some toxin generated in the intestine in consequence of nervous disturbance of its innervation.

Eyestrain and Headache.

One of the most curious effects of nervous strain upon the nervous system is that of ocular strain in giving rise to headaches. Many cases of migraine resist medicines until the inequality in the eyes is equalised, while, on the other hand, glasses which will equalise the sight in both eyes will sometimes cure headache without any medicine whatever. But here again the production of headaches appears to be due to more than one factor. After a severe headache, accompanied by vomiting, and the enforced abstinence from food which the nausea entails, the patient is often able to strain the eyes by going to a picture gallery or theatre, reading small type, reading in bed, &c., without bringing on a headache, although any of those proceedings would certainly have brought it on a few days previous to the attack. It appears to me that the headache is due to the combined action of strain acting upon nerve centres poisoned by toxins, just in the same way as the failure of the frog's muscle to respond to a second stimulation of the nerve in a case of poisoning by ammonium salts. Very frequently, indeed, sick headaches are preceded by irritability, and the irritability may be often removed and the headache prevented if a dose of salicylate of soda, phenacetin, or antipyrin be taken when the irritability comes on, because it often precedes the headache by some hours. The removal of toxins from the liver by means of a mercurial, followed by a saline purgative, will also tend to prevent headache, even although the eyestrain be continued.

Irritability and Heart Disease.

There is a curious connexion between irritability and heart disease. The old steward at St. Bartholomew's, Mark Morris, told me that whenever a patient came to the office at 11 o'clock at night and wished to be discharged immediately, they knew it was a case of heart disease, and the high tension of patients with gouty kidney is often accompanied not only by sleeplessness but by great irritability of temper. The condition of the circulation thus affects the emotions, and the emotions, again, have a most powerful action upon the circulation. I have seen a case in which a loud systolic bruit, both at the apex and base, appeared in a healthy heart within a few weeks after a great sorrow, and in another patient the worry connected with the disturbances in South Africa was followed by irregularity and weakness of the heart, to which the patient ultimately succumbed.

The effect of emotion upon the blood pressure is sometimes very great. In one experiment, which I made upon myself, I found that the irritation of being unable to keep an appointment raised my pressure from 120 to 160 millimetres—that is to say, by one-third of the normal amount; and it is this sudden rise which renders emotion so dangerous in cases of angina pectoris. It is well known how poor John Hunter rose up from a meeting of committee in a fit of anger and died just outside the door of the room. In all cases suffering from angina I advise the patients to abstain from excitement of every sort, and more especially to avoid anger and to give up attendance at committees, as on a large committee there is a great chance of some member being obstructive or irritating, and this, coupled with the increased irritability of which I have spoken, in a case of heart disease and in gout, may give rise to most serious or even fatal consequences.

Intellectual Strain.

Intellectual strain is much less injurious to the heart than emotional strain, but if the intellectual strain is great it is apt to be accompanied by more or less emotional disturbance, and also to lead to imperfect nutrition of the body, including the circulatory system. For it is to be remembered that the vagus nerve goes not only to the heart but to the stomach, and that intellectual strain may interfere with the digestion, either directly by its effect upon the digestive canal or indirectly by increasing the hours of work and diminishing the amount of time that ought to be devoted to rest or exercise.

Muscular Exertion, Digestion, and the Blood Pressure.

Muscular exertion tends to raise the blood pressure very greatly by compression of the arterioles during muscular contraction. When the exertion is not only severe but sudden the tension may rise very greatly indeed, but if the muscular exertion is begun slowly the blood-vessels in the muscular substance dilate, and thus the exercises may be continued without materially raising the tension; in fact, at the end of the exercise it may be actually reduced. It is for this reason that patients suffering from angina so often tell you that the pain comes on as soon as they begin to walk, but after they have been walking a little while it ceases and then they may continue to take exercise, even severe exercise, for an hour or more without feeling any return of the pain.

There is another condition that tends to raise the blood pressure, and that is the ingestion of food. In his admirable book on the circulation Marey worked out the relationship between pulse-rate and resistance in the vessels and reduced it apparently to a simple mechanical problem—the greater the resistance in the vessels the slower became the pulse and *vice versâ*. Presumably there was no need for any nervous system either to the heart or to the vessels, the whole thing appeared to be mechanical, but there was one exception which he passed over and said very little about, and that was the rise both in pulse-rate and in arterial tension which he observed after meals, a rise which was quite independent of exertion. Now a rise in the pulse-rate is quite what one would have expected, according to Marey's law, because during digestion the vessels of the splanchnic area dilate in order to convey a free supply of blood to the secreting glands. The pressure, therefore, ought to fall very greatly, but it does not. On the contrary, it rises, and probably this rise is due to the effect of various products of digestion which are absorbed. What these are we cannot say, but we know that one of the products of pancreatic digestion is tyrosine, and from it may be produced an organic base which has the power of raising the blood pressure in the same way as the suprarenal extract, but more slowly and more persistently. This base has recently been introduced into medicine under the name tyramine. It is quite possible that other diamines are also formed in the intestine, and here I would like to draw attention again to the experiment I have already mentioned, that sometimes in poisoning by ammoniacal salts a muscle would respond by full contraction to the first stimulation of its nerve, but utterly fail to do so on the second stimulation. This whole subject requires a great deal of investigation, but it has seemed to me just possible that the sudden deaths which occasionally occur in elderly men who begin to exert themselves shortly after lunch may be due to the rise of pressure commonly associated with digestion and to the rise produced by exercise, combined, possibly, with the presence in the blood of some toxamine. Whether this be so or no, it is certain that in all patients presenting symptoms of angina the rule should be made, not only that they are to begin exercise very slowly, but that they should always rest for some time after a meal, and take especial care when beginning exercise of any sort to go on for some time very gently before venturing on

anything which may cause the least strain. It is very important also to prevent any accumulation of toxamines by keeping the liver as well as the intestines freely acting.

EFFECTS OF OVER-EXERTION ON THE HEART.

The effect of continuous exercise in a case of high tension is to lower it by dilating the vessels supplying the muscular system, but a similar dilatation occurs in healthy people and is good, provided it occurs only in moderation. But if the blood is pouring rapidly through the muscles from the arterial system into the veins and the return of the venous blood to the heart is accelerated by muscular action, the right side of the heart is apt to become overloaded. Probably there is no one here who has not felt the distress due to over-exertion at some time or other in his life, and who is unacquainted with the relief he experienced when he got what is known as his second wind. I am not certain that I am right in my pathology, but my own belief is that second wind is neither more nor less than the accommodation of the pulmonary vessels to those of the general circulation. I well remember a good many years ago crossing the Col de Theodule in a frosty autumn morning. The guides walked somewhat quickly and I began to get shorter and shorter of breath. I felt a great oppression over the chest, and as I was walking without my coat and with my shirt thrown back, I put my hand where the apex beat of my heart ought to have been. To my astonishment it was not there, and I found that it had travelled round to the epigastrium, showing that the right side of my heart had become much dilated. I shouted to the guides to go more slowly, and in a short time the apex beat had travelled away from the epigastrium and back to its normal position. The over-exertion had led to the right ventricle becoming distended, and slackening the pace removed the distension by allowing the blood to escape through the lungs into the general circulation, and thus restored me to comfort. A good many years afterwards I read a paper by my poor old friend von Basch on "Lungenstarrheit" (pulmonary rigidity). He observed that much pressure in the right ventricle caused the capillaries surrounding the air vesicles to become stiff, so that the vesicles themselves could not readily contract during expiration. The consequence of this condition is that in this circulatory emphysema, as I may term it, the expiration becomes greatly prolonged, just as in ordinary emphysema, so that if we were to represent ordinary breathing as "ahhh ha" we might represent this prolonged expiration as "ahh haah." After I had read this paper I had occasion to run after a friend through a wood in Canada a good deal faster than I liked, as he was in much better training than I, and I found that my respiration very speedily acquired the characters described by von Basch, the expiration being prolonged and gasping. By slowing down this condition of respiration also disappears, just like stitch in the side, which often comes on also before a man has got his second wind. The stitch in the side, I think, may be possibly due, in some cases at least, to a pull of the lung upon some old pulmonary adhesion, but this is merely a supposition. As a rule, after over-exertion of this kind, both the pulmonary capillaries and the right ventricle quickly return to their normal condition, and may be little, or none, the worse for it. Indeed, if the exertion be not carried too far and is repeated at proper intervals, both heart and vessels will be the better for it, just as the proper use of the biceps will produce in the muscle greater contractile power. We see, indeed, in athletes a physiological hypertrophy of the heart which appears to be productive of no bad consequences, and which, after some years of quiet life, may disappear and probably generally does do so. But if the strain be too great and too often repeated a more or less permanent condition of dilatation is produced which leads to shortness of breath and symptoms of discomfort in the cardiac region even in young people, and which in elderly men may have the most serious consequences. One of my patients, a man of 86, was extraordinarily strong and healthy. It seemed as if he ought to live to 100. One day he was out in the country, and seeing some harriers running over a ploughed field he must needs run after them. The exertion was too great; he managed to get home, but his heart failed and he died after a few days.

SCHOOLBOYS AND CARDIAC STRAIN.

There is an old proverb that "What is one man's meat is another man's poison." What is true of food is true also of exercise. What is barely enough for one may be a great de too much for another. Some time ago several doctors, whom I was one, drew attention to the mischief that migh result from cardiac strain through over-exertion in schoo boys. Our action was rather severely criticised, and a goo many doctors said they had not seen cases of the sort that w deprecated. But in a court of law negative evidence is nc always of much value, and although there may be no othe evidence than that of A to show that B hit C with a stick B might bring a thousand witnesses to show that they ha not seen him do it. I have seen cases of cardiac strain fro over-exertion in boys, and it is for this reason that I thin more care should be taken than has previously been the cas in regard to the examination of the boys' hearts befor allowing them to undertake long-distance racing. have a very great belief in the utility of exercise I have no wish to diminish exercise in the training o schoolboys. What I should like to do is to guard agains over-exercise and strain. In football there is much greate exertion for a short time, and with some boys the strai might be too much for them, but I do not think this is likel to be anything like so great as the long-continued strain of very long race. In our public schools great attention is paid t games, and the training the boys thus get—bodily, mentally and morally—is, I think, of the greatest value, but I ar inclined to think that it would be a good thing if this wer supplemented by exercises which would develop ther equally all round. In the University of Pennsylvania th students on entering have to pass a physical examination and the professor of physical training notes their weak point and arranges exercise for them so as to produce an equa development throughout the body. The strong points h leaves to take care of themselves. I had once a long con versation with Professor Hueppe of Prague, who is not only scientific man of great eminence, but a great athlete, an his opinion was that in Germany they had too many exer cises and too few games; that in England we had too man games and too few exercises; that the ideal of developmen was to be gained by a mixture of the two.

REJECTION OF RECRUITS: NEED OF PHYSICAL TRAINING.

But there is another section of the community in which physical training is badly wanted. Around the football matcl we may see several thousands of men who have collecte to watch the play, but who are themselves sadly deficient i physical development. At the time of the Boer War two ou of every five who presented themselves as recruits were eithe rejected at once or within less than two years for physica deficiency, and it was stated in the *Evening Standard* o Jan. 24th this year that something like one-third of the me in London who present themselves for enlistment in th Territorial Force have to be rejected owing to some physica defect. The most important defect apparently is that i vision, and this I think is due in great measure to earl over-straining of the eyes. The proportion of Germans wh suffer from shortsightedness is very great, and this I know has been attributed to the strain on the eyes caused by th German characters, both printed and written, and i scientific works the Roman characters are now generall employed. One of the most striking examples of strain o the ciliary muscle that I have ever seen was a patient wh came from South Africa to consult me because he suppose he had a tumour in his brain. He was a man i active business, and was able, he said, to read hi account books for four or five minutes, and then every thing seemed to spin round and he could not see the figure any more. I examined him very carefully and found that he had nothing the matter with him except a little presbyopia. His condition simply was that by a great strain of the ciliary muscle he could adjust his focus so as to see the figures in his ledger for four or five minutes, then the muscle became tired, accommodation relaxed, and he could see nothing more. I sent him to an oculist who provided him with proper spectacles, and he went back to South Africa cured. To avoid such deficiencies in vision it is, therefore, advisable that the eyes should not be strained in school by making the child read small type or with a bad light.

Deficiency in sight is not the only cause of rejection. Imperfect development of the muscles, of the lungs, and of the heart are also responsible. The Board of Education has recognised the necessity for physical training in the

schools, and has issued an admirable syllabus of the subject; but now arises a great difficulty. The subject is new, the teachers of the three R's have not been trained in it, and who is to teach the teachers? We want, for the sake of the country, a central institute for physical training, which might be on the same lines as the London University, with colleges all over the country, where the teachers could be themselves taught, while the central institute might examine as to their fitness and grant a certificate, but it is exceedingly difficult to get people to see the necessity of this. They all complain of the expense and wish to lessen the education rate below what it is at present. I for one should be quite pleased to do this, but it ought to be by cutting off a lot of extraneous subjects, teaching the three R's thoroughly, and building up the physique of the children. But any scheme of physical training would have been liable, as I have said defore, to do harm instead of good, unless it were preceded by compulsory medical examination of school children. This, fortunately, we have now got, so that, as medical men, with the good of the country before us, we must now do the best we can to ensure proper physical training. By obtaining this we shall diminish the number of cripples and of unemployed; by strengthening the physique we shall, I think, strengthen the *morale;* and, as I said in an address I gave some two or three years ago, it is cheaper to spend pence upon children than pounds upon paupers.

An Address

ON

PEPTIC ULCER AND DILATATION OF THE STOMACH.

Delivered before the St. Helens (Lanes) Medical Society

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GENTLEMEN,—It is no part of my business now to discuss the causation of ulcer of the stomach or of the duodenum. It is sufficient to note that simple ulceration of the type met with in these organs does not occur in any other part of the alimentary tract except under very special circumstances; that, in fact, it is strictly limited to those parts that are bathed with the acid gastric juice. I am at present chiefly concerned with the problem of the diagnosis of peptic ulcer when it already exists, with its treatment, and with the recognition and treatment of certain well-known morbid conditions which may follow in its train.

DIAGNOSIS.

As regards the differential diagnosis between gastric and duodenal ulcer, I doubt whether it can be made with any confidence, unless the associated conditions point strongly to a lesion at the cardiac end of the stomach, when the question of duodenal ulcer is not likely to arise. Duodenal ulcer is more frequently found post mortem in men than in women, but the Royal Infirmary reports for the last 13 years show that even in men gastric ulcer is twice as frequently met with as duodenal ulcer, so that the male sex only slightly increases the probability of the ulcer being duodenal. The statistics of operation are not far different.

Nor is the location of the ulcer on one or other side of the pylorus of much importance in practice, as the treatment is essentially the same in both cases. The anxious problem—the problem which concerns not merely the immediate treatment of the case but the future prospects of the patient, and it may be the reputation of the medical attendant—is the determination whether ulceration is present or not.

Apart from acute symptoms indicating perforation and calling for immediate operation, the signs and symptoms pointing to ulceration of the stomach are notoriously equivocal and uncertain. They practically resolve themselves into three—viz., pain with or without tenderness, vomiting after food, and hæmatemesis or melæna. Where this triad of symptoms is present a provisional diagnosis of peptic ulcer is justified, and the absence of one or other of the three by no means excludes it. In the nervous type of patient, however, pain, unless very severe, is obviously an untrustworthy guide, and no one can fully gauge the extent of another's suffering. Vomiting also is not uncommon without ulcer, especially in chlorotic girls of nervous temperament. The vomiting of blood or the passage of melæna seems to offer more solid ground for a diagnosis. Still even here certainty is not easy to attain. Blood may be vomited, or appear to be vomited, when the source of bleeding is not in the stomach. Young women sometimes have a practice of sucking their gums at night, and, especially if carious stumps are present, blood flows, is swallowed, and is subsequently vomited. I always suspect this source of the bleeding if I am told that it has occurred in the morning before breakfast. Blood from the naso-pharynx also may be swallowed and then vomited, and some time ago I saw in consultation a gentleman who had a small ruptured vein in the soft palate, the intermittent bleeding from which had given rise to a serious alarm that he was in the early stage of cirrhosis of the liver.

But apart from such cases we are faced with the question whether bleeding directly from the stomach wall, without any other indications of a hæmorrhagic tendency, may not occur without the breach of continuity and loss of substance which constitute ulcer. Such a possibility was recognised by the older physicians, who taught that hæmorrhage might be vicarious to the catamenia, and Dr. Hale White has of late years directed special attention to bleeding occurring apart from ulceration under the name of gastrostaxis. In the year 1901 a young woman, aged 23 years, was admitted to the Liverpool Royal Infirmary with pain in the chest and vomiting, followed two days later by hæmatemesis. Laparotomy was performed, the stomach and the duodenum were opened, but no ulcer was found. A week later hæmatemesis recurred and she died. At the post-mortem examination two erosions of the size of a pin's-head were found in the mucous membrane near the lesser curvature of the stomach, and microscopically there were numerous engorged capillaries, not arteries, opening into them. May it not be that many cases of seeming bleeding ulcer which get well are merely cases of such capillary oozing?

STATISTICS AND CONCLUSIONS DERIVED FROM THEM.

We will now inquire what light, if any, the examination of statistics may throw upon the problem. During the 13 years ending 1908 the total admissions into medical wards of cases in which a diagnosis of gastric ulcer was made were 389—33 men and 356 women—and the mortality was 4·3 per cent. It thus appears that, whether correctly or not, the diagnosis is made ten times more often in women than in men, and that as seen in the medical wards of a hospital the mortality in such cases is low. When we come to the surgical statistics we find a somewhat different state of affairs. The cases here will manifestly be the graver cases, and those in which the diagnosis is more likely to be certain. I only take the figures from the beginning of 1901, since before that date gastric surgery hardly existed. Here I find that out of 77 cases diagnosed as simple gastric ulcer 72·5 per cent. were women, and out of 56 cases of perforated gastric ulcer the proportion of women (71·5 per cent.) is practically the same. If, however, we take performance of plastic operations, gastroenterostomy and pyloroplasty, as indications of former ulceration we find its incidence about equal in both sexes—viz., 89 men and 84 women. As regards post-mortem statistics there is a slight excess of gastric ulcer in women over men, but if we include ulcer of the duodenum, which, as I have said, cannot as a rule be differentiated clinically from gastric ulcer they are practically equal—24 men and 26 women. Duodenal ulcer was so rarely diagnosed and so seldom perforated (2 males and 1 female) that it was not worth while including it in the clinical statistics.

I think we may draw the following conclusions from these figures. 1. Acute ulcer of a kind liable to lead to perforation is nearly three times as common in women as in men. 2. Chronic ulceration, which is likely to give rise to cicatricial deformity and to call for plastic surgical operations, is equally common in both sexes. 3. Fatal ulceration is equally common in both sexes. In the face of these figures how are we to interpret the fact that in the medical wards 356 women were diagnosed as suffering from gastric ulcer and only 33 men? Two explanations are possible: (1) it may be that the majority of these women were not suffering from gastric ulcer at all; or (2) it may be that

gastric ulcer is really more common in women, but that in them there is a greater tendency for it to get well quickly and without cicatricial deformity. My own view is that both these factors are present. The occurrence of gastrostaxis, oozing of blood without ulceration, has been proved to be possible. The tendency of the ulcer in women to perforate is not incompatible with a tendency to heal rapidly if this accident is averted. On the contrary, our general experience of pathology is that the more acute a disease is at the commencement the more likely it is to get well if the patient survives the first onslaught. I suggest that of the many women admitted to the hospital with hæmatemesis and other indications of gastric ulcer, a large proportion, though I cannot say how large, have no ulcer at all, and that a large proportion have an ulcer which places them for a time in imminent danger, but which gets well under rest and careful medical treatment.

Gastric Ulcer and Appendicitis.

Mr. Moynihan, in a recent address which has excited no small amount of discussion, suggests that in Dr. Hale White's instances in which a diagnosis of ulceration of the stomach had been made, in which also hæmatemesis had occurred, but in which no perceptible lesion was present, the patients were in reality suffering from appendicitis. That symptoms pointing strongly to gastric ulcer may be due to an appendicitis otherwise latent I readily admit, and I published such a case briefly in the *British Medical Journal* three weeks after the appearance of Mr. Moynihan's paper, but to assume, as he does, that all similar cases in which there is no ulcer are cases of appendicitis is a hasty generalisation for which there is no foundation in fact.

Situation of Ulcer in relation to Complications and Sequelæ.

The most frequent situation for peptic ulcer is at or near the pylorus and on the posterior wall. Much less frequently it occurs on the anterior surface of the stomach and at the cardiac end. The location has an important influence on the complications and sequelæ of the ulcer. Thus if a pyloric ulcer heals with cicatrisation it is likely to lead to stenosis and gastrectasis, a condition we shall deal with at length presently. An ulcer on the moveable anterior surface is likely to perforate into the peritoneum, while an ulcer at the back is more likely to contract protective adhesions to the adjacent structures. In the rare instances in which the ulcer is at the cardiac end complications connected with the left pleura are liable to occur. Over a year ago I saw, in consultation with Dr. Banks of Liscard, a young lady who had a fœtid left empyema apparently produced by extension of inflammation through the diaphragm from a gastric ulcer. The signs and symptoms were sufficient to convince me of the correctness of the diagnosis, but as drainage was followed by complete recovery it was not verified. Quite recently, however, I had a woman admitted to hospital with signs of left pleurisy in whom acute abdominal symptoms led to operation a few days later, and an ulcer was found at the cardiac end of the stomach which had led to the formation of a subdiaphragmatic abscess in the neighbourhood. The possibility of a gastric origin ought always to be kept in mind in dealing with a left-sided pleurisy or empyema.

If the possibility of true hæmatemesis without ulceration, gastrostaxis, be admitted, as indeed it must be, the diagnosis of acute gastric ulcer can rarely be made at once with certainty apart from the occurrence of perforation. Our duty, however, will be to look upon all instances of gastric pain and hæmatemesis as cases of the graver condition and to treat them accordingly.

Treatment.

As regards the treatment of gastric ulcer, my practice for many years has been to withhold all food by the mouth for three days after the last appearance of blood in the vomit or the stools, and to administer nutrient enemata four times a day. On the fourth day I would begin to administer small amounts of milk diluted with soda-water or lime-water, perhaps only a teaspoonful every three hours at first, and gradually would increase the amount every day. Under this treatment relapses rarely took place and progress, though slow, was sure. Latterly, since Lenhartz published his views, I have tried giving more food from the very first, a pint of milk with a beaten-up egg in the first 24 hours and the amount steadily increased, and I have certainly seen no harm result. The theoretical basis of this treatment is that the administration of nutrient enemata, while little more than slow starvation, excites a flow of acid gastric juice in the stomach which irritates the ulcer, while, on the other hand, the proteids in the egg-and-milk not only maintain the nutrition of the patient but combine with the acid of the gastric juice and render it inoffensive. I have not had sufficient experience as yet of this method to feel justified in urging its use. In one case of abundant hæmatemesis in an anæmic young woman it was followed by a rapid and complete restoration to robust health, and so far I have seen no harm from its employment. Whatever other means we adopt, absolute rest, physical and mental, must be insisted on.

The administration of antilytic horse serum has lately been extolled in this disease. I am at present giving it to a young woman with symptoms of gastric ulcer, and the effect has certainly been highly satisfactory. It seemed to relieve the pain in a marked degree, so that when I stopped it after a few days she asked me to put her on it again. On theoretic considerations it seems worthy a trial, and in cases which do not yield quickly to rest and careful dieting it ought to be given. I have long used uncooked mutton, extracted with salt-and-water, with apparent advantage.

After-Results.

I know of no statistics to show in what proportion of cases which have recovered from symptoms suggestive of peptic ulcer stenosis, dilatation or other results of cicatricial changes are likely to occur. Considering the frequency of symptoms suggesting ulcer in women, one is inclined to think that the great majority at least in them have no permanent trouble. On the other hand, in cases where permanent pyloric stenosis or other organic deformities are present it is the rule to find a history of long antecedent gastric trouble, including the vomiting of blood. Further, it is not possible in practice absolutely to separate cases of ulceration from those affected by cicatricial contraction. As likely as not when a stomach is dilated from a cicatricial contracted pylorus a chronic open ulcer will be found at the margin of the orifice; and where the symptoms point to active ulceration extensive cicatricial contraction will also not infrequently be found to exist.

Dilatation of the Stomach.

Dilatation of the stomach in a greater or less degree may be met with in a variety of conditions, and it is no easy matter to determine where physiological distension ends and pathological dilatation begins. The size of the normal stomach must vary almost from hour to hour, and its form and position alter greatly according to the position of the body, whether erect or reclining. Where great dilatation is present, such as results from marked stenosis of the pylorus, the signs and symptoms are very obvious. The patient will tell you that for weeks or months past he has been subject to attacks of vomiting at various intervals, that the vomit is usually brought up in enormous amounts, so as to fill a chamber or a wash-basin either at once or in the course of two or three hours. The vomit will probably be described as frothy or barmy, or it may be simply watery or stained brownish from altered blood. If you are shown a specimen of the vomit you will find it strongly acid, and with the microscope you will probably find sarcinæ present in the sediment. Physical examination of the stomach will yield appearances which differ according to the period of the examination. When the stomach is full and relief from vomiting has not taken place the outlines of the distended organ will be distinctly visible. In marked cases the greater curvature is seen sweeping across the abdomen two or three inches or more below the umbilicus; the lesser curvature may also be seen if there is visceral ptosis; between the two there is a convex protuberance which may be seen to alter its form as the result of peristaltic movements of the stomach wall. On palpation with both hands coarse succussion splash may be easily elicited, and also by gently shaking the patient from side to side. Percussion will yield extensive tympanitic resonance over the stomach area and dulness in the left flank. After relief has been obtained by vomiting, the signs of dilatation may be but slight or may be impossible to detect. Some splashing sounds may usually be elicited on sharply depressing the anterior abdominal wall, but the same may occur in subjects apparently healthy.

INTERMITTENT PYLORIC OBSTRUCTION.

A very remarkable condition is that of intermittent pyloric obstruction, a condition particularly described by Sir Clifford Allbutt, and of which I will narrate two instances in my own practice. One was that of a young man who was admitted to the Royal Infirmary with a history of vomiting such as I have described. To physical examination the stomach appeared normal. A few days later (he having remained quite well in the meantime) I found the stomach enormously distended. I came to the conclusion that there was some pathological condition about the pylorus, probably adhesions, which caused the stomach to become acutely bent or kinked so as to produce complete occlusion, and I asked my colleague Mr. W. Thelwall Thomas to perform an exploratory laparotomy. This he did, when he found adhesions around the pyloric end of the stomach, and was able to show me how a slight dropping of the organ could cause complete occlusion of its lumen. Gastro-enterostomy was performed, rapid recovery took place, and I have heard no more of the patient. In another case to which I shall have occasion to refer more fully later the patient has been for years liable to temporary complete pyloric occlusion with enormous distension of the stomach relieved by vomiting. On one occasion a remarkable form of relief took place. During one of these attacks she passed a grumous, frothy, liquid stool measuring about a pint and a half, much resembling in appearance the liquid vomited a day or two before. After the evacuation she felt better, the abdomen was flatter, and the stomach, which I had found much distended in the morning, appeared to me to be much smaller. I believe that in this case the pyloric stenosis was in part due to torsion or kinking of the part, and that by some fortunate accident it had become untwisted. Sir Clifford Allbutt quotes a case on the authority of the late Sir William Broadbent in which such an event frequently occurred. The patient after retiring to rest would have a sense of the gushing of fluid within her, and on seeking the closet a profuse liquid discharge would issue from the rectum. After such a discharge the stomach was no longer perceptible by the physical signs which had previously been only too manifest. Ultimately a necropsy was obtained and non-malignant stricture of the pylorus was found. In the upright position the pylorus was probably closed by acute flexion of the part at the point of suspension.

DIFFICULTIES IN DIAGNOSIS.

In cases where the distension of the stomach is great it might seem that the diagnosis would present no difficulty, but where the obstruction is intermittent, as in the two cases which I have named, this is far from being the case if the practitioner does not happen to be consulted during the attack of complete obstruction. In such cases also the visible peristaltic movements, which are rightly regarded as an important sign of pyloric stenosis, will probably at no time be present, since the obstruction is of too brief duration to induce much hypertrophy of the muscular coats of the stomach. The sudden unaccountable attacks of gastric pain and vomiting may, I believe, be mistaken for the gastric crises of locomotor ataxy, and lead to the diagnosis of that disease, a serious, perhaps fatal, error in view of the possibilities of surgery. Two years ago a gentleman, aged 40 years, married three years, was brought to me by his medical attendant. He had lately seen a physician in London, a recognised authority on the nervous system, who suspected that he had locomotor ataxy. He assured me that he had never exposed himself to the possibility of acquiring syphilis. There was no family history of nervous disease. He used to enjoy good health, but for the past year he had suffered from periodical attacks of gastric pain and vomiting and had lost a good deal of weight. He told me he had vomited as much as two pints at a time. Finding that his pulse was 100 or more I thought of the possibility of locomotor ataxy, but abandoned the idea on finding the knee-jerks brisk and equal. The pupils were not quite equal, but they reacted normally to light and to accommodation; there was no unsteadiness on standing with the eyes closed, and there was no ataxy of the arms. There had been pains in the legs, but they were not like lightning pains, but seemed to be of a rheumatic nature, since they made the patient limp in his walk. There had been temporary weakness of the external rectus of one eye. I found marked splashing in the stomach, which seemed to be dilated, and the urine contained indican. In the absence of syphilis, of the Argyll Robertson pupil, and of ataxy, and with the knee-jerks brisk, I felt justified in assuring the patient and his wife that whatever else might be the matter he was not the victim of locomotor ataxy. I inclined to the view that he had pyloric obstruction with occasional complete occlusion from twisting or kinking of the viscus. This gentleman had consulted at least three other physicians, one of whom, a general physician with leaning to neurology like myself, held with me that he had not got locomotor ataxy. It is only right, however, that I should state that since he saw me he consulted another London neurologist who believed that he had locomotor ataxy. However, a year after I saw him he died, worn out by the gastric attacks, and I am told that the knee-jerks were retained to the last. He had refused operation. With such an after-history I leave you, gentlemen, to draw your own conclusions between the diagnosis of a chronic spinal degeneration and of organic disease of the stomach. Whenever we meet with clear indications of dilatation from pyloric obstruction we may advise gastro-enterostomy with the greatest confidence of success.

DIFFERENTIAL DIAGNOSIS OF ORGANIC AND FUNCTIONAL DISEASE.

In the great majority of cases of organic disease of the stomach, accompanied or preceded by ulceration, the signs and symptoms are much less distinctive than those I have described and the differential diagnosis from functional disorders becomes more difficult. Apart from the mere persistence of chronic ulcer, which may be attended with pain and vomiting and occasional hæmatemesis, we meet with various forms of cicatricial contraction. Pyloric stenosis leading to great dilatation I have already considered; in other cases the dilatation may be comparatively slight. Again, the cicatrix may be in some other portion of the stomach and may constrict it in such a way as to produce an hour-glass stomach or other deformity. Finally, the existence of external adhesions, the result of former inflammation spreading to the serous coat, may fix the stomach to neighbouring parts, prevent its normal expansion, and limit its movements in various ways. In cases such as these the symptoms will be mainly those of chronic indigestion—pain after food, acid eructations, flatulence, and occasional vomiting. There will probably be a good deal of wasting, whether resulting from the disease or from the treatment, for when patients are sent to me with such symptoms they have generally been subjected to a rigidly restricted diet for a considerable time. On physical examination it may be that some hardness may be felt in the epigastrium, or visible peristaltic movements may be seen; more often the only objective sign is the presence of audible and palpable splashing in the same region. If there is pain and a history of recent vomiting the probability of organic obstruction is considerable; in the absence of these for hours or days the existence of functional dyspepsia and atony of the stomach is more probable. Much will depend on the habit and mode of life of the patient. You will sometimes find that an anxious, over-wrought patient, with a flabby stomach, will be quite able to digest a solid meal when he is taken away from his work and made to sit still for half an hour before his dinner. I could give you illustrative cases did time allow.

In deciding to submit these chronic cases to operation the mere size of the stomach is of less importance than the time in which the organ passes its contents onwards into the duodenum. Gastric stasis may be asserted to be present if some six hours after a meal some of the food still remains in the stomach. A good plan is to order a light meal with a tablespoonful of currants to be taken at bedtime and then wash out the stomach the first thing in the morning. If none of the currants are recovered the motor power of the stomach is not seriously impaired. Of late years we have come to rely more and more on radioscopy in determining the size and motility of the stomach. By this means we can watch the progress of a bismuth meal through the alimentary tract. When we find distinct delay in transmission, accompanied with local and constitutional symptoms, we may generally advise gastro-enterostomy.

A REMARKABLE CASE.

I now propose to bring this long discourse to an end by relating the case of a lady, a friend and patient of my own, which presents some features which, as far as I know, are quite unique.

A widow lady, 64 years of age, first consulted me in

October, 1900. A good many years before she had been attended by a well-known physician, since retired, for hæmatemesis, and subsequently for mitral regurgitation. When I saw her she had gastric pain, there was vomiting, and the stomach was distended. At times the distension was great and was relieved by copious vomitings of watery fluid containing a little blood, sarcinæ, and a good deal of free hydrochloric acid. The patient was clearly suffering from temporary complete occlusion of the pylorus. A surgeon who saw her with me was unwilling to operate on account of the patient's age and the presence of valvular disease. The patient also declined operation and after one trial of lavage resolutely refused to allow me to repeat the process. For some days she was fed entirely by the rectum; even then the stomach continued to fill up with its own secretions. On one occasion the spontaneous evacuation through the pylorus and the bowels, which I have already described, took place. After some days the power of retaining a little food returned, but any slight increase in the amount was liable to be followed by complete occlusion. To make a long story short, my patient found that she had to submit to live entirely on fluids and not too much of them. A small piece of solid food no bigger than a grain of corn seemed capable of plugging the pylorus; any distension of the stomach caused it to drop and the pyloric end to become kinked. For 8 years she lived—I am not exaggerating—on a pint of fluid and two or three crumbly biscuits per diem, and in spite of this care had an attack of complete occlusion every 8 or 12 months, each one of which I thought would prove to be the last. She wore an abdominal belt, which certainly seemed of some service in supporting the stomach. It was surprising how she retained her mental and bodily vigour under this regimen. Two years ago, however, she was evidently failing from want of proper nutriment, and while spending the summer at the seaside she began to suffer from a peculiar hallucination. She told her family, obviously in good faith, that I had said she might eat anything she liked, and insisted on consuming meat and vegetables in considerable quantity. The result was, as might have been expected, that an attack of hæmorrhage took place. However, she persisted with the new and enlarged dietary, and instead of getting worse she improved, and after being confined for eight years to a daily allowance of a pint of liquid she found that she was now able to take ordinary food in normal amounts. She began to put on flesh, and for the last two years she has enjoyed good health, takes her meals as do others, and has had no return of vomiting or other serious symptoms of gastric trouble. Apparently the disturbance from the taking of solid food two years ago led to the ulceration or stretching of the adhesions that restrained the pylorus. If this was madness there was method in it. One often feels that nature is a good physician but a bad surgeon, but here a beneficent process of ulceration or of extension had brought about a complete and lasting relief which could scarcely be improved on by the knife of the most skilful surgeon.

A CASE OF MIGRAINE ASSOCIATED WITH CHLORINE RETENTION.

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THIS paper deals with records of observations made in a case of long-standing neurasthenia and migraine in a well-preserved man aged 43 years, who had not been strong from birth and who had suffered from liver complaint when young. There was also a history of scarlet fever complicated by abscesses in the neck. From the age of 8 to 12 years he was much stronger; a meat diet was prescribed; he was able to take a great deal of exercise, mainly bicycling. From 12 to 16 he went to school in France, where he was badly fed and was practically without exercise. He returned to England overgrown, thin, and weak. It was subsequent to these experiences that his headaches commenced. From 17 to 24 he was continually travelling, mainly on the continent, but he also visited the Colonies and America. From 21 to 31 he was subjected to serious family and financial worries in addition to excessive work. During this period he consulted Dr. A. Haig and adopted his diet for nearly a year without benefit; large doses of salicylate of sodium and bromide of potassium were prescribed. Though he resumed a meat diet he was still under the influence of the "uric acid idea," which induced him to take only a small proteid ration; at this time he became a teetotaler. He paid three visits to Lahmann's sanatorium at Dresden, where the "poisonous" qualities of meat were again insisted on; in addition, he was informed that sodium chloride was a poison, and that it should be omitted from his food. Since this period—that is to say, since 1905—he has omitted the use of salt except on rare occasions; he also instructed his cook not to use it in cooking. His health became so great an anxiety to him five years ago that acting under medical advice he gave up his work as a manufacturer, built a house in the country and went in for fruit-farming. He lived mainly on cheese and poultry, and he undertook as much physical work as his strength allowed. During the past year he has been reduced to the minimum of both physical and mental work. He began to complain of cardiac weakness, with the most invincible depression and lassitude.

Present condition.—His height was 1·68 metres, weight (stripped) 75·6 kilogrammes; chest measurements, 107 centimetres in inspiration and 90 centimetres on expiration; and circumference at the level of the umbilicus, 93 centimetres. The lips were a good colour. Nothing abnormal was discovered on examination of the heart or lungs. His blood pressure was 70 millimetres of Hg. Though his appetite was "too good" he had not complained of indigestion, and his bowels were practically always regular. The abdominal walls were flabby and covered with fat. There was a distinct bulge of the muscular wall below the umbilicus. Fæces and a decided spasm were felt on examination of the descending colon. The transverse colon could not be felt. He stated that he experienced a decided sensation of support and relief on firm pressure being applied over the pubes from behind (Glénard's "épreuve du sangle"). The charcoal test was carried out. 12 charcoal lozenges were given at night; the fæces were not discoloured till the second day; on the third day only a small quantity was found in the first part of the motion. This showed an early stage of coprostasis from spastic colon.

During the time the patient was under observation he was directed to take the minimum of exercise, to do everything slowly, never under any circumstances to get fatigued mentally or physically, to abstain from pappy starch foods, to "poltophagise" his dextrinised starches as carefully as possible, and to keep the colon empty with cascara and occasional water enemas. The main indications, revealed by the urinary analyses, were to secure dechlorination by as simple means as possible, and to administer magnesium, calcium, and phosphorus in the form of eggs. It was clear that the full re-mineralising ration (earthy and vegetable salts in addition to eggs and meat) produced too great a reaction as it changed the $\frac{\text{day}}{\text{night}}$ quotient from 1·1 to 0·7 in the case of urea, and from 1·0 to 0·6 in the case of uric acid. (See diagrams 1 and 2.) During the rest of the time he was under observation he was allowed rather more than his ordinary ration without vegetable salts.

The analytical observations found to be associated with subjective sensations.—The chief subjective sensations complained of were as follows: 1. Sensations of exaggerated fatigue, which the French express by the word "courbature" and the Italians by "taglia gambe" (literally, the legs cut from under one). 2. Mental depression of the overwhelming, unreasoning kind so characteristic of "neurasthenia." 3. Headaches lasting sometimes as long as three days, accompanied by the usual migraine symptoms; they usually caused insomnia, as he was obliged to sit up in bed to ease the pain; so soon, however, as he slipped down he was awakened with a fresh exacerbation. Depression and fatigue sensations were always associated, analytically, with "Joulie" hypoacidity and more or less decided increase in the "Jaequemet" reaction; on several occasions the tube used in the latter test could be held upside down for as long as 10 seconds before the layer of colloid would allow it to fall. These symptoms were invariably and quickly removed by means of not more than 70 drops of phosphoric acid. On each occasion there was a decided increase in the indican.

When he complained of depression alone hypoacidity was not always associated with the symptoms, the urine being occasionally even hyperacid.

Details of the dechlorination (*Chart 3*).—For 23 days out of the 44 there was a rigidly chlorine free diet; on the other days the patient took ordinary hotel food, not adding any salt to it. As in this case there was a decided distaste for salted foods he partook sparingly of any salted dish. I have made a very liberal estimate of the error due to the salt added in the cooking processes—viz., 6 grammes a day—while he was on ordinary diet. Under these circumstances the total dechlorination was 184-12,[1] or 172 grammes, and 263·63-126 = 137·63—in all 309·63 grammes. The comparison with the French standards of the normal quantities for the various urinary ingredients is shown in Table I. Table II. shows the day averages. Table III. (*a*) night (*b*) (*c*) shows the results of the renal permeability tests which were made by Dr. Carlo Gennari, who has worked for some years in the laboratory of Professor Angelo Ceconi of Turin, at this subject, and who has published among other contributions, "Contributo allo Studio della Insufficienza Renale."[2] He informs me that he has not infrequently found evidence of chlorine retention without renal lesions mainly in cases of anæmia. In this case he has no hesitation in saying that the evidence shows conclusively that there is a normal reaction as irregularities of excretion occur not only in the case of uric acid and urea, but also in that of the other urinary constituents, they are, in all probability, subordinate phenomena. In this case one is able, thanks to Dr. Gennari's careful work, to eliminate any considerations of renal insufficiency, so that the force which retains the chlorides in the tissues must necessarily operate in the cells themselves. I suggest that it is only reasonable to conclude that the retention is present in order to maintain that balance between colloids and crystalloids which is a *sine quâ non* of life. I have given reasons elsewhere for the opinion that it is necessary to prescribe for these conditions, together with an optimum environment such a ration as will enable the tissues to reconstruct themselves in order that oxidation should be carried on in a normal fashion. The type of reaction found in the case of urea and uric acid (see Charts 1 and 2) merely serves to illustrate what has always been a guide to rational therapeutic measures—viz., to produce the desired effect with the simplest possible means. This point is well illustrated in the analyses recorded in Table IV. These observations were made in the case of a lady, aged 64 years. I look on this reaction as being an indication that the tissues react too strongly to the meat, &c., and that one should take care to steer between the Scylla of insufficient nourishment and the Charybdis of irritation. In my opinion, analyses showing such an extreme reaction

CHART 1.

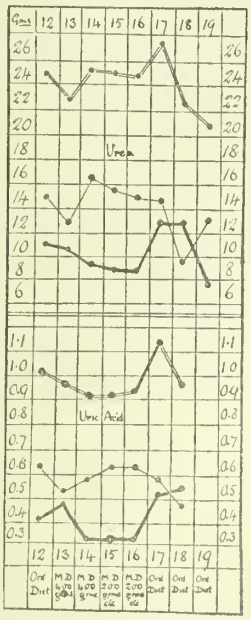
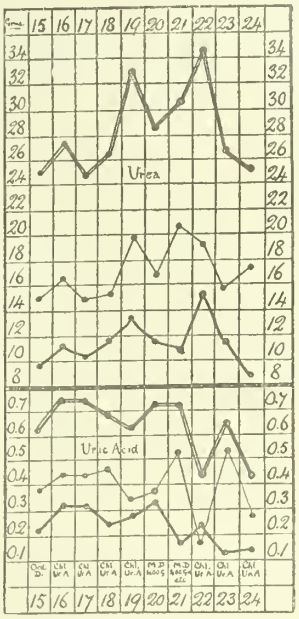
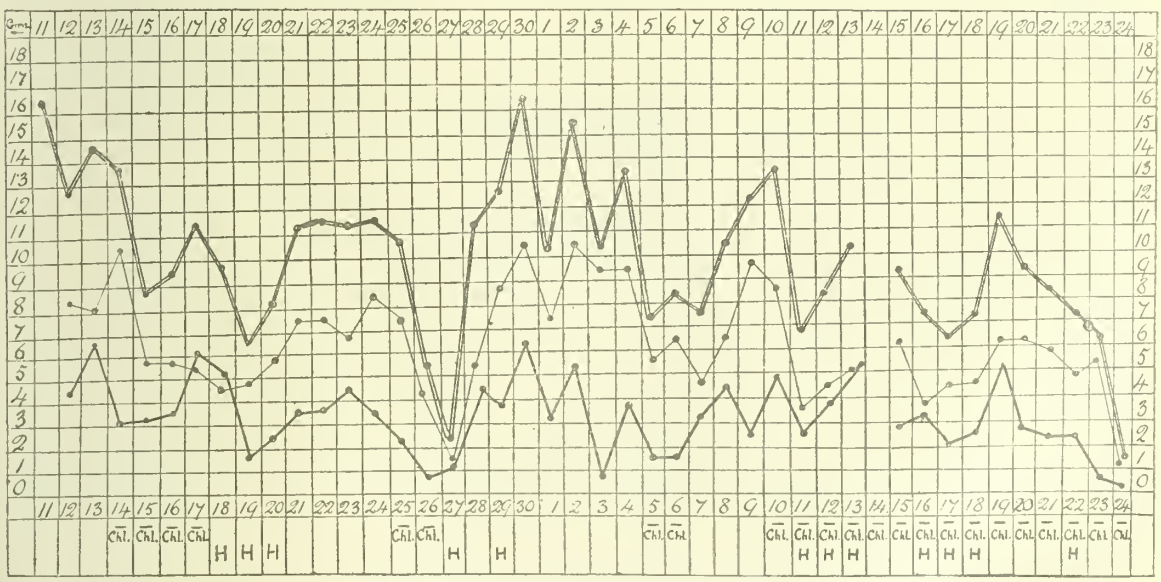


CHART 2.



CHARTS 1 and 2.—Urea and uric acid analyses. Total indicated by double line, day by light line, and night by heavy line.

CHART 3.



Illustrating analysis of chlorides in dechlorination. Total indicated by double line, day by light line, and night by heavy line. H equals headache, – Chl, chlorine-free diet.

to the chloride, the water, and the methylene blue test; in other words, that there is no evidence of renal inadequacy.

In reviewing the facts of this case in order to decide on the details of treatment, it is quite clear that chlorine-retention dominates the clinical picture. In this condition (Table IV.) amount to the necessity of not only reducing the meat ration to a minimum, but the proteid ration as well to half the normal quantity.

Therapeutic measures recommended.—A Glénard's belt with gentle abdominal exercises and most minute care in emptying the colon, if necessary by enemata; 100 and 150 grammes respectively of grilled lean meat on alternate days, three eggs daily, one or two tablespoonfuls of sour (lactic

[1] 7 grammes of added chloride with 5 grammes added by Dr. Gennari. (See below.)

[2] Il Morgagno, N. 4, 1909.

CHART 4.

Dates.	D&N Vol.	Total Vol	Spec Grav	D&N Solids	Total Solids	Joulie Acid N/10 H_2SO_4	Joulie Acid Ratio	D&N Total Acidity	Total Acidity	D&N Ca Chl Acidity	Total Chl Acidity	D&N P_2O_5	Total P_2O_5
March 11		1150	1025		63.8	138	1.7		458		328		422
" 12	700 / 400	1100	1021 / 1026	30.8 / 24.2	55.0	140 / 40	4.6 / 1.1	266 / 228	494	158 / 105	323	173 / 178	357
" 13	570 / 400	1030	1024 / 1026	30.0 / 26.9	56.9	16 / 19	0.6 / 0.7	217 / 261	478	125 / 146	271	180 / 177	357
" 14	700 / 300	1000	1021 / 1024	30.8 / 15.8	46.6	140 / 160	4.7 / 4.1	289 / 190	479	133 / 123	256	179 / 77	256
" 15	530 / 280	810	1026 / 1026	31.0 / 16.4	47.4	36 / 24	1.3 / 0.9	252 / 203	455	106 / 123	229	149 / 153	302
" 16	500 / 310	810	1027 / 1026	30.7 / 18.1	48.8	120 / 86	4.2 / 5.2	317 / 176	493	190 / 128	318	202 / 123	325
" 17	730 / 500	1230	1016 / 1025	24.0 / 27.0	57.0	104 / 14	4.1 / 0.9	263 / 212	472	138 / 202	350	177 / 171	342
" 18	300 / 430	730	1027 / 1028	18.4 / 27.7	46.1	8 / 12	0.5 / 0.3	171 / 244	415	77 / 122	199	98 / 177	275
" 19	360 / 262	620	1024 / 1026	24.2 / 15.2	39.5	14 / 4	0.6 / 0.3	204 / 206	410	158 / 123	281	150 / 139	289
" 20-24	678 / 444	1122	1023 / 1023	39.4 / 19.3	58.7	101 / 64	3.6 / 3.9	304 / 225	529	131 / 128	259	173 / 149	259
" 26-30	650 / 416	1066	1021 / 1024	28.9 / 20.3	49.2	22 / 26	0.8 / 1.7	253 / 217	470	109 / 100	329	163 / 150	329
April 1-5	678 / 538	1216	1021 / 1019	32.3 / 20.9	53.2	53 / 61	1.7 / 3.5	290 / 253	543	162 / 147	309	248 / 106	309
" 6	570 / 300	870	1025 / 1026	31.6 / 17.5	49.1	152 / 60	5.0 / 3.9	169 / 189	358	107 / 114	221	137 / 134	271
" 7	620 / 300	980	1021 / 1026	27.3 / 13.8	41.1			314 / 228	542	136 / 114	250	187 / 163	350
" 8	530 / 370	900	1024 / 1025	27.9 / 20.5	48.3	78 / 72	3.0 / 3.8	334 / 228	562	157 / 140	297	233 / 156	389
" 9	650 / 330	980	1020 / 1024	27.0 / 17.2	44.2	128 / 92	4.8 / 5.6	330 / 209	539	144 / 104	248	202 / 175	377
April 15	610 / 400	1010	1022 / 1022	28.6 / 18.8	47.4	120 / 80	4.3 / 4.3	128 / 228	356	96 / 76	172	233 / 157	390
" 16	570 / 400	940	1025 / 1024	29.9 / 29.0	50.9	108 / 100	3.9 / 5.0	359 / 253	011	187 / 114	301	257 / 191	448
" 17	500 / 310	810	1027 / 1026	30.7 / 18.1	48.8	64 / 96	3.2 / 4.6	349 / 295	644	174 / 117	291	279 / 212	491
" 18	480 / 400	880	1027 / 1023	28.1 / 19.8	47.9	86 / 92	3.3 / 4.6	334 / 279	513	152 / 139	291	252 / 223	475
" 19	880 / 450	1330	1018 / 1022	32.7 / 22.3	55.0	192 / 98	5.5 / 4.6	403 / 357	760	223 / 153	376	374 / 266	640
" 20	610 / 390	1000	1024 / 1024	32.1 / 20.5	52.6	120 / 76	4.1 / 4.1	387 / 247	634	193 / 392	585	291 / 235	576
" 21	670 / 340	1010	1025 / 1026	37.1 / 19.9	57.0	132 / 68	3.9 / 3.7	509 / 258	767	212 / 160	372	469 / 233	702
" 22	550 / 400	950	1025 / 1022	30.5 / 18.8	49.3	34 / 80	1.5 / 4.3	366 / 279	645	174 / 139	313	309 / 267	576
" 23	610 / 380	990	1019 / 1026	23.7 / 22.2	45.9	48 / 68	2.0 / 3.7	309 / 288	597	193 / 168	361	308 / 256	564
" 24	650 / 420	1100	1016 / 1016	22.4 / 13.8	36.2	136 / 92	5.9 / 6.5	344 / 252	576	172 / 137	309	247 / 220	467

Dates.	D&N Earthy Phos.	Total Earthy Phos.	D&N Mag Phos.	Total Mag Phos.	D&N Calc. Phos.	Total Calc. Phos.	D&N Total Calcium	Total Calc.	D&N NH_3 ppt. Calc	Total NH_3 ppt. Calc
March 11		·708		258		·45		·504		·213
" 12	·504 / ·124	628	105 / ·02	·125	·344 / 104	·503	·399 / ·162	·501	·34 / ·12	46
" 13										
" 14										
" 15										
" 16										
" 17										
" 18										
" 19										
" 20-24										
" 26-30										
April 1-5										
" 6										
" 7										
" 8										
" 9										
April 15	·071 / ·14	·811	·378 / ·06	·438	·293 / ·08	·373	·263 / ·013	276	·173 / —	
" 16	·82 / ·4	1·22	·442 / ·378	·82	·08 / ·32	·4	·322 / ·07	·592		
" 17	·435 / ·29	·725	·352 / ·083	·435	·03 / ·26	·29	·277 / ·114	·391		
" 18	·532 / ·372	·924	·104 / ·448	·552	·184 / ·188	·372	·122 / ·139	·261		
" 19	·506 / ·495	1·001	·193 / ·157	·35	·313 / ·338	·651	·434 / ·277	·711		
" 20	·613 / ·204	·817	·146 / ·066	·212	·467 / ·188	·655	·376 / ·371	·747	·29 / ·019	·309
" 21	·438 / ·139	·577	·117 / ·017	·134	·321 / ·122	·443	·372 / ·175	·547		
" 22	·71 / ·46	1·17	·115 / ·14	·255	·595 / ·32	·915	·144 / —	—	·113 / ·095	·208
" 23	·366 / ·506	·872	·292 / ·281	·573	·074 / ·225	·299	·281 / ·05	·331		
" 24	·714 / ·239	·953	·081 / ·038	·119	·633 / ·201	·833	·139 / ·141	·29	·101 / ·114	·215

D&N Urea	Total Urea	D&N NH_3	Total NH_3	D&N Uric Acid	Total Uric Acid	D&N Indican	Total Indican	D&N Chlorides	Total Chlorides	Vol Chlorides	Dates.
	23·2		391						16·6		March 11
14·6 / 11·0	25·6	·258 / ·203	·466	·631 / ·412	1·043	42 / 56	98	8·26 / 4·72	12·98	80 / 80	" 12
12·3 / 10·5	22·8			·573 / ·473	·986	Nil		8·08 / 0·72	14·8	70 / 00	" 13
16·3 / 9·3	25·6	·261 / ·246	·506	·586 / ·324	·91	140 / 96	236	10·48 / 3·0	13·48	00 / 100	" 14
15·0 / 8·6	24·2	·189 / ·17	·359	·602 / ·304	·906	148 / 45	193	5·93 / 3·03	8·96	90 / 40	" 15
14·6 / 9·8	24·4	·406 / ·209	·615	·61 / ·34	·95	Nil	Nil	4·9 / 3·72	9·62	60 / 90	" 16
14·3 / 12·3	27·1	248 / ·204	·452	·588 / ·542	1·13	Nil	Nil	5·47 / 6·1	11·57	130 / 80	" 17
9·3 / 12·7	22·0	·162 / 29	·452	·377 / ·573	·95	14 / 60	74	4·68 / 5·16	9·84	60 / 80	" 18
13·1 / 7·4	20·5	·243 / 21	453			16 / 38	54	4·96 / 1·66	6·62	70 / 150	" 19
		232 / ·18	412					7·35 / 3·39	10·75	92 / 130	" 20-24
		·21 / ·139	·349					6·24 / 3·52	9·76	100 / 110	" 26-30
		·254 / ·211	·465					8·52 / 2·85	11·37	79 / 180	April 1-5
14·7 / 9·8	24·5 / 24·9	·193 / ·157	344			228 / 60	288	6·38 / 1·74	8·12	90 / 170	" 6
14·6 / 10·3	25·1 / 24·4	·139 / ·194	383			Nil / 90	90	4·77 / 3·16	7·89	130 / 110	" 7
14·5 / 10·0	25·1	·167 / ·25	417			26 / 54	80	6·62 / 4·14	10·76	80 / 80	" 8
15·5 / 8·9	24·4	·264 / ·178	·442			Nil	Nil	9·72 / 2·87	12·29	60 / 120	" 9
15·2 / 9·9	25·1	·248 / ·21	·458	·387 / ·214	·601	Nil / 40	40	6·22 / 2·88	9·1	90 / 130	April 15
16·3 / 11·3	27·5	·336 / ·256	·592	·444 / 31	·73	216 / 80	296	3·83 / 3·36	7·19	140 / 110	16
14·6 / 10·1	24·7	·406 / ·217	·623	·438 / ·328	·766	250 / 62	312	4·4 / 2·1	6·5	110 / 140	" 17
14·4 / 11·9	26·3	·324 / ·216	·54	·46 / ·239	·699	192 / 40	232	4·7 / 2·48	7·18	100 / 160	" 18
19·8 / 13·4	33·2	·415 / ·243	·668	345 / ·295	·64	192 / 98	290	6·2 / 5·13	11·33	130 / 80	" 19
16·6 / 11·7	28·3	·319 / ·196	515	·382 / ·332	·714	Nil / 78	78	6·2 / 2·96	9·16	90 / 130	· 20
20·8 / 10·7	31·5	361 / ·171	·532	·504 / ·198	·702	201 / 136	337	5·89 / 2·24	8·13	110 / 140	21
18·9 / 15·3	34·2	·446 / ·216	·662	·183 / ·239	·422	165 / 80	245	4·8 / 2·4	7·2	110 / 160	· 22
15·5 / 10·9	26·4	·329 / ·205	·534	·547 / ·128	·675	61 / 114	175	5·36 / 0·68	6·04	110 / 550	· 23
16·9 / 8·3	25·2	·32 / ·142	·462	·261 / ·156	417	Nil / 84	84	1·08 / 0·25	1·34	630 / 1080	" 24

Table of analyses. Total acidity and calc. chl. acid. are expressed in cubic centimetres of $\frac{N}{10}$ oxalic acid. The P_2O_5 acidity is expressed as cubic centimetres of $\frac{N}{10}$ P_2O_5.

acid) milk, the remainder of a ration of 80 grammes of proteid to be made up by fish or casein freshly prepared by citric acid. It was particularly insisted on that no proteid should be taken unless it was quite fresh. The vegetable salts of 500 grammes of fresh vegetables were ordered to be taken, with care because of the type of reaction shown in Charts 1 and 2. They were to be omitted whenever the depression following their ingestion lasted more than an hour or when the headaches recurred. As during the above observations the blood pressure had already risen to 95 millimetres, only 0·5 gramme of calcium carbonate was given; this was to be increased or diminished as the blood pressure rose or fell. 2 grammes of hydrate of magnesium were given as well as a small ration of iodine in organic combination.

The story of the devices employed for the recovery of health in this case is only too familiar to those who are suffering from similar conditions. Their life resembles the movements of a rudderless ship, experimenting alternately with dangerous heresies in diet, with exercise, with rest or holidays, continually endeavouring to imitate the attributes of the healthy without the necessary protoplasmic equipment.

Those bio-technical devices included under rest, exercise, diet, mental education, lessons in adaptation, &c., require so nice an adjustment to the needs of any given case that they necessitate a thorough investigation before a definite scheme can be decided on. This case, for instance, has been under the care of no less than 21 medical men of all degrees of eminence, and I am informed that their prescriptions were even more numerous. The insidious beginnings of such conditions are accidental; in this case the faulty adaptation of the French boarding school provided him with tissues that were deficient in certain of their chemical constituents (probably the earthy salts and phosphorus), a deficiency which finally culminated in the "state of matter" I have endeavoured to portray. In my own case[3] it was the excessive fatigue and faulty adaptation of my medical student life, followed by some three years' hard work as a house surgeon, several attacks of influenza, injudicious dietetic experiments, excessive exercise, &c., which started me on the long road which leads to destruction. Yet I have no hesitation in stating my conviction that in both this case and my own recovery of health and efficiency, and successful adaptation to environment would have been possible at any time during the past 15 or 20 years with a comparatively small expenditure of time and money.

It is impossible to exaggerate the harmful and even tragic consequences which result from encouraging the popular neuropathic explanations of these conditions, most of which, I believe, can be shown to be more measurably definite than many of the classical diseases. Is it possible for the new school of psychopaths by any of their devices to add 1 gramme of chloride to the urine in such a case as this which they would confidently pronounce to have "no organic disease"?

On the other hand, the inability to recognise the necessity for a reasoned and reasonable progressive mental education in such cases is to confess oneself an indifferent practitioner. The first step is to demonstrate to the patient's satisfaction the connexion between material causes and psychical phenomena, such as, for example, the faculty of substituting a state of placid equanimity for the miserable condition of hypoacidity in a few minutes with phosphoric acid or by showing that suicidal thoughts will disappear in a few days by attention to the bowels, &c.

A matter calling for far greater effort is the difficulty of dealing with that terrible harvest of ideas and suggestions which have been gathered from the inconsistencies and follies inseparable from the lay interpretation of the current psychopathic origin of "nerves" and "hysteria." Many cases are practically a museum of fads, fancies, and remedies, where sense and nonsense are so inextricably interwoven as to be no longer recognisable. So soon, however, as cases can be convinced, either by making some simple observation on themselves or by means of some other device or suggestion, that their disabilities arise from measurable physical causes, they will frequently be found to bear their infirmities with a dignity, a silence, and a composure which were impossible while they were being demoralised by having them attributed either to some reprehensible mental or moral infirmity or to causes as remote and mysterious as those of mediæval witchcraft.

TABLE I.

Normal Quantities of Urinary Constituents. Weight 64 kilos				
Constituents	Normal per kilo	Total Normal Weight	First seven Days	Last ten Days
Volume	20 ccs	1380	1121	1052
Solids	0.84 gms	57.9 gms	59.4 gms	49.1
T. Acidity	0.03 "	2.07 "	3.53 "	4.05
P_2O_5	0.042 "	3.1 "	2.64 "	3.69
Urea	0.42 "	28.9 "	23.9 "	28.2
Uric Acid	0.01 "	0.69 "	0.983 "	0.638
Chlorides	0.175 "	12.00 "	9.75 "	7.31

TABLE I.—Comparison of the normal average quantities of the urinary constituents.

TABLE II.

Total Day/Night Averages.			
Volume	1·4	High 2·3	Low 0·6
Solids	1·4	1·9	0·6
Chlorides	2·4	10·2	0·8
P_2O_5	1·1	2·4	0·5
Urea	1·3 & 1·7	1·8 2·0	0·7 1·2
Uric Acid	1·4	1·8 2·6	0·6 0·7
NH_3	1·4	2·6	0·5

TABLE II.—Showing average $\frac{\text{day}}{\text{night}}$ quotients.

TABLE III.

(a)

Salt Test April 10 1910				
Hour	Volume	Spec. Gravity	% NaCl	NaCl Taken
7 A.M.	5 grms of	NaCl		
8 "	54 ccs	1025	16	0·86
9 "	65 "	1024	17	1·105
11 "	205 "	1025	15	3·27
2 P.M.	215 "	1021	13	2·89
6 "	240 "	1018	8	1·92
Total	779 "	1023	11	8·56
6 P.M. to 7 A.M.	620 "	1023	8	4·96

(b)

Permeability to Water April 11 1910				
Hour	Volume	Spec. Grav.	% NaCl	NaCl Taken
7 A.M.	500	c.cs of	Water	
8 "	130 ccs	1007	4·5	0·58
9 "	80 "	1014	6	0·48
11 "	70 "	1021	7·5	0·52
2 P.M.	170 "	1018	7	1·19
6 "	180 "	1021	5	0·9
Total	630 "	1016	5·5	3·45
6 P.M. to 7 A.M.	500 "	1023	5%	2·5

(c)

Hour	Volume	Spec. Grav.	% NaCl	NaCl	Dates
7 A.M. to 7 P.M.	800	1014	5·5	4·4	April 12th
7 A.M. to 7 P.M.	850	1021	4·5	3·82	
7 A.M. to 7 P.M.	800	1016	6·25	5	April 13th
7 A.M. to 7 P.M.	600	1023	8·5	5·1	

Renal permeability test. On April 12th 0·25 gramme of methylene blue was taken at 7 A.M. 7.30 A.M., green colouration; 8 A.M., intense blue colour; 9 A.M., very intense blue colour. The emission was continuous. April 14th, 7 A.M. to 7 P.M., volume 560 c.c.; specific gravity, 1021; NaCl per cent., 8·5; NaCl, 9·76. Colour disappeared at 2 P.M. Duration of emission, 56 hours.

TABLE IV.

Nos.	D&N Urea	Total Urea	D&N Uric Acid	Total Uric Acid	Food taken
1	8·58 6·3	14·8	·45 ·201	·651	Ordinary Diet
2	13·4		·674		300 gms Mutton Minerals
3	11·6 15·4	27	·775 ·595	1·37	" "

Record of analyses of urea and uric acid showing an excessive reaction to a meat ration.

Ration chart.—March 12th: Ordinary hotel diet. March 13th and 14th: 400 grammes of grilled mutton (lean). March 15th and 16th: 200 grammes of lean mutton, vegetable salts, with 2 grammes each of magnesium hydrate and calcium carbonate. March 24th: 300 grammes of lean mutton. March 25th: 50 grammes of chicken. From April 1st: 2·5 grammes of magnesium hydrate with 1·5 grammes of calcium carbonate daily. April 4th and 5th: 300 grammes of lean mutton. April 10th and 11th: Chlorine-free diet. April 17th, 18th, and 19th: Uric acid-free diet without chlorides except in a cheese dish taken on the 17th. (This only includes the chlorides contained in the cheese).

[3] Higgins: Observations on Blood Pressure, &c., THE LANCET, April 18th, 1908, p. 1156; Re-mineralisation, &c., THE LANCET, Feb. 19th, 1910, p. 482.

April 20th and 21st: 400 grammes of lean meat. On the 21st, in addition vegetable salts. April 22nd, 23rd, and 24th: Uric acid and chlorine-free diet, consisting of eggs, milk, and fruit.

Analytical methods.—The urea determinations were done by Brandeis's improved hypobromite method, using a titrated solution of ammonium chloride or sulphate so as to obviate the necessity of making calculations of the temperature and barometric pressure. For ammonia I have substituted Malfatti's process for Folin's; for sulphates, Folin's modifications; for uric acid, Hopkins's method and Folin's; reference to paper on urinary reactions, &c., for other methods. Chlorides by Mohr's process, subtracting one-tenth of the result. Volhard or Denigè's methods have been used where great accuracy was required.

A ROUGH BACTERIOLOGICAL EXAMINATION OF THE CONDITION OF SWIMMING-BATH WATER.

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SOME weeks ago Mr. Alderman Hirst, as chairman of the sanitary and education committees of the borough of Batley, suggested to me that it would be of interest if a bacteriological examination of the water in the borough swimming-baths was undertaken, in view of the fact that, apart from ordinary bathers, several hundred school children from the elementary schools in Batley regularly visited the second-class swimming-bath, and that a comparison of the water of this bath with the water in the first-class bath, after use by a number of bathers, would be instructive from a sanitary point of view. I heartily endorsed Mr. Hirst's proposal and took steps to carry out the examination, which I have now completed. The examination took place in the bacteriological laboratory of the public health department, Batley.

The first step was to take a sample of the water in its ordinary condition as it leaves the supply pipe, for without this knowledge the examination would not be conclusive. The result was a good one, showing that the Batley water from a bacteriological standpoint compares favourably with other water used for drinking purposes, it being water from the ordinary town's supply which is used for swimming-bath purposes. Plate preparations were made on gelatin and agar-agar, the former being incubated at 20° C. and the latter at 37° C., and the colonies forming were examined from day to day. According to Miquel's standard, pure water may contain from 100 to 1000 organisms per cubic centimetre, very impure being defined to contain 100,000 and upwards per cubic centimetre.

In the water under examination, taken from the supply pipe as it entered the bath, the number of organisms developing on gelatin, incubated at 20° C. and counted in 48 hours, equalled about 43 per c.c. of water. Coliform or intestinal organisms were present in 5 c.c. of water but not in 1 c.c.

A sample of the first-class swimming-bath water was then taken on June 16th, persons swimming in the water at the time of sampling, the water having been in the bath for three days, and 194 persons having bathed in it. The same process having been followed, it was found that about 2850 organisms were present in 1 c.c. of water. I found coliform or intestinal organisms present in 5 c.c. of water.

A sample of the second-class swimming-bath water was taken on the same date and under exactly similar circumstances. The water had been in the bath three days, and 767 persons, mostly children from the elementary schools, had bathed in it. This gave about 15,000 organisms per c.c. of water. Coliform or intestinal organisms were present in 0·5 c.c. of water but not in 0·1 c.c.

Another sample of the second-class water was taken on June 21st, the water having been in the bath for three days, and the number of bathers, mostly children from the elementary schools, amounting to 974. The number of organisms per c.c. of water in this sample was about 300,000. Coliform or intestinal bacilli were present in 0·5 c.c. but not in 0·1 c.c. Bacillus enteritidis sporogenes I found to be present in 10 c.c. of water.

Of the several samples of water examined I made various subcultures of the numerous colonies, with a view to ascertain as far as practicable the nature of some of the more numerous ones. Many of the bacilli isolated were harmless ones, although all were not. I found the bacillus prodigiosus present in each sample. The bacillus fluorescens liquefaciens was found in great numbers. This ge occurs in putrid infusions and also in sewage. The bacil subtilis was found, as was also the bacillus proteus vulga The latter is found in sewage water, and is one of the cl of germs which cause putrefaction. It is also found in ca of abscess of the lungs and several diseases of the lung, A number of colonies of moulds occurred in the samples f second-class bath water which I examined. The bacil coli communis was present in samples of water from both first-class and second-class baths. I found the staphy coccus pyogenes aureus present in great quantity. It m not be forgotten, however, that this germ is present norma on the skin of many persons. The streptococcus pyoge aureus was also present.

The great difference found between the samples of wa taken is most interesting, for in the case of the first-cl swimming-bath water the first sample taken on June 16 having been in three days and 194 persons having batheo it, gave 2850 organisms per cubic centimetre, whereas in sample taken on June 26th (which I did not examine, which was examined elsewhere, as explained below), wh the water had been in the bath for the same period, but o 127 persons bathed in it (instead of 194 in the other sampl the bacterial content of the sample was 219,000 organis per cubic centimetre. This very great difference, it appe to me, can only be accounted for by the bacteriological c dition of the bodies of the 127 bathers being in a much wo state than that of the 194 bathers on the previous occasi The same peculiarity occurs in the case of the samples second-class water as follows:—June 16th: Bathers, 7 Bacterial content, 15,000 organisms per c.c. Water in b three days. The bacillus enteritidis sporogenes was found this sample by Dr. P. L. Sutherland (see below). June 21 Bathers, 974. Bacterial content, 300,000 organisms per Water in bath three days. Bacillus enteritidis sporoge found in the sample which I myself examined. June 26 Bathers, 938. Bacterial content, 63,000 organisms per Water been in bath four days.

The average number of organisms found in the two samp of first-class water was 110,927 per cubic centimetre. average number of organisms found in the three samples second-class water was 126,000 per cubic centimetre.

From the above it will be seen that in reality, altho many more persons, mostly children, used the second-cl water, it was not so very much worse than the first-cl water. If so many organisms, pathogenic and non-pat genic, are found in a cubic centimetre, it is interesting speculate on the number of micro-organisms contained i large swimming-bath full of water.

As I have previously pointed ont, many of the organis were harmless, but such was not entirely the case, and it be easily understood how disease can be communicated fr one person to another by the use of swimming-bat Diphtheria germs can be found in the throats of persons w have had the disease, although they themselves present signs of diphtheria, and all persons using a swimming-b get more or less an amount of water into their mouths nostrils whilst in the bath. Again, the germs of consumpt could get into the water in a similar manner, and prospect to swimmers who swallow mouthfuls of water c taining the bacillus enteritidis sporogenes is anything pleasant. Cases of sore eyes in children I have persona known to be caused through swimming in infected b water, and it is an easy matter to speculate on the numbe diseases which might be conveyed from person to per through the medium of polluted swimming-bath water. the other hand, I cannot say that in my experience I h been able to trace many cases of infectious disease to swi ming-baths, and one readily admits the great advantage the health of a community from frequent bathing a washing. There is no doubt that persons whose bodies frequently washed are healthier than are those who do cleanse themselves regularly, and hence in the long run advantages obtained from the use of swimming-baths undoubtedly greater than the disadvantages.

The only practical conclusion I can arrive at is that baths should be emptied at more frequent intervals, altho here I am again aware of the difficulty on the ground expense. Each time they are emptied the sides and flo should be thoroughly scrubbed with an efficient disinfect before refilling. At present we are faced with the fact th

his analysis tells us that the water examined was nothing nore or less than dilute sewage, and this condition can be emedied by the course mentioned. The baths manager told ne that numbers of pediculi capitis are found on the towels fter use, and they are also found sometimes in the dressing-oxes One is aware that in many cases the condition of the air of the girls in the schools is bad, and it should be nsisted upon by the authorities that children whose hair is nown to be verminous should not be allowed to use the bath t all whilst in that condition. Another useful regulation ould be that all girls with long hair should be compelled to ear bathing caps whilst in the water.

I am aware that in certain towns the experiment of reating the water in the swimming-baths by certain hemical reagents, such as chlorine, has been tried, and in thers frequent filtration of the water has been resorted to, nd I believe the results have not been unsatisfactory. To ny mind, however, there is an objection to this water being sed over and over again, for although it may be compara-ively pure after treatment, from a chemical and bacterio-gical point of view, there is a feeling that, after all, one is nly bathing in water that has previously been bathed in by undreds of other people, and the feeling is, to put it mildly, ot a nice one, although, of course, I am aware that to the hemist and bacteriologist this objection is nothing more r less than a sentimental one.

In addition to the examination of the water carried out by nyself in Batley, I forwarded some samples to Dr. Suther-and, bacteriologist to the West Riding county council, and append the reports on these waters which were received by ne from him.

16th June.—First-class swimming-bath in use at time of sampling. acterial content: Number of organisms developing on gelatin ncubated at 20° C. and counted in 48 hours = 2390 per c.c. of water. oliform or intestinal organisms: Present in 10 c.c of water but not in c.c. Bacillus enteritidis sporogenes: Not found in 10 c.c. of water.

16th June.—Second-class swimming-bath in use at time of sampling. acterial content: Number of organisms developing on gelatin ubated at 20° C. and counted in 48 hours = 16,950 per c.c. of water. oliform or intestinal organisms: Present in 0·5 c.c. of water but not in 1 c.c. Bacillus enteritidis sporogenes: Found in 10 c.c. of water but ot in 1 c.c.

22nd June.—First-class swimming-bath (from supply pipe entering th). Bacterial content: Number of organisms developing on gelatin ncubated at 20° C. and counted in 48 hours = 43 per c.c. of water. oliform or intestinal organisms: Present in 5 c.c. of water but not in c.c. Bacillus enteritidis sporogenes: Not found in 10 c.c. of water.

22nd June.—Second class swimming-bath in use at time of sampling. acterial content: Number of organisms developing on gelatin incu-ated at 20° C. and counted in 48 hours = 300,000 per c.c. of water. oliform or intestinal organisms: Present in 0·5 c.c. of water but not in 1 c.c. Bacillus enteritidis sporogenes: Not found in 10 c.c. of water.

28th June.—First-class swimming-bath. Bacterial content: Number organisms developing on gelatin incubated at 20° C. and counted in hours = 219,000 per c.c. of water. Coliform or intestinal organisms: resent in 1 c.c. but not in 0·1 c.c. Bacillus enteritidis sporogenes: ot found in 10 c.c. of water.

28th June.—Second-class swimming bath. Bacterial content: Number organisms developing on gelatin incubated at 20° C. and counted in hours = 63,000 per c.c. of water. Coliform or intestinal organisms: resent in 0·1 c.c. but not in 0·01 c.c. Bacillus enteritidis sporogenes: ot found in 10 c.c. of water.

In conclusion, I desire to thank Dr. Sutherland for nabling me to publish his interesting bacteriological report.

Batley.

A CASE OF PERNICIOUS ANÆMIA TERMINATING IN ACUTE DIABETES.

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A MAN, aged 49 years, was first admitted to the London Hospital on June 7th, 1909 under the care of Dr Robert Hutchison. He complained of lassitude and general weakness, with occasional vomiting and diarrhœa. He stated that about a year before (May 15th, 1908) he was one of a jury summoned to the inquest on a considerably decomposed body which had been washed ashore. The stench encountered on entering the mortuary affected him severely, inducing an attack of violent vomiting and diarrhœa, which continued through the rest of that day and night. To this the patient and his wife ascribed the onset of the present illness. Ill-health, with liability to vomiting and diarrhœa, had continued from that date, and had become worse during the last few months. The vomiting had no definite relation to food and occurred chiefly at night. In addition, he suffered from a "heaviness" and "a feeling of wind" in the epigastrium. His appetite had been fair. His previous health had from boyhood been very good, except for an attack of gonorrhœa at the age of 19. There was no history of syphilis.

On admission the patient appeared to be well nourished, but the skin was pale and of a lemon tint, and the mucous membranes were very anæmic. There was neither oral sepsis nor stomatitis. There was no evidence of disease of the heart and lungs. Percussion showed the lower edge of the liver to be just below the costal margin, but neither liver nor spleen was palpable. The superficial glands were not enlarged. The knee-jerks were present, the pupils reacted to light and to accommodation, and no mental change was noticed. Slight "pitting" was obtained on pressure over one ankle. There was no pyrexia while he was in hospital. The urine was examined on this and three later occasions. It was acid and of specific gravity 1020–1026. Albumin and sugar were absent. On the day after admission a test meal was given. This consisted of a large cup of weak tea and two small slices of toast. An hour later a stomach tube was passed, but the gastric contents were so thick and lumpy that they came with difficulty through the tube. Free hydrochloric acid was absent and only 10 cubic centimetres of decinormal NaOH were required to neutralise 100 cubic centimetres of the filtered gastric contents. Three weeks later a further test meal showed absence not only of any acidity but also of pepsin. It had no action on albumin when incubated at 37° C. for one hour.

Examination of the blood on June 10th showed: Poikilocytosis present, rouleaux formation slight; erythrocytes, 1 350,000 per cubic millimetre; hæmoglobin, 30 per cent.; colour index, 1·1; leucocytes, 1900 per cubic millimetre. No nucleated red cells were found. On June 25th there was a slight increase of erythrocytes and hæmoglobin. Eight normoblasts and two megaloblasts were seen while counting 200 leucocytes. Polychromatophilia and granular degeneration were present.

A diagnosis of pernicious anæmia ("Addisonian") was made. The patient was confined to bed. The diet consisted of peptonised milk, milk puddings, bread-and-butter, and lightly cooked eggs; fish and meat were added later. A mixture containing 3 minims of liquor arsenici hydrochloricus with 15 minims of dilute hydrochloric acid was given three times a day. The amount of the acid solution of arsenic (1 per cent.) was gradually increased in this prescription until 13 minims were being taken. On discharge on July 13th (five weeks after admission) a blood report showed: Erythrocytes, 3,012,500 per cubic millimetre; hæmoglobin, 75 per cent.; colour index, 1·2. One normoblast and one megaloblast were seen in counting 200 leucocytes. His colour was good, his strength had returned, and there was entire absence of symptoms. A brother has written: "The change in him was most remarkable; he looked and felt a new man both in body and mind."

After discharge the mixture of arsenic and hydrochloric acid was taken at home, and each month the patient came up to be seen by Dr. Hutchison. He appeared and felt quite well. The last of these visits was on Nov. 13th, three weeks before readmission and four weeks before death. On that occasion he still considered himself quite well and looked so; he was shown to a large class as an example of the remarkable remissions which occur in pernicious anæmia.

The patient was readmitted on Dec 4th. He maintained that he had been perfectly well until ten days before, when, on looking into the mirror, he noticed that his gums were very pale. A day or two later there was general pallor and weakness and a rapid wasting began. In answer to particular questions, he said that thirst and some increase in the amount of urine had been present for only a few days before admission. The chief complaint, however, was of headache, nausea, epigastric discomfort, and great weakness and wasting. By a great effort he had journeyed several miles to the hospital, but was so exhausted that it was necessary to carry him in from a neighbouring station.

On readmission he was in a state of collapse and showed severe anæmia of the mucous membranes and the skin; the latter showed the lemon tint of pernicious anæmia. In addition the chest and back had a finely polished appearance. His weight was 8 stones 1 pound, being 11 pounds less than when discharged in July. The temperature was 98° F.; the pulse had a frequency of 100, was regular, of fair tension, but of small volume; the artery was not

palpable. The heart was free except for a hæmic murmur at the base. Examination of the lungs showed nothing abnormal, and neither liver nor spleen could be felt. The knee-jerks were present. Ophthalmoscopic examination showed pallor of retinæ and no other abnormality. The urine was examined on Dec. 5th and contained 5·5 per cent. sugar. The reaction was neutral and the specific gravity 1030. Albumin and diacetic acid were absent. Until the urine was examined it was thought that the case was one of an ordinary relapse in a subject of pernicious anæmia. His condition was so grave that restriction of diet was not attempted; milk, eggs, bread-and-butter, and fish were given. No medicine was administered except a little whisky. The patient became rapidly weaker and rather more drowsy than on admission. Thirst, nausea, vomiting, and epigastric pain continued. Wasting was marked, the eyes became sunken, and a smell of acetone was noticed in the breath. On Dec. 6th 58 ounces (1647 cubic centimetres) of urine were passed, containing 82 grammes sugar (5 per cent.); on the 7th 60 ounces (1704 cubic centimetres) containing 121 grammes (7·1 per cent.) were passed; and on the 8th 90 ounces (2556 cubic centimetres) were passed. A catheter specimen was obtained and subjected to several tests, which showed that glucose was present (5 per cent. in this specimen). A marked reaction to the ferric chloride test for diacetic acid was now present for the first time. The centrifugalised deposit showed some red blood corpuscles and hyaline casts.

A blood examination on Dec. 8th gave the following result: Poikilocytosis present, rouleaux formation slight; erythrocytes, 2,050,000 per cubic millimetre; hæmoglobin, 40 per cent.; colour index, 1; leucocytes, 2000 per cubic millimetre. No nucleated red cells were seen. On the 9th he was very drowsy, but could be roused for a few minutes without difficulty, even four hours before death. The breathing was regular and of frequency 24; it was neither laboured nor noisy. The pulse became smaller and shortly imperceptible. Death occurred on the evening of the 9th, about 15 days after the onset of symptoms. There had been a loss of 12 pounds in weight since the 4th. The blood and gastric examinations, with the last report on the urine, were made by Dr. P. N. Panton, clinical pathologist to the hospital.

Pathological Report by Dr. HUBERT TURNBULL, *Director of the Pathological Institute.*

The following is a summary of the necropsy held on Dec. 10th.—*Pernicious anæmia (acute diabetes):* Deep red marrow throughout femur. Red marrow in sternum and ribs. Enlarged, soft, red spleen (4½ ounces). Brown-yellow liver, giving marked iron reaction. Chronic gastritis. Anæmia of skin with slight lemon tint. Bright yellow subcutaneous fat. Teeth sound. Mouth clean. Small pancreas (1½ ounces). Heart (11½ ounces); no "tigering" of myocardium. Fatty atheromatous flecks throughout the aorta, with small calcareous plaques in the commissure, arch, and bifurcation. Congestion and œdema of emphysematous lungs. Fibrous pleural adhesions over right apex and left upper lobe. Fibro-calcareous nodules in bronchial glands. Congestion and severe parenchymatous degeneration of kidneys (12½ ounces), with small subcapsular cysts. Small ectopic suprarenal beneath the capsule of the right kidney close to the upper pole. Anæmia of brain (3 pounds 1½ ounces). Considerable marasmus. No urethral stricture. No deposit of urates in joint of great toe.

Microscopical Examination.

1. *Marrow of femur.*—Sections were stained by S. G. Scott's "tartrazin-Jenner" method, in hæmatoxylin and eosine and in Van Gieson's stain. The marrow is cellular throughout. The number of myeloblasts and myelocytes is much in excess of the number of erythroblasts and erythrocytes. Strands of erythroblasts are, however, conspicuous. There are few leucocytes. The megakaryocytes are few in number and of small size. The relative number of myeloblasts to myelocytes is abnormally high. The majority of the erythroblasts are megaloblasts; gigantoblasts are also present. The variation in the size of the erythrocytes is extreme, microcytes being present in addition to megalocytes and gigantocytes. The erythrocytes also vary in staining reaction. There are a few macrophages containing red corpuscles.

2. *Spleen.*—The Malpighian bodies are well developed; their borders are somewhat ill-defined. The pulp is very cellular, large numbers of both white and red cells being present. The arterioles in the Malpighian bodies have a thickened adventitia, whilst the muscularis is swollen and hyalin. The Malpighian bodies contain lymphocytes of normal appearance; in their periphery polymorphonuclear leucocytes are also present. In the pulp there are very large numbers of neutrophil polymorphonuclear leucocytes; eosinophil leucocytes are much less numerous. There are also considerable numbers of neutrophil and cosinophil myelocytes and a very few basophil myelocytes. Plasma cells are preseut in eousiderable numbers. The erythrocyte vary very much in size, both microcytes and megalocytes being present. There are a few normoblasts, megaloblasts, and gigantoblasts.

3. *Liver.*—There is no fibrosis. There is a little fatty degeneration of the cells surrounding some of the central veins. In tissue fixed in alcohol there is much granular pigment within the cell columns. This pigment is present throughout the lobules, but is much more abundant in the peripheral zone. It gives the Turnbull's blue and Prussian blue reactions.

4. *Pyloric portion of stomach.*—There is no recognisable atrophy of the tubules in the mucosa. But in the intertubular stroma there is an excessive infiltration by plasma cells and eosinophil and neutrophil polymorphonuclear leucocytes. Several small lymphadenoid nodules are present in the mucosa; they show no evidence of inflammation. In the muscularis mucosæ there is a considerable infiltration by lymphocytes, plasma cells, and eosinophil leucocytes. Some small groups of these cells are present in the muscularis, especially round the vessels. There is a slight increase in the interstitial tissue of the submucosa and muscularis.

5. *Body of pancreas.*—The lobules do not appear to be abnormally small. The cells of the acini are well formed and brightly stained. There are numerous islands of Langerhans; many of these are of large size. The cells of the islands show no sign of degeneration; they are of normal shape and their nuclear structure is very distinct. There is neither inter- nor intra-lobular fibrosis. There is no deposit of pigment.

6. *Kidney.*—The media of the arteries is thin and there is a little reduplication of the elastic lamina. There is no increase in the interstitial tissue. The cells of the first convoluted tubules are large and swollen with well-defined margin. The base is occupied by large fat globules. The rest of the protoplasm is opaque and granular. Many of the cells have no nucleus, in others the nucleus is pale and degenerate. The swollen cells in most of the tubules almost occlude the lumen; in a few tubules there are granular or vacuolar spherical bodies in the lumen. The cells of the ascending limb of the loop of Henle show very similar changes. In the second convoluted tubules there is much less fatty degeneration; in some there is slight catarrhal desquamation, or the lumen may contain some granular débris. A few fat granules are seen in many of the cells of the descending tubules of Henle and in the large collecting tubules. In many of the latter there is considerable catarrhal desquamation, in others there are hyaline casts. In the cells of the first convoluted tubules are a few fine granules of pigment which give the iron reactions. In the ascending limb of Henle's loop are large granules of yellow pigment which do not give an iron reaction. There is some swelling of the intercapillary substance of the glomeruli. No glycogenic degeneration is present.

The changes found macroscopically and microscopically show that pernicious anæmia was undoubtedly present. There is no definite evidence, however, of diabetes. The pancreas has been examined microscopically in the cases of diabetes which have come to the Institute in the last three years. In brief, it may be said that changes of three types have been found. In a very few cases, in the chronic form of the disease in old people, there has been a severe and obvious destruction of the pancreas by fibrosis or fatty infiltration. In one of these cases an acute pancreatitis was present in addition to the chronic. In another group of cases, especially in patients over 40 years of age, there has been a slight fibrosis or fatty degeneration, but the chief abnormality has been the small size of the lobules, the atrophic appearance of the acini, and the scarcity and small size of the islands of Langerhans. Although occasionally some slight pathological changes have been present in the islands there has been no evidence of complete destruction of these structures. Such changes as have been seen in the islands did not account for the diminution in their number. In a third group are found the majority of cases, including almost all those of young patients and of the acutest forms of the disease. Here the only abnormality has been the small size of the lobules, the atrophic appearance of the cells of the acini, and the scarcity and small size of the islands. These changes are slight, but they have been constant. The small size of the pancreas in the present case suggested that these changes would be found on microscopic examination. But the lobules do not appear to be diminished in size, the cells of the acini are large and well formed, and the islands are numerous and of good size.

The changes in the kidney in most cases of diabetes are so characteristic that a diagnosis of the disease can be made from microscopic sections or even from the macroscopic appearance. The kidneys are enlarged, and owing to engorgement and fatty degeneration they have a "terra-cotta" colour. On section the cortical pattern is often abnormally distinct, the labyrinths and pyramids of Ferrein being swollen. The fat lies in the bases of the cells of the first convoluted tubules, in the ascending limb of Henle's loop, and in less amount in the other tubules. The appearance of the first convoluted tubules is usually very characteristic. The cells are much swollen and peculiarly opaque, with well-defined margin. In paraffin sections a clear zone is present in the base of the cells, corresponding to the deposit of fat. In some cases the free extremity of the cell is distended by a large vacuole which gives the reaction of neither fat nor glycogen. Many of the nuclei are destroyed. The lumen is filled by spherical bodies, which are either granular and obviously protoplasmic or are vacuolar, resembling bubbles. These "bubbles" are neither fatty nor glycogenic. The spherical bodies appear to be derived from desquamated cells. This débris is not, however, invariably present in the sections; where it is not present the swollen opaque cells may almost occlude the lumen. In the large majority of cases portions of tubules lined by clear, dropsical cells, which give the micro-chemical tests for glycogen, are present. This glycogenic infiltration is usually found in the intermediate zone of the kidney. The glomeruli appear large; their capillaries are engorged and the intercapillary substance is swollen and opaque. Catarrhal desquamation is frequently present in the large collecting tubules, in which there may also be hyaline casts. There is usually considerable œdema. This characteristic parenchymatous degeneration is doubtless merely secondary to the passage of sugar through the kidney. In the present case the kidneys were enlarged, somewhat soft, and swollen in appearance. They were of a yellowish colour but at the same time engorged, so that they had a tint not unlike terra-cotta. The swollen cortex was moist and showed an abnormally broad, vertical pattern. The kidneys thus differed markedly from the small, firm, dry, brown-yellow kidneys which are usually found in cases of pernicious anæmia. The severe parenchymatous degeneration found microscopically was of the type

found in cases of ordinary diabetes, although the most characteristic features were wanting.

To summarise the microscopic appearances of the pancreas and kidney it may be said that the appearance of the kidney is compatible with a diagnosis of ordinary diabetes or glycosuria and suggests that the pernicious anæmia was complicated by diabetes. But the pancreas shows none of the changes found in ordinary diabetes or glycosuria.

The clinical features, the blood reports, and the post-mortem examination establish the original diagnosis of pernicious anæmia. The association of severe glycosuria with diaceturia, and the concurrent thirst and rapid wasting, justify the further diagnosis of diabetes. The diabetes appears to have been of short duration because the urine was free from sugar throughout the first stay in hospital and the symptoms did not appear until 15 days before death. The symptoms were severe and the course rapid. The rapidity of the course cannot be ascribed to its occurrence in an emaciated individual, for the patient was not wasted before the onset of the symptoms. The short duration taken in conjunction with the severity of the symptoms and the early fatal termination justify the further definition of the disease as acute diabetes.

Acute diabetes is very rare, especially if cases with acute onset but chronic course are excluded. Cases where a temporary or symptomless glycosuria is followed later by an apparently acute diabetes (see Williamson[1]) must also be excluded. Naunyn[2] quotes several well-authenticated cases where death occurred in less than five weeks from the onset of symptoms. The oldest of these was 21 years of age. Acute diabetes usually occurs in the young, but on rare occasions it is found even in late life. Osler[3] has seen a man, 73 years of age, who died from diabetes within three weeks of the onset of symptoms. The rarity of acute diabetes, especially in later life, makes it less likely that it should occur merely as a coincidence in a man aged 49 years. Such a coincidence is still less likely because pernicious anæmia is not a common disease. The ordinary diabetes in man is usually, if not always, associated with changes in the pancreas. As may be seen in the remarks which Dr. Turnbull has kindly added to his report, he has found in a systematic microscopic investigation of the pancreas in cases of diabetes that certain finer changes are constant in the absence of coarse changes. Yet here there was an absence of both coarse and fine changes, and the pancreas, though small, was normal both macroscopically and microscopically. The diabetes, therefore, does not appear to have been one of the ordinary type, such as would be expected as a coincidence.

For these reasons it appears that the diabetes was in some way the direct outcome of the pernicious anæmia. A diabetes comparable to that which occurs in hæmochromatosis (*diabète bronzé*) might conceivably be caused by pernicious anæmia. Thus Quincke[4] mentions a case of pernicious anæmia in which pigment cirrhosis of the liver occurred. In the present case, however, the complete absence of pigmentation and cirrhosis of the pancreas shows that this explanation is untenable. Again, pernicious anæmia might possibly cause diabetes by alterations in the liver, brain, or kidney. But of such alterations no evidence was found in the post-mortem investigation. The changes in the kidney were apparently only such as occur from the passage of sugar through the organ. The morbid anatomy therefore gives no indication of the process which led to the diabetes. The diabetes appears to have been one of disordered metabolism without anatomical change.

When the patient was readmitted to hospital there was a definite increase in his anæmia. Not only did he appear much more anæmic than on his visit three weeks previously, but there was a fall in the blood of a million erythrocytes and 35 per cent. hæmoglobin since the estimation on his previous discharge. It is improbable that the increase in anæmia was caused by the onset of diabetes in which polycythæmia is the rule. Moreover, according to the patient, the symptoms of diabetes were preceded by symptoms of a relapse in the pernicious anæmia. He was positive that before he suffered from thirst and polyuria he had noticed pallor of the gums followed by general pallor and weakness. There can be little doubt, therefore, that the diabetes followed upon a relapse, and this suggests that the increase in the anæmia was a factor in the causation of the diabetes.

Insufficient oxygen supply either in animals or in man may lead to cellular degenerations. In the fatty changes due to severe or repeated hæmorrhages such a result is seen. Strauss[5] suggests that a specific relation may exist between the decrease in the hæmoglobin in the blood and these fatty changes. Repeated losses of blood in animals tend to cause an increase in the body fat. In addition to the notable retention of body fat in pernicious anæmia, fatty degeneration is one of the features of the disease. The profound anæmia is probably the important factor, though the unknown toxin may have some influence. Adami[6] believes that to the lowered oxygen capacity of the blood must be ascribed the diminished metabolism of pernicious anæmia and the storage of fat.

The effect of diminished oxygen supply on the metabolism of glucose has a more direct bearing on this case. Claude Bernard[7] was the first to show that hyperglycæmia resulted from repeated bleedings of dogs. Similar results have been obtained by more recent experimenters. In the metabolism of glucose, by the agency of certain ferments, the end products are CO_2 and water, when abundance of oxygen is present. In the absence of oxygen glucose may be easily changed, by mere splitting of the molecule, into lactic acid. The evidence for the formation of lactic acid from glucose is fairly complete (see Ryffel[8]), and many authorities believe that this change is the first in the metabolism of glucose and precedes the oxidative changes which then follow if oxygen is present. Araki[9] has carried out a long series of experiments on dogs to find out the effects of a deficient oxygen supply. The first method used was the direct limitation of oxygen in a closed chamber. Other methods of limiting oxygen, such as by CO poisoning or by asphyxia from strychnine poisoning, were used in other series of experiments. He found that in healthy dogs the result was the excretion of large quantities of lactic acid in the urine and in many cases of glucose. Parallel results were obtained whether direct or indirect methods of limiting oxygen were used. He concludes that as diminution of oxidation processes is the common factor, this is the cause of the abnormal metabolism. In the same way Underhill,[10] from his experiments on piperidin glycosuria, concludes that it is due to interference with respiration and a consequent deficiency of oxygen supply. Matthes,[11] in a critical review of Araki's experiments, agrees with his conclusions.

It has thus been shown that a lack of oxygen in animals may produce the excretion of glucose or of the closely related lactic acid in the urine. In man there are several comparable conditions. Thus, in asphyxia lactic acid has repeatedly been found in the blood. Asphyxia, whether from carbon monoxide poisoning, from amyl nitrate poisoning, or from the convulsions of epilepsy or strychnine poisoning, often causes glycosuria. Futcher,[12] indeed, states that carbon monoxide or carbon dioxide poisoning may cause not only glycosuria but even a true diabetes. It is interesting to learn that Strauss[13] has investigated the excretion of sugar after venesection in two cases of diabetes. In one case the amount of glucose excreted in the three days following venesection was more than double the amount excreted during the three days preceding it. In the other case a slight increase occurred.

The oxygen capacity of the blood is greatly reduced in pernicious anæmia. Lorrain Smith[14] has demonstrated this by an application of Haldane and Lorrain Smith's carbon monoxide method to patients with this disease. It was found that the average total oxygen capacity was reduced in pernicious anæmia to half the normal. To quote Lorrain

[1] Williamson: Diabetes Mellitus, 1898 (Pentland), p. 166.
[2] Naunyn: Der Diabetes Melitus, Nothnagel, Specielle Pathologie und Therapie, 1900, vii. (i.), p. 334.
[3] Osler: Principles and Practice of Medicine, 1909, seventh edition, p. 414.
[4] Quincke: Nothnagel, Diseases of Liver (translated by Stengel), 1903, p. 740
[5] Strauss: Von Noorden, Metabolism and Practical Medicine (translated by Walker Hall), 1907, vol. ii., p. 353.
[6] Adami: Principles of Pathology, vol. ii., 1910, p. 92.
[7] Claude Bernard: Leçons sur le Diabète et la Glycogenèse Animale, 1877.
[8] Ryffel: Quarterly Journal of Medicine, 1910, vol. iii., No. 10, p. 229.
[9] Araki: Zeitschrift für Physiologische Chemie, xv., 1891, pp. 335-370.
[10] Underhill: Journal of Biological Chemistry, 1905, I. i., pp. 113-129.
[11] Matthes: Von Noorden, Metabolism and Practical Medicine (translated by Walker Hall), 1907, vol. ii., p. 328.
[12] Futcher: Osler and Macrae, System of Medicine, vol. i., 1907, p. 752.
[13] Strauss: Von Noorden, Metabolism and Practical Medicine (translated by Walker Hall), 1907, vol. ii., p. 392.
[14] Lorrain Smith: Transactions of the Pathological Society of London, 1900, vol. li., pp. 311-329.

Smith: "Absolute loss of hæmoglobin, which in chlorosis does not occur, is seen to be here of primary importance. Total hæmoglobin has fallen to an average of 48 per cent. of the normal and contrasts with the average of chlorosis, which we found to be 95 per cent." There is, then, undoubted evidence that deficient oxygen supply can cause glycosuria in both animals and man, and it has been proved that the oxygen capacity of the blood is greatly reduced in pernicious anæmia. Consequently, glycosuria or diabetes might be expected as a complication of pernicious anæmia. This has indeed been suggested by French.[15]

It is remarkable that glycosuria and diabetes have rarely, if ever, been observed as complications of this disease. There is no mention of such complications either in the monographs of Addison, Byrom Bramwell, or Hunter; or in the articles of von Noorden, Cabot, and French in systems of medicine. Lazarus[16] says that the occurrence of sugar in the urine has never been reported. Von Noorden[17] has examined many cases for glycosuria in vain, but he found diacetic acid in the urine in four cases. In these it is, of course, possible that other factors, e.g., inanition, were operative. Von Noorden[18] has also observed the occurrence of a large amount of lactic acid in the urine of one of two cases of pernicious anæmia shortly before death. No alimentary glycosuria was found by Strauss[19] in six cases of pernicious anæmia after the administration of 100 grammes of glucose. Other observers have also obtained negative results. Hoppe Seyler[20] has made a suggestion that as unhealthy, e.g., fasting or fevered, dogs did not excrete sugar in Araki's experiments, this fact may account for the failure of various observers to obtain alimentary glycosuria in patients with pernicious anæmia.

My thanks are due to Dr. Robert Hutchison, who has kindly given me permission to publish this case, and to Dr. Turnbull for many valuable suggestions.

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A NOTE ON THE ABUSE OF PURGATIVES.

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IN the recent discussion upon the Treatment of Constipation, opened by Dr. J. F. Goodhart at the Section of Medicine at the annual general meeting of the British Medical Association held in London, not a few speakers laid stress upon the fact that constipation needed treatment in various other ways than by the administration of drugs.[1] Nevertheless, it was not quite clearly brought out that a great deal of chronic constipation is actually due to the abuse, that is to say the injudicious use, of purgatives during the preceding years. It is also important to distinguish between laxatives upon the one hand and purgatives upon the other. Even laxatives ought seldom to be used, and when employed they should only be prescribed with the greatest caution. The habitual use of laxatives during adolescence usually necessitates the resort to the use of purgatives in early adult life, and as the years go on stronger and stronger remedies become necessary, until finally none have the desired action at all.

It is very important to realise that, although it is relatively easy to produce an action of the intestine by means of a purge, this is a very different thing from curing constipation. Indeed, there can be no doubt that purgatives are administered far too indiscriminately, and that a great deal of constipation is increased rather than diminished by them, and that it may even actually be produced by them. Just as it is a natural instinct of the brain and body to go to sleep for a regular period in each 24 hours, so is it the natural instinct of the large intestine to empty itself periodically once every day. This regular habit should always be encouraged, and if boys and girls learned never to neglect the call of nature and always tried to have the bowels opened at the same time each day constipation would be almo non-existent. The difficulty is that, from carelessness ar other causes, the action of the bowels may be postponed responded to irregularly, with the result that, as time go on, the bowel, brought up irregularly, shows its desire to a irregularly; some days there will be an action, other da not. Thereupon those who do not think sufficiently, or not know what they are doing, at once either take or pr scribe some purgative dose, such as castor-oil, salts, or eve calomel, with the result that the contents of the bowel a driven through, it is true, and there is an apparent relief the constipation; but the mere fact that there has been a over-action of the bowel to-day makes it all the more likel that there will be no action at all to-morrow and the ne day, so that by that time another dose may seem to l required; and so the condition goes on from bad to wor because, instead of encouraging nature's natural tendency t act once each day, the bowel is forced periodically and le inactive in the intervals. There can be no doubt that a grea deal of the chronic constipation of to-day is due to deficienci of exercise and to the removal from our dietaries of man things which, being indigestible, used to pass through an increase the bulk of the residue, so that there was always a abundance of fæcal matter to be passed; but at the sam time there is also little doubt that a great deal of this cor stipation is accentuated by the abuse of purgatives. Th latter should be used with the greatest caution, and a stron dose should never be given when a mild dose would suffic If the case is merely one of simple constipation it is bett to spend some weeks or months trying to coax back th regular habit by getting the patient to try hard at a regula time each day, at the same time giving him more fluids t drink and some foods with an insoluble residue to eat, tha to give laxatives at all.

It should be noticed that the word "indigestible" reall has two entirely different meanings. It may be used t denote something which, if eaten, will produce indigestion in some individuals this applies to such things as pork, fo example. It is not in this sense that the word is employe above, but rather is it used to denote those substances whic the juices of the alimentary canal are unable to dissolve, an which therefore pass through undigested. They do no produce indigestion, and yet they are indigestible becaus they cannot be digested. Examples of these kinds of food stuffs are the fibre of green vegetables and fruits, and portion of husks in porridge and brown bread.

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A CASE OF RHEUMATIC ARTHRITIS FOLLOWED BY STREPTOCOCCIC INVASION.

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THE patient, aged 21 years, was admitted to Westminste Hospital under the care of Dr. William Murrell on May 4th complaining of pain in both her wrists. Two weeks before admission she had had severe sore-throat, accompanied by an attack of vomiting and shivering. On the following day she had suffered from pain in the back and the loins. Later the pain had invaded the wrists, the ankles, and the soles of the feet. She had observed also a swelling of the tarso-metatarsal joint of the left great toe.

On admission the patient was found to be a thin, rather ill-nourished girl. There were marked kyphosis and scoliosis of the dorsi-lumbar region of the spine and the chest was boat-shaped. The wrists showed chronic enlargement; both wrist-joints were swollen and tender on pressure and on active and passive movement, the left, which was more affected than the right, presenting a dome-shaped swelling over the extensor tendons. The other joints all appeared to be normal. There was no pain or tenderness of the lumbar and plantar fasciæ, and no rash of any kind was present. The heart sounds were normal, but the breath sounds were rather feeble on the left side. There was no vaginal discharge. The temperature was 101·4° F.

Diagnosis.—The case was obviously not a straightforward one. The history of an attack of tonsillitis was in favour of acute rheumatism, but against this must be set the history of

[15] French: Art., Pernicious Anæmia, Allbutt and Rolleston's System of Medicine, vol. v., 1909, p. 734.
[16] Lazarus: Nothnagel, Diseases of the Blood (translated by Stengel), 1905, p. 265.
[17] Von Noorden: Lehrbuch der Pathologie des Stoffwechsels, 1893, p. 317 and p. 353.
[18] Von Noorden: Idem, p. 337.
[19] Strauss: Metabolism and Practical Medicine, 1907, vol. ii., p. 354.
[20] Hoppe Seyler: Zeitschrift fur Physiologische Chemie, 1894, vol. xix., pp. 476-481.
[1] THE LANCET, August 13th, 1910, p. 465.

ain in the soles of the feet and lumbar fascia, the absence f cardiac signs, and the characteristic appearance of the ft wrist, all of which suggested gonococcic arthritis. Some rbid fluid was aspirated from the wrist, and a swab was ken from the vagina. These were submitted to Dr. R. G. ebb for examination, and his report was as follows: Vaginal swab: gonococcus not found; Döderlein's bacillus resent. Fluid from joint: large number of polymorpho-uclear leucocytes; no organisms found in films; culture erile." This, of course, did not give much help in arriving t a decision.

Course of illness.—Although gonococcic infection was rongly suspected, the patient was treated as a case of cute rheumatism by salicylate of sodium in 20-grain doses our-hourly. She also was given a perchloride of iron ixture to gargle and swallow. During the first five days e temperature gradually fell to 99°. The patient then mplained of deafness and tinnitus, and potassium iodide as substituted for the salicylate for the next 24 hours. pon this the temperature at once rose to 103·4°. The alicylate was resumed with the addition of an equal uantity of sodium bicarbonate. The temperature then pidly fell, and by the morning of May 12th it was normal.

No doubt now existed that the case was one of acute eumatism. The temperature remained normal, and the atient's condition was in every respect satisfactory. It was ranged that she should leave the hospital on May 22nd. n the morning of the 21st, however, she complained of sore-roat, and the temperature suddenly rose to 104°. The nsils were found to be swollen and inflamed, but nothing esembling a diphtheritic membrane could be seen. There as a faint erythematous rash on the chest and the abdomen. he patient was immediately isolated on the suspicion that he might have contracted scarlet fever. A systolic murmur ould now be heard at the apex. On the 22nd she was vidently in a very grave condition. The symptoms were as efore, only more severe, and faint tubular breathing could e heard all over the right chest. A swab was taken from he throat and it yielded streptococci and staphylococci. he urine was found to contain casts (blood, cell, and yaline) and much free blood and leucocytes. The leuco-yte count was as follows: white blood corpuscles, 35,200; olymorphs, 94 per cent.; monomorphs (small 3, large 3), per cent.

Treatment consisted in free stimulation and the adminis-ration of oxygen. On May 24th the cardiac murmur had isappeared. Death occurred on the morning of the 25th. uring this time there had been no return of the arthritis.

Necropsy.—The appearances reported by Dr. Hebb were hose of an intense septicæmia and pneumonia. The spinal olumn showed marked scoliosis from the first to the twelfth orsal vertebræ, with the convexity to the right. The eft lung lay in the concavity thus formed, with the heart nd pericardium in front. Numerous adhesions bound the eft lung down to this concavity and passed from it to the hest and pericardium, and the lung was by this means much ompressed. The right pleural cavity contained about a pint f pus; the parietal and visceral pleuræ were coated with a hin layer of shaggy lymph, and there were numerous soft dhesions. The right lower lobe was in a state of advanced ed hepatisation, showing on section a number of grey areas ach about the size of a pin's head. The other lobes (both ides) were congested and œdematous. The heart was normal, he liver was toxic, and the spleen was large and soft. At he commencement of the ileum was a raised patch, ulcerated n the surface and affecting the mucosa, muscle, and peri-oneum (? toxic thrombosis). There were no other lesions in he alimentary canal. Both kidneys were enlarged (7 ounces nd 8 ounces respectively), engorged, and bleeding on sec-ion; the cortex was swollen and the capsule stripped easily. The trachea was congested. The hymen was intact. Death ad occurred from toxæmia. The pus from the pleura con-ained many streptococci. Sections of the lung were examined microscopically, and showed appearances of intense nflammation, although not quite those of lobar pneumonia. The grey areas were found to be collections of pus, and to contain streptococci.

The case presents several points of interest. In the first place, was the illness of which the patient died obviously a streptococcic infection or a very severe attack of scarlet fever? The rash was not at all unlike a scarlatinal eruption. A streptococcus is frequently found in association with this disease, and, indeed, is believed by many to be the actual cause of it. If this is so, where is the line to be drawn between scarlatina and streptococcic septicæmia?

Secondly, was the fatal illness a new infection or was it merely a relapse in the course of the disease for which the patient was admitted, and which was thought to be merely a somewhat atypical example of acute rheumatism? I am inclined to the former view. The patient was obviously one of those weakly individuals who fall easy victims to any disease that comes along. On the other hand, the bacteriology of acute rheumatism and scarlet fever is very obscure, and it may be suggested that the streptococcus found in the lungs and pleura in this case might possibly be a form of the micrococcus rheumaticus of Poynton and Payne. Furthermore, scarlatina and rheumatic fever are regarded by many as being closely allied diseases.

Another point of interest is the pneumonia. This was evidently only a part of the general infection; streptococci only were found in the lung and pleural fluid, and were apparently the exciting cause of the pneumonia.

I am indebted to Dr. Murrell for permission to publish this case and to Dr. Hebb for allowing me to make use of his notes of the post-mortem examination.

Westminster Hospital.

Reviews and Notices of Books.

Die Basedow'sche Krankheit. Von Dr. Med. H. SATTLER, O.Ö. Professor der Augenheilkunde an der Universität, Leipzig. I. Teil: Symptomatologie. Leipzig: Wilhelm Engelmann. 1909. Pp. 402.

THIS volume, which treats of the symptomatology of Graves's disease, is a reprint (with slight additions) of the part contributed by Sattler to the second edition of the well-known German ophthalmological treatise, the "Graefe-Saemisch Handbuch," which has been in process of publication for now over ten years. This subject was treated by the same writer in the first edition of this work, but since its appearance in 1880 there has been such an increase in the clinical facts, such a change in the scientific theories, connected with this disease that it has been found necessary to re-write this section entirely and materially enlarge its scope. Naturally the symptoms associated with the eyes and surrounding parts are here discussed in greatest detail, but the author has rightly felt it incumbent upon himself to devote to the signs relating to the other organs of the body a consideration commensurate with our knowledge at the present day in order that the former might stand in their true perspective in the symptom-complex of this disease; and as a great number of its more or less important symptoms are to be found in the eyes and lids, together with the nerves and nerve centres connected with them, a detailed description and critical study of the symptomatology of this affection, approached from the point of view of the ophthalmologist, may not be without interest to neurologists as well as to physicians and surgeons generally. This work should be all the more welcome because of the fact that since the beginning of last century this subject has attracted the attention of many writers in this country where numerous important papers have been published. These have been duly noted in the bibliography at the end of this volume. The bibliography, which the author has with characteristic thoroughness expressly endeavoured to make as complete and as accurate as possible, is in itself a monument of much patient labour, comprising as it does nearly 3000 references which are brought up to the end of the year 1907. Throughout the book, in which the four cardinal symptoms are first treated and those connected with the nervous system and other organs of the body are subsequently considered, the author has, speaking generally, followed the plan of appending to each section, paragraph, or statement a short *résumé* or list of the cases bearing on the matter in question, as recorded in the literature or observed by himself,

by way of illustration or proof. It is impossible within the limits of any review to do justice to the thoroughness with which the discussion of the many varied symptoms is taken up, but we devote purposely to this treatise much more space than we usually allot to the consideration of a single work so that our readers may understand its great scope.

In treating of the well-known symptom of exophthalmos the writer points out that unilateral exophthalmos in Graves's disease is not such a rare phenomenon as has been supposed by some authors, the total number of such cases found in the literature amounting to 109. The degree of the exophthalmos is subject to variations which are sometimes very marked and are similar to, and may at times occur simultaneously with, those observed in the goitre and the action of the heart. Sometimes it happens that the proptosis is only at times visible, or after being present for a varying period it disappears without any alteration in the other symptoms of the disease. On investigating the influence which any impediment to the return of the blood from the orbit exerted on the degree of exophthalmos, the author found, by means of an apparatus described by Birch-Hirschfeld in another volume of this Handbuch, that (1) both in the normal and the exophthalmic eye compression of the facial veins produces distinct proptosis of the globe, but (2) while in the former this result is obtained only when the head is bent forward, it is visible in the latter even in the erect position of the head ; (3) the absolute amount of proptosis after compression of these veins is much the same in both cases—mere bending forwards of the head, without compression, immediately produces in both cases proptosis which is only very slightly more marked in the exophthalmic eye than in the normal.

The murmur, which has been described by various writers as audible with a stethoscope placed over the proptosed eyes ball, has been regarded as systolic in character—i.e., as arising in the blood-vessels of the orbit. Sattler, however, has, by means of a simple auscultation-tube first devised by Hering, convinced himself that the sound so heard is really a muscle-murmur—i.e., is derived from contraction of the orbicularis palpebrarum : it has all the characters of a muscle-murmur, it is at once intensified when the lids are closed more tightly, and it ceases when on keeping the end of the auscultation-tube over the upper lid the other eye is opened slowly. This sound is therefore not peculiar to the eyes of patients suffering from Graves's disease, although the author found it very well marked in a large number of cases with moderate exophthalmos.

The increase in width of the palpebral fissure caused by the retraction of the upper lid is the most striking symptom connected with the eyelids. It is frequently, but incorrectly, associated with the name of von Stellwag, but is, as the author insists, more appropriately called after its first observer, Dalrymple's sign. Retraction of the lower lid has been recorded, but Sattler has never been able, in spite of careful examination on this point, to convince himself that any such condition analogous to that in the upper lid ever occurs. The lagging behind of the upper lid on downward movement of the eyeball (von Graefe's sign) is a phenomenon closely connected with the retraction. Both these signs are independent of the degree of exophthalmos as regards the time of their appearance or their duration, and are usually but not invariably absent. These lid symptoms constitute, in the absence of any thyroid enlargement or even cardiac disturbances, the earliest manifestations of the disease, and as such claim considerable diagnostic significance. There is much variation in their occurrence on one or both sides as considered in relation to the presence or absence of exophthalmos. With regard to the retraction of the upper lid, it may be noted that in ordinary circumstances the prominence of the eyeball is to a very limited extent influenced by the position of this lid in so far as the globe protrudes slightly on extreme elevation of the lid and sinks backwards a little as the latter is lowered, as is proved by experiments which the author quotes; and this holds good in the case of patients with marked retraction of the upper lid when asked to open their eyes widely. Pronounced retraction of the upper lid does not usually render the voluntary closure of the lids impossible provided the exophthalmos is not extreme, although apparently a certain amount of effort is required to close the lids, which during sleep not infrequently remain partially open. Lid symptoms are observed in various diseases of the nervous system, but Sattler entertains considerable scepticism about Sharkey's statements as to their frequency in healthy people, although he admits that they do so occur in rare instances. The third clinical sign associated with the eyelids is the diminished frequency and incompleteness of the involuntary winking—Stellwag's genuine sign. It is found less frequently than the other two signs, and when it does occur it is usually in conjunction with them.

The explanation of these symptoms has given rise to considerable difference of opinion. Some writers have regarded them as due to an increased tone or spasm of Müller's muscle, finding an analogy in the action of cocaine when it is instilled into the conjunctival sac, but the author adduces proof that an explanation through an irritation of the sympathetic fibres is not borne out by facts. He himself accepts that offered by Möbius—viz., that there is an increased tone of the levator palpebræ superioris, an explanation which, it may be observed, had previously been suggested in this country by Lang and Pringle, and before them indicated by Dalrymple. It is on this theory that one can best explain the retraction of the upper lid as well as Graefe's and Stellwag's signs, together with other rare phenomena such as have been recorded by Ramsay and others.

The section on the lid symptoms is followed by a consideration of the condition of the pupils and the question of pulsation in the retinal arteries. The problem as to whether the optic neuritis and atrophy that have been observed in some very rare cases of this disease, where all other possible causes could be excluded, bear any direct relation to it has been to some extent answered by the observation of one or two cases in which these complications supervened on the long-continued internal administration of preparations of thyroid gland. It is, however, remarkable that, considering the widespread use of this drug, more cases of loss of sight have not been recorded. The lack of any mention of a thyreoidin-amblyopia among the numerous experimental researches on the action of thyroid gland preparations led the author to investigate this point, and by experiments he was able to induce a real atrophy of the optic nerve.

A not infrequent symptom in the early stages of Graves's disease—it may be one of the earliest symptoms—is the lacrimation that appears apart from any possible local cause. As regards the causation of ulceration of the cornea, it is pointed out that it is impossible to explain all cases on the ground of exposure and drying of the corneal surface and its diminished sensibility. In surveying the literature on this point the author draws attention to the frequency with which both eyes are affected when ulceration occurs, and to the fact that in the great majority of cases this complication supervenes in very severe forms of Graves's disease or, in the less severe types, during a period of aggravation of the disease. From various considerations one is led to the supposition that there must be certain toxins in the circulation which lower the nutrition of the cornea and thereby reduce its power of resistance to external influences.

The discussion of the insufficiency of convergence, or Möbius's symptom as it is called, and the various sources of

error in its diagnosis is deserving of special mention. The author points out that insufficiency of convergence in Graves's disease is a much rarer phenomenon than is frequently supposed. The tremor, which is such a constant symptom, is characterised by the rapidity of the individual movements, the uniform character of their frequency and rhythm, and their relatively small amplitude. In illustration of this a tracing taken from a patient, together with two obtained from normal individuals, is reproduced. A comparison of these curves brings out the fact that both the abnormal and normal are in their essential features practically the same. In the tracings taken from the healthy persons (not at a time of over-fatigue of the muscles or mental excitement) it is found that the same number of oscillations (eight or nine per second) occurs with great regularity; their amplitude, however, is very much smaller, although it shows the same peculiar variations.

In subsequent sections the relations of chorea, epilepsy, and the various forms of paralysis, notably ophthalmoplegia and the bulbar paralyses, to this affection are dealt with. In this connexion we may note the occurrence of myasthenia pseudo-paralytica as an interesting though rare complication. Hysteria and neurasthenia are more frequent complications, but at the same time it is necessary to make a careful distinction between the nervous symptoms of Graves's disease and those strictly referable to hysteria. The changes in the mental condition of the patient, a very important and almost constant feature of the symptom-complex of this disease. It is often impossible to draw a line between this condition and the psychoses proper. These latter in their forms are described in full detail. There follow sections devoted to the various vaso-motor disturbances, the subjects of hyperidrosis and Vigouroux's sign (the diminished resistance of the skin to galvanic conduction), and the important changes observed in connexion with the digestive and respiratory systems. The various skin affections, the falling out of the hair, the pigmentary changes, and the fleeting and brawny œdema associated with the skin are next considered. Our knowledge of the last-named condition is amplified by the record and illustration of a case, together with an acconnt of the microscopical examination, observed by the author. The complications of this disease by Dercum's disease, sclerodermia, Raynand's disease, osteomalacia, and acromegaly are each treated in separate paragraphs; its association with, or transition into, myxœdema is also dealt with.

Of special interest are the qnestions of the peculiar disturbance of metabolism and the composition of the blood (relative lymphæmia), to which attention is everywhere devoted at the present time. These subjects are treated in detail and are followed by a consideration of the pyrexia (Basedow-fever) not infrequently observed in this disease and its relation to the metabolic changes. The final pages of the volnme are taken up with a description of alimentary glycosuria and diabetes and their relation to this affection.

The idea of the action of some toxin in the circulation has been mentioned, and its effect on the nervous system, central and peripheral, as well as on other tissues of the body, is repeatedly emphasised throughout the book. This matter will no doubt be more fully discussed under the pathology in Part II.

Essays in Politics. By ANDREW MACPHAIL. London, New York, Bombay, and Calcutta: Longmans, Green, and Co. 1909. Pp. 301. Price 6*s.* net.

IF THE LANCET does not concern itself with party politics at home, and still less with those of a dominion whose internal affairs at first glance would seem to be of more immediate importance to herself than to the mother country, it is nevertheless pleasant to note that a volume of political essays, primarily composed by a Canadian for Canadian readers, and founded upon incidents and written round names more or less unfamiliar to the average Briton, may hold us interested, and, moreover, may leave us with a feeling that, without being lectured, we have received advice not wholly inapplicable to ourselves and to our own circumstances. And it is good to record that the advice is tendered by a medical man. Dr. Macphail deals largely with problems of politics directly affecting Canada and arising out of her position as a vast agricultural country, or dependent, at any rate, largely upon agriculture for her prosperity; and even those who do not assent to his political and financial conclusions will agree with the desire that underlies them for the preservation of those social conditions of prosperous country life the loss of which we all deplore at home, and the restoration of which we allow ourselves in sanguine moments to predict and to work for. "Our life in Canada will always be rural. Wherefore let us aspire after rural joys," he writes; and he reminds us at another page of what we owe in the mother country to "the hardy Saxon peasants" who before have "saved England in her last extremity." The inference which he suggests as to the benefit derivable by "those near the soil" from a change of financial system we neither quote nor comment upon, but leave others to do so who chose to read an eminently readable book, in which, as we have hinted, they will find views from which to dissent or with which to fortify their own opinions whatever they may be. The members of the medical profession are fairly entitled to look upon themselves as intelligent and not quite disinterested critics of politics rather than as partisans, and from that point of view will echo the wish that underlies Dr. Macphail's prediction that "possibly government by party is a worn-out thing, and when Members of Parliament get tired of the present farce they will begin to exercise their common-sense and transact the business of the country as if it were their own." It would ill become us to do more than to indicate the existence of so thorny a root of political bitterness as the nation's fiscal policy, but for the benefit of those interested in its contemplation we would mention that among the matters which Dr. Macphail handles so dexterously, and with the light touch of genial irony, may be found questions arising out of Canadian and United States tariffs, and that he discusses their relations to the prosperity of the members of such professions as that of medicine. Without wishing to recommend our readers to regard questions affecting the welfare of the country at large exclusively from the professional point of view, we see no reason why they should forget their personal interests or those which they share with a large and worthy body of their fellow citizens. That body, characterised by varying degrees of solvency, or apparent financial vulnerability, rather than by any considerable political influence, if it allows its opinions to be influenced by self-interest, may at times find its choice hovering between the lesser of two evils. On the one hand, its members may not be altogether satisfied by the result to themselves of Mr. Lloyd George's budgets; on the other, they may like to consider the views of Dr. Macphail as a critic of Canadian tariffs so far as these apply to men whose position in Canada affords a parallel to their own. We refer especially to passages in which he treats of certain aspects, political and economic, of arrangements connected with the importation of foreign goods upon "those of us who are not manufacturers but professors with salaries which have been fixed these 20 years, physicians with established fees, clerks with immovable incomes, and farmers depending upon a soil whose fertility is in no way affected by political device," and to such comments as he applies in another chapter to the

contributions to the revenue, as in fact they are, of "professors, physicians, ministers, and clerks." Dr. Macphail, who must certainly commend himself even to those who do not see eye to eye with him as an essayist by a charm of style and breezy frankness peculiarly his own, is the editor of the Journal of the Canadian Medical Association.

A Practical Treatise on Fractures and Dislocations. By LEWIS A. STIMSON, B.A., M.D., LL.D., Professor of Surgery in Cornell University Medical College, New York; Surgeon to the New York and Hudson Street Hospitals; Consulting Surgeon to Bellevue, St. John's, and Christ's Hospitals; Corresponding Member of the Société de Chirurgie of Paris. Sixth edition, revised and enlarged. With 361 illustrations and 65 plates in monotint. London: Henry Kimpton; Glasgow: Alexander Stenhouse. 1910. Pp. 876. Price 25*s.* net.

Dr. Stimson is well known in this country, and all that comes from his pen is justly held in high repute. This is the sixth edition of his treatise and it is welcome. Investigations stimulated and aided by X ray examinations have revealed conditions of injury occurring in the small bones of the carpus and tarsus which have not hitherto been systematically described and considered. The additions to the edition under review represent the result of study of these injuries and include a new subhead, the midcarpal fracture-dislocation. Dr. Stimson is inclined to think that the knowledge now gained covers all the typical lesions. He has added sections on fractures of the floor of the acetabulum and of the internal epicondyle of the femur and on backward dislocation of the lower jaw. There are also important additions relating to treatment. With regard to midcarpal fracture-dislocation, this is an injury of which the typical features are fracture of the scaphoid, dislocation forwards of the semilunar and proximal fragment of the scaphoid, and more or less derangement of the relations of the os magnum with the adjoining bones. The injury, Dr. Stimson states, is not rare. It occurs almost exclusively in males, and "if the displacement is uncorrected the patient remains long disabled. As time passes the pain and sensitiveness may diminish and disappear and the hand regain a considerable measure of usefulness, but the motions of the wrist will be much restricted and the strength of the grip lessened. ..... When a chronic arthritis ensues, all motion at the wrist may be lost."

A very careful and accurate bibliography occurs in a convenient and useful form as footnotes, but these are not collected together as a bibliographical index, an omission which we consider might with advantage be supplied in future editions. It is no light task to deal with the mass of material which forms the basis of a work like this, to select only typical examples and accurate descriptions, and to produce a treatise which is not only complete and scientific, but also readable and even entertaining.

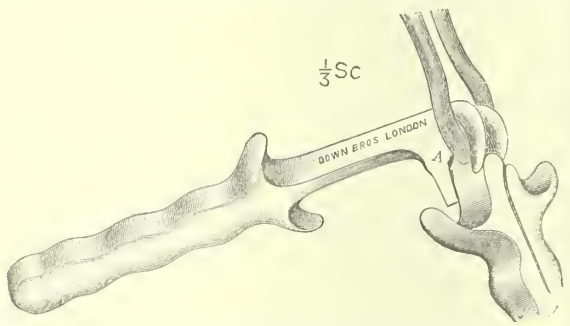
A very complete account is given of dislocations of the vertebræ considered under the separate headings of dislocations of the occiput from the atlas, of the atlas from the axis, of the lower six cervical vertebræ (the commonest of these rare injuries), of the dorsal vertebræ, and of the lumbar vertebræ. Discussion concerning the proper treatment of fractures in the vicinity of the elbow-joint turns mainly upon the position to be given to the limb, some favouring the extended position and others recommending flexion. The author takes a broad view of the question, and concludes from the facts investigated that a fear of separation of the fragments or of ankylosis of the joint should not establish a rule of practice to be followed in all cases.

The book cannot be recommended as a text-book for students—it is far too advanced for that—but it will appeal to a smaller circle of readers who desire to know thoroughly the results of a careful study of reported cases and the groundwork of the principles which underlie the scientific treatment of fractures and dislocations.

New Inventions.

A NEW TRACTOR FOR USE WITH MIDWIFERY FORCEPS.

THE application of this tractor is simple, being always free of the maternal soft parts. The forceps and tractor form one rigid apparatus and become a lever. Either the point A or the end of the handle of the forceps may be made the fulcrum at will. On the principle of the parallelogram of forces, a force in the same direction can be applied by either hand alternately or both together, the direction and plane of the resultant being determined by the proportionate amount of force used by either hand, and thus affording most welcome relief to the operator's muscles. For converting occipito-posterior presentations the forceps should be applied and the



tractor placed in position; the head can then be "lifted" in the pelvis and rotated with the greatest ease, the forceps, of course, being then removed and reapplied if desired.

I have used this instrument, which was made for me by Messrs. Down Bros., for the past three years with much satisfaction; it is a modification of Le Page's tractor, but the latter is too small, in my opinion, either for grasp or for power; as a rotator it is a new instrument. In this instrument the claws are longer and not only hold the tractor in position, but lock the blades together, an important point, as the combined apparatus can be steadied, or traction made, with the left hand alone, the right being free for examination, &c.; and the increased length and weight of the handle increase its power, of course, to a considerable degree.

PENROSE L. W. WILLIAMS, M.R.C.S., L.R.C.P. Lond.
Bridgwater.

THE DURHAM DUPLEX SAFETY RAZOR.

IT is simple enough to describe this razor; it is the old-fashioned "straightforward" razor, as accomplished hands at the art of shaving would prefer to call it, but with two keen edges to the blade and a safety guard. The Durham Duplex Safety Razor, therefore, admits of that satisfactory diagonal sweeping stroke across the face which leaves a perfectly smooth surface. The blade has two very keen edges and the beard yields readily before its movement. This razor stands what may be called the dry test; it shaves, and does not in the least degree scrape, even without the application of soap, although, as a rule, that omission is not to be recommended, seeing how conducive soap lather is to a really smooth and clean shave. In form the Durham Duplex Safety Razor is exactly like the classic razor; it has a curved handle, which serves to accommodate the blade when the razor is put away out of use. The blade is readily detachable, as is also the safety comb, and thus all parts may be easily cleaned. The proper angle of the blade for shaving, which is most essential to a satisfactory result, is practically secured by the oval brace which binds the blade to the razor stem. This oval brace glides smoothly over the skin, and the blade and safety comb being brought into line with it, a clean, smooth shave is obtained without any risk of making a gash when ordinary care is exercised.

The moment its advantages are learned the razor becomes a favourite even when tried by the shaver who has abandoned the old form of razor for years in favour of the rigid safety razor. It is particularly well adapted for shaving in the preparation of a patient for surgical operation. The keen edges last a long time, but the blades may be detached for stropping purposes. As, however, they are inexpensive this trouble can be avoided by simply replacing the blade with a new one. The razor, which we examined and submitted to careful practical trial, was sent to us by the Durham Duplex Razor Co., Limited, of Cecil Chambers, 86, Strand, London, W.C.

BRITISH MEDICAL BENEVOLENT FUND.

AT the July meeting of the committee 20 cases were considered, and grants amounting to £156 made to 16 of the applicants. Appended is an abstract of the cases relieved:—

Widow, aged 54 years, of L.R.C.P. Edin. Earns £12 a year as housekeeper, and requires help for two daughters who are being trained as domestic servants. Relieved once, £12. Voted £10.

Daughter, aged 63 years, of late M.R.C.S. No income; mentally feeble and entirely dependent on relations who can ill afford to help. Relieved four times, £48. Voted £12.

Widow, aged 59 years, of L.R.C.P., L.R.C.S. No income; used to do maternity nursing, but is now uearly blind. No children. Relieved 16 times, £149. Voted £12.

Daughter, aged 49 years, of late F.R.C.S. No income, and requires a little help whilst obtaining an appointment. Relieved four times, £25. Voted £5.

Deserted wife, aged 44 years, of L.R.C.P., M.R.C.S. No income, but hopes shortly to support herself. Voted £10.

Widow, aged 62 years, of L.R.C.P., L.R.C.S. Irel. Has exhausted means left by husband in educating her children and is now practically dependent on proceeds of letting her furnished house for a few months yearly. Is a candidate for Epsom College. Voted £12.

Daughter, aged 65 years, of late M.D. St. Andrews. Only income a small annuity bought by friends and unable to earn a living on account of chronic ill-health. Relieved three time, £36. Voted £12.

Widow, aged 64 years, of L.R.C.P. Edin. Has an annuity of £20 and earns about £12 a year by addressing envelopes when able to obtain such work. Relieved 13 times, £131. Voted £10.

Daughter, aged 29 years, of late M.D. R.U.I. No income and never likely to be able to support herself on account of permanent ill-health. Relieved five times, £30. Voted £10.

Daughter, aged 53 years, of late M.R.C.S. Gives her services in return for a home and receives slight help from a relation. Health too feeble to admit of active employment. Relieved twice, £10. Voted £5.

Daughter, aged 66 years, of late M.R.C.S. Maintained herself first as a governess and then as a deaconess for many years, but now finds it impossible to obtain regular work. Relieved five times, £54. Voted £12.

Widow, aged 78 years, of F.R.C.S. Has a small income, but is unable to dispense with the services of an attendant owing to paralysis and other infirmities. No children. Relieved once, £10. Voted £10.

Daughter, aged 71 years, of late M.R.C.S. No income; was supported for many years by a brother whose means are now much reduced. Relieved twice, £28. Voted £12.

Widow, aged 70 years, of M.R.C.S., L.R.C.P. Has a pension of £20 and is helped by a daughter, a nurse, who has just undergone a serious abdominal operation and cannot therefore assist further at present. Voted £10.

Daughter, aged 57 years, of late L.S.A. No income and incapacitated by locomotor ataxy. Relieved once, £12. Voted £12.

Deserted wife, aged 49 years. Receives a home for herself and daughter in return for services, and asks for a little help towards expenses of canvassing for the daughter's admission to St. Anne's School, Relieved three times, £11. Voted £2.

Subscriptions may be sent to the honorary treasurer, Dr. S. West, 15, Wimpole-street, London, W.

INTERNATIONAL CONGRESS OF ANATOMISTS AT BRUSSELS.—The second quinquennial International Congress of Anatomists was held at Brussels from August 7th to 11th. It was attended by about 100 anatomists from all parts of the world, and among the most widely known of them were Waldeyer and von Bardeleben, Romiti, Nicolas, Minot, and Thomson (Oxford). About fifty papers were read and discussed, and demonstrations of specimens, &c., were given at the anatomical department. The great majority of the papers dealt with histological or embryological subjects, and these two branches of anatomy appear to be those in which most work is being done at present and the greatest advance is being made. An important step was taken in the appointment of an international committee to consider and draw up a uniform terminology for embryology. Representatives were appointed from Germany, France, Great Britain, and America, and Professor Mall of Boston was appointed general secretary to it.

THE BRITISH MEDICAL ASSOCIATION.

SEVENTY-EIGHTH ANNUAL MEETING IN LONDON.

THE SECTIONS.

MEDICINE.

FRIDAY, JULY 29TH.

President, Dr. R. W. PHILIP (Edinburgh).

Dr. WILFRED HARRIS (London) read a paper on

The Injection Treatment of Neuralgia and Sciatica.

He pointed out that experimental and clinical work had shown that the injection of strong alcohol into a nerve trunk caused immediate paralysis, both motor and sensory, of its distribution, by destroying the nerve fibres at the point of injection. This method of local destruction of a sensory nerve by alcohol injection was therefore eminently suited to arrest neuralgic pain due to sensory impulses generated at the periphery of the nerve, such as tic douloureux, painful spots in fibrositis, rheumatic neuralgia, supra-orbital neuralgia, &c. During the last two years he had used Schlösser's method of alcohol injection of the main branches of the trigeminal nerve in 41 cases of tic douloureux, giving complete relief in 38 cases from all pain for periods varying from 4½ to 14 months. When the pain recurred re-injection gave an even longer immunity from pain. In addition, he had used deep injection of alcohol into the tissues for the relief of the pain in over 150 other cases of persistent neuralgia, including supra-orbital neuralgia, interscapular, lumbar and sacral fibrositis, rheumatic costal neuralgia, and so-called intercostal rheumatism. The relief given in a large number of these cases was almost instantaneous, becoming apparent as soon as the pain of the injection had passed off, in half a minute or less. Fibrositis of the buttock often simulated a sciatica, or might precede and then accompany a rheumatic sciatic perineuritis. Deep injection of strong alcohol in many such cases was of almost instant benefit, the relief from pain and limping gait being complete and generally lasting, though sometimes requiring repetition. Great care must be taken not to inject alcohol into the sciatic nerve, or paralysis of the leg would certainly follow. In 34 cases of chronic sciatica he had used a modification of Lange's infiltration method of the nerve with warm normal saline solution and eucaine. In several cases he had combined this method with deep injection of alcohol into areas of fibrositis in the neighbourhood of the nerve. Sometimes two saline injections would be required. Twenty-four cases were completely relieved, 7 partially relieved, and 3 were not improved at all. He used a special hollow needle 9 cm. long and 0·7 mm. in diameter. After finding the nerve, 2 c.c. of a 1·5 per cent. solution of eucaine were injected, and after 15 seconds 100 c.c. of warm saline solution were injected into the nerve. The patient should not be allowed to get up for at least 12 hours after the injection. He had never used it in acute sciatica of less than five weeks' duration.

Dr. D. A. O'SULLIVAN (London) in a few brief remarks bore witness to the value of the method.

A paper was read by Dr. LAURENCE HUMPHREY (Cambridge) on

Aneurysm of the Aorta communicating with the Superior Vena Cava.

The patient was a man, aged 49 years, who was seized one evening with sudden dyspnœa, followed by swelling of the neck, the right arm, and the right side of the chest. There were visible pulsation, dulness, and a systolic thrill over the second, third, and fourth costal spaces on the right side. There was a systolic murmur at the apex, and a loud continuous whizzing murmur over the area of pulsation. After a few days the urgent symptoms lessened, the external jugulars became prominent, and there was œdema of the right side of the chest and arm. The patient lived for nearly 18 months after the onset of the urgent symptoms, developing large veins over the chest with a downward current. At the necropsy the body was cyanotic and œdematous. All the external veins were greatly dilated, also the venæ azygos

major and minor. An aneurysm, the distended superior vena cava, and the right lung were all found to be adherent together. The aneurysm originated from the right and posterior region of the first part of the arch of the aorta, and was of the size of a Tangerine orange. The opening of the superior vena cava into the right auricle was small and constricted. There was also a communication between it and the aneurysm which would admit a No. 8 catheter. The symptoms in this case were similar to those of other recorded cases. They were usually the sudden onset of suffocation, followed later by swelling of the neck and right arm and by characteristic venous collateral circulation. The prognosis was very unfavourable, but, as already mentioned, in his own case the patient lived for nearly 18 months.

Dr. LAURENCE HUMPHREY and Dr. W. E. DIXON (Cambridge) communicated a paper on

A Case of Acromegaly with Hypertrophied Heart: Pressor Substances in the Urine.

The patient was a man, aged 39 years, in whom the changes characteristic of acromegaly had gradually developed in the course of ten years. He gave clinical evidence of enlargement of the heart and suffered from attacks of shortness of breath of cardiac nature. His urine was usually acid, of specific gravity 1018, and the quantity about 3 pints daily. There was no albumin or sugar. The urine was examined experimentally by Dr. Dixon for substances with a pituitary-like action. 10 c.c. injected into the jugular vein of an animal caused a rapid rise of blood pressure of as much as 70 or 80 mm. of mercury, and lasting for about 2½ minutes. It was usually preceded by a slight fall like that obtained with normal urine, which was due to the potash salts it contained. On subsequent injection another rise occurred, but was less in degree than the original one. This pressor substance was found in all the samples examined; it was not destroyed by keeping the urine and was unaffected by boiling. The evidence obtained as to its nature pointed to its not being a pituitary extract. A second case of early acromegaly in a young woman showed the presence of a similar pressor substance, but less marked. At a necropsy made 40 hours after death the heart was found to weigh 2 pounds 13 ounces; the thyroid was normal; the pituitary body was greatly enlarged, weighing 8·6 grammes instead of half a gramme. On section it was soft and diffluent. Extracts of the anterior and posterior parts of the pituitary gave no pressor effect, although an effect was obtained from extracts of other organs. It seemed probable that the hypertrophy of the heart was a result of the action of this pressor substance.

Professor C. BÄUMLER (Freiburg) referred to the interest of these observations and discussed the possibilities in regard to the origin of this pressor substance.

Dr. DIXON, in reply, referred to the pressor substance in normal urine as present in mere traces, whereas in this case the pressor effect was obtainable with a very few cubic centimetres of the urine. He believed that this substance was the cause of the hypertrophy of the heart, and suggested the possibility that the pituitary changes in acromegaly might be themselves secondary to some other changes as yet unrecognised.

Dr. J. GUELPA (Paris) read a paper on

The Prophylaxis and Treatment of Diseases: Cure of Diabetes.

He gave a brief account of the general principles upon which he had based his method of treatment, to which he had applied the name of dis-intoxication. He maintained that emaciation enabled the body to remove toxins more rapidly; that weakness was not a manifestation of deficient nutrition, but was a result of imperfect removal of toxins; and that hunger was not an expression of the needs of the body for repair of waste, but was a measure of the degree of intoxication in the digestive system. He proceeded to affirm that there was absolutely no danger in remaining deprived of food for several weeks provided care be taken to relieve the digestive tract of waste products and poisons which were daily formed there. When death occurred after only several days or weeks of starvation, it was not brought about, as some thought, by the fact that the waste of the body had not been replaced, but it was the result of the excess of toxins which had accumulated and had not been excreted. Purgation, when it was thorough and not drastic, was never a cause of dangerous inflammation of the digestive tract, even if repeated during several days in succession. It had, on the contrary, the advantage of securing disinfection of the digestive tract when that function was performed imperfectly, or not at all, by the food. Purgation and deprivation of food, when their duration was not too prolonged, did not cause anæmia, but, on the other hand, they were the best means of increasing the red corpuscles, the hæmoglobin, and the leucocytes in their most vital form—the mononuclears. The general principle of his method was to ensure the most regular and rapid elimination possible of the waste products and poisons of the body by means of privation of food and purgation at repeated intervals during three, four, or even more days. He stated that this method of treatment was never harmful, that it was nearly always useful, and that it sometimes gave truly marvellous results. He claimed that it would bring about the cure of diabetes, even when accompanied by the most serious complications. Similar good results were described as occurring in gout, and the method was claimed as bringing about the disappearance of tophi if applied with sufficient rigour and persistence. The method was described as being of great value in the preservation of health and in combating distraction, somnolence, and cerebral lassitude.

The PRESIDENT described some results he had obtained by means of Dr. Guelpa's method, more particularly in diabetes.

Miss ETTIE SAYER, M.B. Lond. (London), read a paper on

The Effects of Electrical Currents upon Blood Pressure.

She discussed in some detail the physiology of blood pressure and of its alterations, and the mechanism of increased blood pressure in disease. The effects were then described of high frequency currents upon various morbid conditions associated with increased blood pressure, including auto-intoxication, chronic Bright's disease, gout, eczema, lumbago, sciatica, acute urticaria, kraurosis vulvæ, climacteric flooding, and neurotic states. Charts and blood pressure records were given in support of the statements made. In regard to the method of application of the high-frequency treatment, difficulties were formerly encountered owing to the trouble of measuring accurately the dose given, but the newer methods adopted permitted this to be done. The matter was of importance, because a rise instead of a fall was likely to occur if too long or too strong a dose were given. The manner of action of the currents was believed to be thermal in nature, and the effect was exerted through the vaso-motor mechanism.

Dr. S. SLOAN (Glasgow) and Dr. J. HADDON (Hawick) discussed the paper.

Dr. A. C. JORDAN (London) read a paper on

The Roentgen Ray Appearances of Thoracic Aneurysm.

He showed a large number of lantern slides demonstrating the value of Roentgen ray photographs in the diagnosis of thoracic aneurysm, and emphasised the importance of obtaining a right anterior oblique view. This afforded a view in the plane of the aorta, which, it should be remembered, passed from right to left and from before backwards. The patient was placed in a revolving seat, which facilitated the examination. Some evidence was also brought forward to indicate the possibility of recognising atheroma of the aorta by means of the Roentgen rays. The calcareous plaques did not as a rule show, but a peculiar form of heart outline was suggestive of atheroma.

Dr. HERBERT S. FRENCH (London) made a brief comment upon Dr. Jordan's paper, and pointed out that it was possible for error to arise in regard to the diagnosis of aneurysm by the Roentgen rays by shadows from other causes simulating aneurysm, especially growth in the thorax, and by an aneurysm being present without giving a shadow.

Dr. H. S. SOUTTAR (London) demonstrated

An Improved Gastroscope.

The apparatus was a simplified and improved form of an instrument demonstrated at the meeting of the Association at Belfast last year. The diameter was small, and a rubber tip had been fitted so that the apparatus could now be passed with the same facility as a bougie. The field visible through the apparatus was larger than the palm of the hand.

Dr. J. S. MACKINTOSH (London) read a paper on

The Evolution of Racial Types of Europe and its Bearing on the Racial Factor in Disease.

He traced the evolution of the races of Europe since the estimated end of the Great Ice Age some 40,000 years ago.

The ape-like Neanderthal type of man disappeared, being replaced by the long-headed races of Southern, Western, and Northern Europe. At the present time European dolichocephalics approximated to one of two types—the Iberian, small, slender, leptorrhine, and brunette; and the Teuton, tall, muscular, leptorrhine, and blonde. The separation of Iberian from Teuton, which was probably originally the result of climatic conditions, was favoured by the appearance of the Alpine race, characterised by being short, thick-set, snub-nosed, and brunette. It would therefore appear that in Europe there are three radical racial types whose evolution took place under radically different climatic conditions. Their social conditions were also different. The Alpines dwelt in communities, first as cave-dwellers, later in lake dwellings. The Iberians were also troglodytes and pit-dwellers. The Teutons were, on the other hand, mainly hunters and dwellers in the open. In this country the Iberian was the aboriginal of the post-glacial era. Following him came the Alpine and a tall sub-brachycephalic type, the later and historical invasions being mostly Teuton. Dr. Mackintosh quoted Dr. F. C. Shrubsall to the effect that the blonde types in this country are especially liable to tonsillitis, rheumatism, heart disease, and osteo-arthritis. The special liabilities of brunettes are towards pulmonary tuberculosis, nervous diseases, and malignant growths. Dr. Mackintosh then proceeded to explain the climatic treatment of disease on the principle of racial evolution. He regarded the "open-air" treatment of pulmonary tuberculosis as an empirical attempt to restore the patient to his natural racial environment, and he endeavoured to explain the successes and failures of this method of treatment on racial lines. He also believed that by studying the racial characteristics of patients it was possible to afford valuable information in regard to the choice of locality for school, home, holiday, and health resort.

Dr. W. CAMAC WILKINSON (London) read a paper on

Tuberculin in the Treatment of Pulmonary Phthisis.

He criticised the statistics from English sanatoriums and strongly urged the use of tuberculin for purposes of diagnosis and treatment. He maintained that tuberculin gave better results than sanatorium methods at less cost and without any selection of the cases. Tuberculin succeeded in completely arresting the disease even while the patient kept at work. In cases of mixed infection it was advisable to deal with the secondary infection first. He gave tuberculin in large doses, and he stated that the negative phase described by Sir Almroth E. Wright might be disregarded with impunity.

Professor H. SAHLI (Berne) was satisfied that in early cases treatment by means of tuberculin was of great importance, and he described it as the greatest advance made in this direction during the last 20 years. He also mentioned its value in early renal tuberculosis, in tuberculous spondylitis, and also in some cases of Addison's disease.

Dr. G. A. HERON (London) defended the principle of sanatorium treatment, and urged the value of the educational function. At the same time, he believed tuberculin to be the only remedy of any real curative value in tuberculosis, and the earlier it was used the better. He had been disappointed in the opsonic index as a guide.

Dr. W. ODELL (Torquay) believed ichthyol to be quite as useful and valuable as tuberculin.

Dr. FRENCH inquired as to the doses given by Dr. Wilkinson.

Dr. J. G. GARSON (Eversley) supported the value of sanatorium methods and statistics. He stated that tuberculin reduced the length of time required for sanatorium treatment. He tried to give it in doses which did not cause a rise of temperature. He preferred to give it by the mouth rather than by injection.

Dr. HAMILTON, Dr. J. F. HALLS DALLY (London), and Dr. HADDON briefly commented on the paper.

The PRESIDENT deprecated any attempt to put sanatorium treatment and tuberculin treatment into opposition or antithesis. He believed both methods to be of value, but he uttered a warning against the universal use of tuberculin.

Dr. WILKINSON replied.

Resolutions of thanks to the President and to the secretaries were passed and the meeting then terminated.

SURGERY.

FRIDAY, JULY 29TH.

President, Sir VICTOR HORSLEY (London).

Safety Trephine and Skull Saw.

Dr. MARTEL demonstrated a form of Safety Trephine. It acted on the principle that rotation ceased as soon as the resistance of the skull was overcome. This was effected by a spring clutch which was released as soon as the pressure was withdrawn, and all risk of a wound to the dura mater was thus prevented. The instrument was shown in action on a dry skull, and within the hollow of the skull was placed a toy balloon. The trephine, which was driven by electricity, quickly perforated the bone, but did no damage to the underlying balloon. Dr. Martel also demonstrated a skull saw which was capable of cutting the bone rapidly and with apparently perfect safety to the dura mater. Both instruments are very ingenious and deserve a trial.

Mr. FREDERICK D. BIRD (Melbourne) read a paper on

Conditions Simulating Cancer of the Stomach.

He urged that it was very difficult indeed to decide with certainty, both before and during operation, between cancer of the stomach and many other conditions, such as chronic ulcer. It was especially difficult if the opening through the abdominal wall was small, such as was generally made in an exploratory incision. It was only when a portion of the growth was examined microscopically that a correct decision could be arrived at. The chief object of his paper was to point out how very frequently gumma of the stomach (or syphiloma, as he preferred to call it) had been removed in mistake for carcinoma. In all probability syphilis was not a rare cause of the swelling of the pylorus. He described in detail a case where he was able to make the diagnosis on inspection. One point of importance was that in syphiloma there was an absence of extension of the disease along the lesser curvature. He considered it best in all doubtful cases to remove a portion at the first operation. As to the diagnosis of this condition, he believed the previous history to be useless. When the abdomen was opened the presence of whitish blotches on the spleen and liver, and scars and adhesions in the great omentum were very suggestive of the presence of a syphiloma. A syphiloma when new looked much more succulent than did a carcinoma, but when it was old the naked-eye appearances were very similar. Carcinoma tended to extend along the lesser curvature, but this was not seen in syphiloma. In any swelling of the stomach the Wassermann reaction should always be employed.

Mr. H. J. PATERSON (London) read a paper on the

Early Diagnosis and Treatment of Gastric Cancer.

Cancer of the stomach was a very frequent and fatal disease. During the seven years 1901 to 1907, out of a total of 207,764 deaths from cancer, no fewer than 35,664 were due to cancer of the stomach. In England and Wales more than 5000 persons, on an average, died from this disease every year. Though cancer of the stomach was more common than cancer of any other organ of the body, yet gastrectomy, partial or complete, was one of the rarer operations in surgery. This was not as it should be, for gastric cancer in its early stage was markedly a local disease, and could be removed with favourable results both immediate and remote. The early symptoms of cancer of the stomach were loss of appetite, failure of strength, and anæmia. Progressive loss of strength was an early symptom. A palpable tumour was not an early sign of cancer. Their aim should be to establish a diagnosis or at least the necessity for surgical treatment before a tumour could be felt; nevertheless, a palpable tumour did not contra-indicate the possibility of a complete removal. He believed that an examination of the gastric contents when interpreted in connexion with the clinical history might be of the greatest help in assisting a surgeon to come to a conclusion as to the need for surgical treatment. One of the earliest signs of cancer of the stomach was the impairment of its motility, and this was best tested for by giving the patient over night 12 ounces of milk, and then, ten hours later, passing a stomach tube. If food was found present, then it indicated impaired motility, and persistent impairment of gastric motility was a condition requiring surgical intervention. The absence of free hydrochloric acid was not of much value in the diagnosis of

gastric cancer. Of much greater value was the diminution of the protein hydrochloric acid, and this he considered a very early symptom of gastric cancer, though it might be found in chronic gastritis due to other causes. It was often the case that a patient when received into a hospital improved under dieting and rest, even though previous to admission a diagnosis of gastric cancer had been made. This improvement occurred only in early cases—in fact, the very cases which would be most benefited by operation. It was not necessary to make a definite diagnosis in every case: all they need do was to ascertain that a condition was present which required surgical treatment. The really reckless surgeon was not he who explored after carefully considering the clinical history and results of gastric analysis, but he who adopted the policy of "wait and see" until the possibility of performing a radical operation was gone for ever. Although the gastroscope was a very ingenious instrument it would probably not be of much value in the diagnosis of gastric cancer. As to the method of operation, the wider the excision the better the ultimate results. In his opinion it was advisable, in order to guard against recurrence, to remove the transverse colon as well. Progress in the treatment of gastric cancer would be made, not so much by increasing the extent of our operative measures, but by early operation. As to the results, in about 12 per cent. of the cases operated upon there was a probability of permanent cure.

Professor ALEXIS THOMSON (Edinburgh) read a paper on the

Pathological Anatomy of Cancer of the Stomach and the Conditions which are Mistaken for it.

In many cases a cancer of the stomach was suspected and yet microscopic examination showed that it was not carcinomatous in origin. In 49 resections of the stomach for cancer, microscopic examination showed that in only 35 was the lesion of a cancerous nature. This diagnosis was much more readily made when large sections were examined microscopically. Twenty-three specimens from the museum of the University of Edinburgh which were catalogued as cancer, when examined microscopically proved to be cancerous in only 17 instances. If they took these cases together, of 72 stomachs believed to be cancerous no less than 20—that is, 27·7 per cent.—were found to be non-malignant. Of these, 1 was tuberculous and the 19 other cases were instances of diffuse fibromatosis of the submucous coat. This fibromatosis might be syphilitic or tuberculous in origin, but in most cases it was due to ulcer of the stomach. This fibromatosis had much tendency to be diffused widely throughout the stomach, and to invade adjacent organs, as the colon or the pancreas. The "leather bottle" stomach was a typical example of the fibromatosis, though it was described in nearly all the books as carcinomatous in nature. It was probable that this fibromatosis was septic in origin, the sepsis invading the stomach at the site of an ulcer. It was possible that malignant disease might develop on a basis of fibromatosis. The diagnosis was often very difficult. All the cardinal signs might be present, and yet the condition might not be cancerous. The error was always in one direction—that was to say, a non-malignant mass was believed to be cancerous. In a doubtful case it was advisable to open the stomach away from the mass so that its inner surface might be examined.

Mr. E. DEANESLY (Wolverhampton) read a paper on the

Excision of Gastric Ulcers.

The almost universal adoption of gastro-enterostomy as the operation of choice in the surgical treatment of simple ulceration of the stomach and duodenum was not based on sound principles and was not justified by results. It was now known that unless there was distinct pyloric obstruction food did not pass through the new opening, and even after the operation had been done an ulcer might perforate or a new peptic ulcer might form. There was great liability to recurrence both of the pain and other symptoms. Excision should be the operation of choice in all centrally situated ulcers not involving the pylorus or the duodenum. Excision was easy, unless the ulcer was near the cardiac orifice. Even a large ulcer could be excised; in one case he had excised an ulcer 2½ inches wide, and the stomach cavity was reduced by one-fourth. Excision was also the best method of treatment of perforated ulcers.

The PRESIDENT then put the resolution which had been suggested on Wednesday. It was moved by Mr. PATERSON and seconded by Mr. DOUGLAS DREW:

That the Section of Surgery recommends the Council of the British Medical Association to appoint a committee to inquire into and report on the results obtained in the treatment of simple fractures both with and without operation.

Mr. W. ERNEST MILES (London) read a paper on the

Radical Abdomino-perineal Operation for Cancer of the Rectum and of the Pelvic Colon,

with a table showing results of 24 cases in which the method had been employed. He pointed out that in the majority of cases of cancer of the rectum which were treated by excision recurrence followed, especially those which were treated by the perineal route, and in this class he included Kraske's operation. He had investigated the direction of the spread of rectal cancer, and his results as to this point were based on inoperable cases, on post-mortem examinations, on evidence of the spread of the disease as seen during operation, and also on the localities liable to recurrence. There were three main routes—downwards, laterally, and upwards—and the tissues in these three regions were liable to be affected whatever the site or size of the growth. The wider the operation, the longer period elapsed before recurrence. Up to 1906 he had performed 59 perineal excisions with one death, but of the other 58 cases 54 suffered from recurrence. He had now given up entirely the perineal route, and he had adopted the abdomino-perineal route. It was useless to think of attempting to bring the bowel down from above so that the patient might have a perineal anus: an abdominal anus was unavoidable. The radical operation that he practised was somewhat formidable. For at least a week before the operation the rectum and as much as possible of the large intestine were cleared out by lavage, and salol was given by the mouth for the purpose of diminishing the septic nature of the bowel contents. Should the site of the growth prevent this intestinal lavage, he performed cæcostomy two or three weeks before. He then proceeded to describe the details of the operation he preferred. As to the results, he had performed this operation on 26 cases, and of these 10 had died as the result of the operation. Up to the present 5 cases had survived more than three years without any recurrence. The other cases were too recent to be of any value so far.

Mr. C. J. BOND (Leicester) read a paper on

A Method of Establishing Colotomy Openings and Ureteral Permanent Fistulæ by Means of Elevated and More Readily Controlled Mucous Openings.

Colostomies and ureteral fistulæ caused great disability and discomfort, for it was very difficult to control the outflow. In ureteral fistulæ, in addition to the discomfort, there was great risk of urinary sepsis. He described the first case on which he operated. The patient was a girl with extroversion of the bladder. He brought the ureters out into the loins, allowing them to project for one and a half inches. A strip of skin was raised and wrapped round the projecting ureter, so that the ureter opened on the summit of the projection. A suitable instrument was easily adapted to the teat-like prominence to receive the urine. Another operation was performed to close in the bladder wall. The results were exceedingly satisfactory. Before the operation the urine was very septic, but it began to improve, and before long it was almost free from micro-organisms. The child was able to attend school. In the case of the bowel, the larger size of the organ required much more skin to cover it, and it was found that the best results were obtained by making an angled skin flap on each side of the colostomy opening. Good results had followed, and it was much easier to fit an apparatus on to this projection. He believed that in this case he was following out the principle which was accepted in amputations, that the stump should be well covered with skin and adapted for application of a useful instrument.

Dr. C. MACLAURIN (Sydney) read a paper on the

Clinical Manifestations, Diagnosis, and Treatment of Liver Hydatids.

He had had an experience of 140 cases of hydatid of the liver, and most of these had been operated on by himself. Toxæmia might occur on opening a cyst, even if the cyst was normal at the operation. In old cysts, especially in women, very marked neurotic phenomena might be present. As to the amount of pain, it was interesting to note that 60 per cent. of the adults suffered from marked pain, but

pain was a rare symptom in children. In some cases a tumour as large as a fœtal head might be present and yet the patient might not know of its existence. The hydatid thrill occurred only in 5 or 6 per cent. of the cases, and it was not diagnostic. If vomiting was present it always signalised some severe complication. The hydatid rash often came out after operation or when leakage occurred. Suppuration occurred in 14 per cent. of the cases, often after some small injury or operation. Rupture was most serious, and was practically always ultimately fatal. It might kill by septic peritonitis or by the peritoneal inoculation of hydatid growths. Rupture might occur from slight causes such as a mere muscular action, and it was most common in children and young people. When oozing occurred the fluid was surrounded by a large false capsule, lying in front of the intestines. In the diagnosis all tests were fallacious, but the X rays almost always gave some evidence of the existence of a cyst, and this was the most trustworthy test. The best treatment was by marsupialisation, and it was best to operate between the ribs unless the cyst was on the anterior border of the liver. When the cyst was exposed it was well to inject a little formalin.

Dr. R. KENNEDY (Glasgow) read a paper on

A Case of Suture of the Circumflex Nerve.

The patient was a man, aged 25 years, and he had been kicked on the shoulder when asleep. When examined he had paralysis of the deltoid. He was treated with electricity for eight months before Dr. Kennedy saw him. There were then three defects; the arm could be abducted only to the extent of 30 degrees, the roundness of the shoulder had gone, and the deltoid gave no response to either faradism or galvanism. The lower angle of the scapula projected and over the greater part of the circumflex area there was loss of cutaneous sensation. At the operation the posterior thoracic nerve was normal. The circumflex nerve had a thickening on it about an inch before it left the axilla, both the proximal and the distal end showed a bulbous enlargement; these were united by fibrous tissue, but there was no nerve continuity. The bulbs were excised and the two ends united with a catgut stitch. In six months the patient could raise the arm above the shoulder, and in 18 months he had completely recovered. Dr. Kennedy suggested that the reason why nervous union had not occurred, although the parts were in contact, was that the severe trauma had damaged the nerve endings greatly, and that the nerve fibres had not recovered from the trauma until it was too late for union to occur.

Mr. J. P. LOCKHART MUMMERY (London) read a paper on

The Surgical Treatment of Colitis.

From a surgical point of view colitis might be divided into chronic mucous colitis and ulcerative colitis. Chronic mucous colitis was never fatal, but ulcerative colitis was very dangerous, and under medical treatment it had a mortality of nearly 60 per cent. It was essential before attempting to treat mucous colitis by operation that the surgeon should verify the diagnosis by sigmoidoscopy, as only about 30 per cent. of the cases showed any sign of colitis. Only a small percentage of cases of true chronic mucous colitis required surgical treatment, and for these he believed that appendicostomy was the best operation. Ulcerative colitis called for immediate surgical treatment, and there was great danger in delay. Appendicostomy, which was the operation of choice, should be performed in all cases of ulcerative colitis as soon as the diagnosis was made. Through this opening it was possible to make applications directly to the ulcerated surface, and the evidence at present available led them to believe that a great reduction in the mortality from this disease would result from this method of treatment.

A general discussion then took place on several of the papers which had been read.

ANÆSTHETICS.

THURSDAY, JULY 28TH.

President, Dr. F. W. HEWITT, M.V.O. (London).

The Vice-President, Mr. ALEXANDER WILSON (Manchester), occupied the chair.

Mr. H. BELLAMY GARDNER (London), opening a discussion on

The Open System of Ether Administration,

said that in employing this method it was necessary to avoid cases for which it was not suitable. Such cases were those of persons with rigid chest wall, bronchitis, or emphysema. He quoted a case to show how in an unsuitable subject much trouble had followed this method of administration of ether, when on a later date the same patient had been perfectly successfully anæsthetised by chloroform for a long abdominal operation. An essential part of the method is that the administration should always be preceded by an injection of atropine (1-120th grain), and in the case of strong men and alcoholic subjects this should be combined with one-sixth grain of morphia. The atropine prevented excessive sweating or mucus secretion and helped to avoid shock. A small prop between the teeth, a roll of gauze on the face and round the mask (which should be a frame covered with 12 layers of gauze), a large ether drop-bottle, and a tongue-clip completed the list of necessary appliances. Mr. Gardner said that with this method excitement during induction was very rare, and he was accustomed to talk his patients off to sleep, increasing at the same time the ether on the mask till this was wet throughout. When anæsthesia had been obtained it was only necessary to keep the lower part of the mask wet. If too much ether were being given a dilated pupil and laboured breathing would give evidence of it. Ether had, in the speaker's opinion, a greater obtundent effect than chloroform, and consequently crowing breathing, straining, and other reflex effects were far less liable to arise with this method than with others. It was necessary to well cover the patient with blankets, but the atmosphere need not be warmed. If moist sounds made their appearance ether should at once be abandoned for chloroform. During recovery the patients should be propped up in a sitting posture, and encouraged to cough when awake. The method was suitable for children, and offered simplicity, safety, and freedom from shock and after-sickness. By the use of Crile's apparatus it was applicable to cases of operation within the mouth, and it could be employed in the dental chair for prolonged tooth extraction, while it greatly increased the safety of operations for goitre.

Mr. A. L. FLEMMING (Bristol) said that the method provided a remarkable freedom from any tendency to faintness or shock, and he thought that this was probably due to the mechanical effect of free respiratory movement. The effect of ether in stimulating the activity of the respiratory machine was well seen when ether and chloroform were given separately by the two-bottle method. Ether might be regarded as performing artificial respiration with its secondary beneficial effects upon the circulation. It was necessary, he said, with the open method to guard against the risk of reflex circulatory and respiratory depression from the presence of mucus in the larynx or trachea. Mr. Flemming thought that in the absence of cyanosis the blood pressure was not raised by ether.

Mr. GEORGE ROWELL (London) said that the method was remarkable for its simplicity and for the freedom from complications in its results. The blood pressure was slightly raised during the inhalation of open ether and its fluctuations were slight. In his experience he had only twice had to change to chloroform, owing to glottic spasm (during the removal of a large growth of the bladder, and during an operation for fractured jaw). He thought that pulmonary after-effects were absent if chill was guarded against.

Mr. ALEXANDER BROWNLEE (Cardiff) remarked that the dropping of ether must be continuous, not intermittent. The method, he thought, was ideal for long cases, and its only disadvantages were in the case of young children, in mouth operations, in alcoholic subjects, and in the large amounts of ether used.

Mr. E. J. J. QUIRK (London) thought that combined with infusion this method was so safe that even in the severest cases no patient would succumb to shock if so treated. He regarded the preliminary injection of morphia and atropine as essential. The induction was apt to be long, and a great deal of the ether vapour was diffused about the room. For these reasons he was inclined to reserve the method for cases where shock was likely.

Mr. H. J. PATERSON (London) said that, though previously thinking that chloroform was the only admissible anæsthetic for abdominal work, he had been when in America completely converted to open ether. Also, he thought that it was of great advantage in mouth cases, to which it was perfectly adapted by Crile's apparatus, and he had operated for cleft palate under these circumstances. With regard to subsequent pneumonia, he failed to see how ether inhalation could produce a one-sided lobar pneumonia.

Dr. G. A. H. BARTON (London) said that any system which abolished re-breathing was to be regarded as an open system. He desired an apparatus for ensuring continuous dropping of ether without the necessity for holding a drop-bottle. He had met with trouble in induction.

Dr. W. STUART V. STOCK (Bristol) said that he was an advocate of the "two-bottle method." Excessive secretion of mucus under open ether was not always prevented even by the use of atropine.

Professor A. D. WALLER (London) said that open ether represented a vapour with about 10 per cent. of ether.

Others who spoke were Dr. S. W. HAYNES (Birmingham), Mr. HERBERT TANNER (London), Mr. RICKARD W. LLOYD (London), Dr. S. THOMPSON ROWLING (Leeds) (who described means for warming ether vapour), Professor MILLS (McGill University), and Dr. DAVID LAMB (Glasgow).

Mr. GEORGE ROWELL (London), in opening a discussion on

The Prevention and Treatment of Surgical Shock during Inhalation Anæsthesia,

said that treatment of shock must depend upon the physiology of the subject. After defining shock, Mr. Rowell said that an enlarging pupil was a common quantitative and helpful guide. A falling blood pressure was the first sign of shock and a rising blood pressure the first sign of recovery. Too large doses of anæsthetic, he said, provided a common cause of shock. Chloroform was the worst and ether was the best anæsthetic they had from the point of view of shock. Good clinical proof of this was presented by cases investigated by Dr. Edwards, the charts of which Mr. Rowell showed. The action of mixtures depended on the proportions of ether and chloroform which they contained. The general effect of obstructed respiration in causing fall of blood pressure was well shown clinically both with ether and with chloroform. The general condition of the patient, pyrexia, &c., and the surgical procedures were involved in the causation of shock. In operations such as excision of the rectum, ether by the open method gave a powerful means of reducing shock, and unless contra-indicated this method should be chosen whenever shock was to be expected. Other means to be adopted were warming the atmosphere of the room, administration of nutrient enemata, strychnine before the operation, and saline transfusion before and during the operation. This last measure, first advocated by Arbuthnot Lane in 1891, was best carried out by the simple apparatus which he now employed and which Mr. Rowell showed. The most valuable drug for combating shock was extract of the infundibular portion of the pituitary body. This acted within five minutes when intravenously injected, though when given beneath the skin it might take as long as 30 minutes. Its effect lasted in one case as long as three days. Mr. Rowell believed that there was a connexion between low blood pressure and after-sickness, the latter not showing itself if the former were avoided.

Professor G. W. CRILE (Cleveland, Ohio) discussed the methods of operation likely to be attended with a minimum amount of shock, and the amount of shock arising from injury to the different organs and tissues of the body. He described also the psychical origin of shock, this being present, too, in anæsthesia when only portions of the brain were to be regarded as being asleep. There was great promise, he believed, in the combination of local with general anæsthesia. An anæsthetist should be warned in advance by the surgeon of manipulations likely to produce shock. In operations upon the larynx cocaine should be employed, and in mouth operations ether by the apparatus which he showed. In Graves's disease he had seen fear cause death, and Professor Crile outlined the process by which safety was to be obtained, involving several days' training of the patient to the presence and performances of the anæsthetist, and the extensive use of cocaine over the operation area. He handed round drawings to show the morphological changes in brain cells produced by the uncomplicated action of fear. Morphia and atropine before the operation, gentle handling, and the use of nitrous oxide minimised the production of shock by psychical and traumatic agencies. Rest was the only restorative they had for the changes produced by shock in the cortical cells; direct transfusion of blood could combat the anæmia of shock following blood loss.

Mr. J. P. LOCKHART MUMMERY (London) defined shock and accepted Professor Crile's views upon its causation. His own experiments had substantiated much that Professor Crile had just said. He found, experimentally, that the deeper the anæsthesia the less was the shock, but, at the same time, deep chloroform anæsthesia itself produced shock. He thought that a mixture of ether and chloroform was clinically often as good as ether alone. The Trendelenburg position was of great value in preventing shock, and it was to be employed whenever possible. He had great faith in the continuous infusion of saline. Bandaging the limbs was, he said, another important aid, as was keeping up the body temperature, for which purpose he used a gamgee suit. He believed in the administration of frequent small amounts of easily assimilated nourishment.

Mr. J. D. MALCOLM (London) believed that the phenomena observed by Professor Crile were capable of an entirely different interpretation from that which they were generally made to bear. The loss of fluid from the vessels to the tissues was not sufficiently taken into account, and there was, he maintained, no proof that shock was accompanied by lowered blood pressure. Observations of pithed animals were of no value unless it was shown that the conditions here were the same as in the case of patients with shock. Shock was accompanied, he said, by diminution of the CO_2 in the blood. Fall of blood pressure might be caused by intense muscular contraction if fluid escaped from the vessels or the tissues of the body. Mr. Malcolm declared that improvement in the administration of anæsthetics had done as much to diminish shock as improvement in surgery. He did not believe in the administration of vaso-constricting agents; fluid, however, must be given, and quickly, as by subcutaneous infusion of saline.

Professor LEONARD HILL (London) said that shock was primarily due to paralysis of the synapses of the nervous system. He proceeded to explain the arguments defending this contention, and to show that the vascular condition in shock was not the primary element, but that this was nervous in its seat. Strychnine, he explained, broke down the resistances confining afferent stimuli to certain areas and let them free, general convulsions resulting instead of merely a reflex movement. If the spinal cord were divided in the lower cervical region shock in the lower part of the body appeared, but not in the upper; redividing a little lower, no shock followed. Shock from spinal cord lesions was independent of blood pressure. If there was transection just below the pons severe spinal shock followed, but no reduction in the blood pressure. Impulses were constantly streaming into the spinal cord, keeping it active; if these were cut off there was shock, of which blood pressure was independent. The circulation was very largely maintained by muscular movement, and Professor Hill described an experiment upon a hutch rabbit and a wild rabbit, showing the important part played by muscular tone in avoiding shock. Henderson had tried to prove that the washing out of body gases was the only cause of shock. Experiments in Professor Hill's laboratory entirely refuted this contention.

Mr. ROWELL, in reply, said that if all that had been put forward for open ether were true it was most important to place the facts before the profession. He moved that—

In view of the interest excited by open ether and the strong claims made on its behalf this section recommends the Council of the Association to appoint a committee to report exclusively on this subject

This motion was carried unanimously.

BACTERIOLOGY.

FRIDAY, JULY 29TH.

President, Dr. CHARLES J. MARTIN (London).

In the absence of Dr. D. A. WELSH and Dr. H. G. CHAPMAN (Sydney), Dr. J. C. G. LEDINGHAM (London) read their paper on

The Interpretation of the Precipitin Reaction.

They said that the different phenomena of immunisation were but different aspects of the response of the animal body to the introduction of alien substances within its tissues, and the precipitin reaction was one form of this response. When the blood serum of an animal that had received repeated injections of some alien protein was mixed outside the body with a solution of this alien protein, then precipitation might occur. This, apparently one of the simplest of the immunity reactions, was yet one of the hardest to interpret. The authors did not propose to discuss

what corresponding property had been acquired by the blood *in vivo*, nor what was its relation to the general defensive mechanism. They were concerned with the interaction of antiserum and antigen, indicated by a precipitate *in vitro*. From the beginning they had looked upon the reaction as taking place between known weights of the interacting substances. In their later work the weighing of the precipitate marked a further advance in accuracy. The remarkable nature of the precipitate was thus revealed, for the precipitate was formed mainly of those constituents of the antiserum that gave the antiserum its specific precipitable character. It was probable that the specific antisubstance (precipitin) brought down with it from the antiserum non-specific molecules (e g., complement), which also went to form the precipitate. It was probable also that the antigen entered to a relatively slight extent into the composition of the precipitate. All their work tended to show that the main mass of the precipitate was composed of antisubstance (precipitin) which could be weighed. A ponderable antisubstance had hitherto been unknown, but in the precipitate of a precipitin reaction they had a remarkably near approximation to such a substance. The following conclusions were arrived at: 1. The main mass of the precipitate was formed by constituents of the antiserum. 2. There was a close relationship between the weight of precipitate and the amount of antiserum. 3. In total interactions the weight of precipitate was independent of the weight of antigen. 4. In partial interactions the weight of precipitate was conditioned by the quantity of antigen. 5. It was therefore erroneous to speak of the precipitin of the antiserum coagulating the antigen, or to regard the antigen as the precipitable substance. 6. Inhibition phenomena were inconsistent with the hypothesis that precipitoid was developed, but were consistent with the finding that heated antisera acted directly on precipitate by specific solvent action. 7. Their interpretation of the precipitin reaction appeared to have important practical bearings (*a*) on the identification of the specific origin of proteins and on the separation of closely related species; (*b*) the determination of the value of morphological characters of the orders, genera, and species of plants as suggested by one of them; and (*c*) on the improvement of methods for testing the interaction of antigen and antiserum by the deviation of complement.

Dr. F. A. BAINBRIDGE (Lister Institute) read a paper on

An Outbreak of Gastro-enteritis due to Bacillus Paratyphosus B.

He said that during the period of June 10th to June 14th, 1910, 14 people living in four households suffered from symptoms of acute gastro-enteritis—viz, vomiting, diarrhœa, abdominal pain, and collapse. The onset was sudden, the diarrhœa was profuse, and the stools were of a characteristic green colour; fever was present in all the patients and lasted from three to seven days, the temperature ranging from 101° to 103° F. No spots, enlargement of the spleen, or other symptoms suggestive of typhoid fever were observed. Two of the patients were very ill for a time and in all cases convalescence was slow, being retarded by severe attacks of circulatory failure in at least three patients. Three specimens of fæces were obtained; one was practically sterile, but the others yielded a bacillus that in its cultural characters and its agglutination and absorption reactions was identical with the bacillus paratyphosus B. Blood was obtained from six of the patients and was found to agglutinate both the bacillus isolated from the fæces and also standard strains of bacillus paratyphosus B in dilutions of 1-200 to 1-400. It was highly probable, therefore, that the outbreak was caused by the paratyphoid bacillus. It was at first supposed that infected food was responsible for the outbreak, but no one article of food had been partaken of by all the patients, and the dates of onset and distribution of the illness were at variance with this view. The fact that the cases occurred in several households, and that the only link between the different households was that visits had passed between them at the time of the outbreak suggested the possibility of a paratyphoid carrier infection. One person was found who had not been among the sufferers, whose blood agglutinated the paratyphoid bacillus in high dilutions, and whose fæces contained bacilli which on partial examination closely resembled the bacillus paratyphosus B. The outbreak was of interest, since attacks of acute gastro-enteritis caused by bacillus paratyphosus B had not previously been recorded in this country.

Other papers read were: Variation among Bacteria, by Dr. W. J. WILSON (Belfast); (1) Remarks on Variation and Mutation, and (2) Studies on the Anaerobic Growth of Intestinal Micro-organisms, by Dr. W. J. PENFOLD (London); The Identification of the B. Typhosus in Mixed Culture by Complement Fixation, by Dr. H. R. DEAN (London); Serum Treatment of Dysentery, with Notes on the Bacteriological Diagnosis of Dysentery, by Dr. M. A. RUFFER and Mr. J. G. WILLMORE (Egypt).

DERMATOLOGY.

THURSDAY, JULY 28TH.

President, Dr. PHINEAS S. ABRAHAM (London).

A number of interesting clinical cases engaged the attention of the section. Amongst these may be mentioned two cases of extensive, irritable, red indnration of the upper part of the body, recognised to be the early stage of mycosis fungoides; lupus erythematosus cured after taking soured milk; rodent ulcer and lupus cured by carbon dioxide snow; macular anæsthetic leprosy; and Darier's disease.

After a few words by the PRESIDENT,

Dr. DUNCAN BULKLEY (New York) read a paper on

The Value of a Very Restricted Diet (Rice) in Certain Acute Inflammatory Diseases of the Skin.

He began by pointing out that although many cutaneons lesions were due to the action of micro-organisms, yet their presence was not always attended by disease of the skin. Even in the same individual the micro-organism might at one time give rise to a cutaneous disease, and at another time no such result followed. It was therefore apparent that the micro-organism required the presence of some other factor, as yet unknown, to ensure its deleterious activity. Although pus cocci were almost invariably present in the skin, they but rarely led to boil and carbuncle formation, nor did inoculation of a healthy skin always produce these lesions. The study of the metabolic processes of the body shed light on the pathology. Careful and repeated volumetric analyses of the urine, that true indicator of the state of the arterial blood, were necessary for successful practice. Metabolism was influenced by the action of the organs and emunctories, and these in turn were influenced by the food and drink taken. Very little had yet been done towards the study of the effect of diet in diseases of the skin. Everyone knew that certain diet affected certain diseases, such as urticaria, acne, eczema, and psoriasis; for example, alcohol[1] was harmful in many skin diseases, and vegetarianism was most helpful in psoriasis.[2] In acute and inflammatory conditions the effect of restricted diet was most striking. After indulgence in sweets and chocolate, urticaria, erythema, and acne in particular were liable to fresh outbursts, and over-eating and drinking frequently led to acute eczema. In 1906 he first began to employ a strict dietetic regimen in a man suffering from bullous erythema multiforme after a heavy meal with champagne. The man was in agony with the intense burning and itching. His diet was restricted to boiled rice, bread, butter, and water for a few days, and he was given a laxative and a soothing lotion. In five days he was much improved, and he remarked that he had recovered much more rapidly than he had done during two previous attacks. Dr. Bulkley had since employed this method of treatment with the happiest results in very acute cases of lichen planus, dermatitis herpetiformis, and urticaria; also in rapidly spreading congestive types of psoriasis and in acute generalised eczema. He related in detail the case of a physician who had recovered rapidly under this dietetic regimen from a troublesome acute eczema. Patients usually objected and desired to include other articles of diet, but in his experience such departure from the strict diet had delayed the cure. As regarded the *rationale* of this diet, he considered that they knew less about the metabolism of fats and carbohydrates than of proteids. The waste products of the former were carried off by the lungs, the excretory products of which they had not learned to analyse easily; the waste products of the proteids were carried off and readily recognised in the urine. In many skin diseases the urinary secretion

[1] Bulkley: The Influence of Alcohol in Certain Diseases of the Skin, Medical Record, Feb 19th, 1910.

[2] Bulkley: The Value of an Absolutely Vegetarian Diet in Psoriasis, Journal of the American Medical Association, Feb. 23rd, 1903.

was imperfect or defective, and proteid metabolism appeared to be at fault.[3] It was reasonable, therefore, to endeavour to relieve the liver and kidneys by diminishing the proteid intake. Rice and white bread had been selected as the foods most free from nitrogen. Milk was avoided, as having a large proteid element, but water was permitted freely. Coffee, tea, and chocolate were prohibited, inasmuch as they possessed xanthin products. By free use of rice, bread, and butter sufficient Calories were introduced. Even with a strict vegetarian diet volumetric analysis of the urine revealed nitrogenous elements; with the rice diet effete endogenous nitrogenous material was enabled to be removed from the system, while the amount of urea remained nearly normal. The strict regimen was observed for five days; then a moderate mixed meal was permitted at noon, and the rice, bread, and butter continued at the morning and evening meals. After a few more days breakfast was modified, and a few days later the evening meal also. The evening meal should be restricted for a considerable period of time. The method of preparation of the rice was important; it should be well cooked with water (never with milk), then left uncovered over the fire until it was flaky and dry. It should be eaten slowly, with a fork, with butter and salt. Thorough mastication was essential. Water should be taken separately, as much as desired; it could be hot if preferred but not iced. Later milk could be given, warmed, without any solid food, about one hour before meals, especially the evening meal.[4] Careful attention to all those small details was of vital importance for success in dermatology.

Dr. P. G. UNNA (Hamburg) said that he had not had much experience in treatment by diet, because the cases which came under his observation were usually those which had already undergone treatment by other physicians with dietetic restrictions. In France dermatological patients always received a long list of articles of diet to be avoided, and he had become very sceptical as to the necessity of avoiding most of these forbidden articles of diet. He had learned more from Dr. Bulkley than from any continental dermatologist; Dr. Bulkley had mentioned a practical diet to be taken, not a list of articles to be avoided.

Dr. HARTZELL (Philadelphia) said that in definite diseases, such as diabetes, science was decided that certain articles of diet must be avoided. They were not yet ready to say with any degree of scientific accuracy what should be taken in cases of eczema. He could not agree as to the great superiority of a vegetarian diet in psoriasis.

Dr. ALFRED EDDOWES (London) had found that sweet and fatty foods and also highly salted articles of food were extremely injurious in cases of urticaria. A large amount of water was advisable in most cases of irritating skin diseases. Alcohol was to be given when the digestion was weak and the appetite small, and was contra-indicated in cases with large appetite. Idiosyncrasy explained unusual attacks; in certain individuals he had known rhubarb, grapes, eggs, turbot, and onions exacerbate or initiate outbreaks of eczema and urticaria. He had found sour milk good in lupus erythematosus.

Dr. R. B. WILD (Manchester) remarked that the present chaos of medical opinion in regard to diet was due to the fact that no definite rules could be laid down with the present inadequate state of physiological knowledge. Roughly speaking, there were three groups into which he could relegate skin diseases with definite relation to diet. 1. Subjects who developed urticaria or other skin lesion on taking articles of diet which the normal individual could take with impunity. They were, as a rule, of a "vaso-motor type"—i.e., their vascular control was readily upset, they flushed readily, and often exhibited in addition an idiosyncrasy to certain drugs. 2. Subjects of malnutrition, usually found in the hospital class of patient. These recovered from their eczema or other skin disease when put upon a fuller and more nourishing diet. 3. Subjects who suffered from excessive feeding, chiefly of nitrogenous food-stuffs. A reduced diet such as that described by Dr. Bulkley would immensely benefit such patients. He had found that fat, whether rancid or overheated, as by frying, was decidedly injurious. Sugar, a comparatively recent addition to the diet of mankind, was taken in excess nowadays. Examination for life insurance had revealed the fact that many people exhibited sugar in the urine, and many were just on the border-line of safety in that respect. Before making hard-and-fast rules it must be borne in mind that what suited one race or one climate might not suit another people with different habits of life.

Dr. DAVID WALSH (London) said that the skin was an organ through which were excreted certain drugs, alcohol, and the toxic products of many micro-organisms, some of which latter were definitely associated with food. These could give rise to symptomatic excretory rashes. He had advanced this theory in 1890 in a pamphlet entitled "Excretory Irritation." The internal irritant which was excreted by the skin might be (1) a drug, such as iodine or copaiba; or (2) a poison, such as gout, which was elaborated within the body; or (3) of bacterial origin, such as the exanthemata. These irritants might affect the skin alone or the other excretory channels in addition. If the skin was found to be irritated it might be reasonably suspected that there was irritation going on also within the body in the other excretory outlets, such as the intestines and the kidney, and treatment should be directed to those situations as well as to the surface of the body where the lesion was visible to the naked eye.

Dr. W. KNOWSLEY SIBLEY (London) considered that internal treatment and diet had been too much neglected in dermatology, and referred to the widely recognised ill-effects of alcohol on congestive conditions of the skin. The individual idiosyncrasy had to be carefully considered when gout was present.

Dr. G. PERNET (London) did not agree that internal treatment had been neglected by dermatologists. He made some pointedly humorous observations which the section thoroughly appreciated.

The PRESIDENT referred to the adverse action of fresh fruit on congestive skin conditions. In Jamaica sugar was eaten in enormous quantities, a quarter of a pound daily, without any untoward result, but such a quantity could not be taken with impunity in this country.

Dr. BULKLEY, in reply, said he had found that a strict vegetarian diet was of extreme value in the majority of cases of psoriasis. His opinion was based upon his experience of carefully recorded private cases and not upon the uncertain experience of hospital patients. There had been no accurate scientific record yet made as to the treatment of psoriasis by meat diet, but only hasty generalisations from a few individual cases.

Dr. E. R. MORTON (London) read a paper on

The Use of Solid Carbon Dioxide in Dermatology.

He said that the use of this substance had been introduced by Dr. W. A. Pusey of Chicago some three years ago, and had been brought to his (Dr. Morton's) notice last year by Dr. Geyser of New York. The principle involved in the use of solid carbon dioxide was that of refrigeration, but it differed from ordinary freezing in several respects. In ordinary freezing the temperature of the frozen part rarely fell much below 0° C. and the after-effects were trifling. The effects obtained after the use of solid carbon dioxide were due, he considered, to the low temperature of the frozen parts, as the substance itself had no special action. During the freezing process the cells became solid and rigid; it was safe to assume that the cells suffered mechanical injury. In radiotherapeutic literature he had found references to the "selective action" of the rays upon abnormal or unhealthy cells. It was his opinion that this so-called "selective" action merely meant that the abnormal cells had less vitality and were therefore more readily acted upon by the therapeutic rays; there was no proof that the rays had any "selective" power to destroy diseased cells with their diminished resistance. Applying this hypothesis to solid carbon dioxide, he believed that when the application was too lengthy all the cells were destroyed; if not too lengthy the abnormal cells alone were destroyed. The questions of the duration and degree of pressure of the application therefore were all-important. Experience of a few cases taught more than volumes of print. The average time was from 30 to 40 seconds. For superficial reactions 10 seconds was long enough; for a hard wart, 2, 3, or even 4 minutes were required. As regarded the degree of pressure, this should be sufficient to arrest the circulation when a vascular growth was treated.

[3] Bulkley: Imperfect or Deficient Urinary Excretion as Observed in Connexion with Certain Diseases of the Skin, Journal of Cutaneous and Genito-Urinary Diseases, March, 1900, p. 99.

[4] Bulkley: On the Proper Employment of Milk, especially in Certain Diseases of the Skin, Dietetic and Hygienic Gazette, May, 1908.

When a bone was superficially situated the soft tissues were easily frozen to it; thus nævi of the scalp were very satisfactorily cured. Light pressure gave no result as the CO_2 evaporated into gas; for this reason a stick of the snow could be handled with safety. Dr. Morton then described the effects of treatment of a nævus by firm pressure for 30 seconds. A depression remained for about 1 to 1½ minntes; then the reaction started, with swelling, and a wheal appeared within an hour. Vesication followed, and crusting in five days. The vesicle should be pricked with a sterilised needle and dressed with antiseptic ointment; the crust should not be removed. There should not be necrosis or sloughing unless a prolonged or repeated application had been made. An application given on two successive days did well for fleshy moles. Carbon dioxide did not act upon the tissues as caustics did. The scars after CO_2 applications were very good, because there was no gross tissue destrnction. Capillary nævi could be cured in 90 per cent. of the cases by one application of CO_2 and no anæsthetic was required for this form of treatment. As the skin over a nævus was not normal, the resulting scar was not satisfactory. In cavernous nævi, Dr. Morton had 65 per cent. of the cases cured by one application. With port-wine marks he had not been so successful, but hoped that with shorter and repeated applications he might in the future succeed. Applications of 40 seconds' duration had yielded good results in lupus vulgaris; the pencil was applied after removing crnsts. In lupus erythematosus short applications were called for; the effects equalled those of other remedies. For moles and warts nothing could be more satisfactory, and these fleshy growths required prolonged applications, even as much as four minutes. The method was not useful for hypertrichosis. He had treated four cases of rodent ulcer with complete success. One was treated on April 29th, 1910, by 40 seconds' firm pressure, after scraping away the granulation tissue; it had healed in a fortnight and remained healed. In conclusion, Dr. Morton said he had treated over 2000 cases with CO_2, and considered that this agent would have a great future for use in cases which had been regarded as suitable only for radium. Radium was so expensive that he predicted CO_2 would be employed in its stead in many cases, thus saving both time and money.

Mr. J. HALL-EDWARDS (Birmingham) exhibited an apparatus which he had devised for the application of carbon dioxide. He had found that carbon dioxide acted well in those cases which were usually treated by radium, and its effects were more rapid and more readily supervised.

Mr. WILLMOTT H. EVANS and Dr. G. NORMAN MEACHEN (London) exhibited the apparatus which they had found useful for the administration of the CO_2 snow.

Dr. HARTZELL referred to the small cylinders used for inflating motor tyres as being useful for treating a single case when one did not desire to employ the large cylinders in which the gas was usnally stored.

Dr. WILD, Dr. PERNET, and Dr. WALSH also testified to the value of CO_2 in dermatology.

Dr. UNNA referred to the disadvantage of the pain ensuing dnring the stage of reaction. He had been greatly disappointed with its failure to cure port-wine marks.

The PRESIDENT said that he had not been satisfied with the result of the CO_2 snow in lupus vulgaris. He had at present under his care a case of keloid acne which was improving favourably. In some cases the pain after the application was very great. The method of treatment of skin diseases by extreme cold was not new; it had been employed about twenty years ago in France, when methyl chloride had been used to freeze the tissues.

Mr. G. W. DAWSON (London) read a paper on

Cutaneous Diphtheria.

He pointed out that diphtheritic contamination of open wounds had been common during epidemics in the early part of the nineteenth century, but was nowadays very rare. Chenel had mentioned it in 1759, and in 1828 Trousseau had described it as attacking parts of the skin where the epidermis was abraded—e.g., blisters and leech bites. Such wounds, if attacked by diphtheria, became painful, with snbsequent development of a grey membrane. Mr. Dawson had seen four of the ten recently reported cases of cutaneous diphtheria In nine of these no membrane had been present nor any other diphtheric sign. This class of case was of great importance, as it was usually not suspected that the dangerons germ of snch a disease as diphtheria was present in cases who presented no sign of sore-throat or other usual diphtheritic manifestation. Only two of the ten cases reported had been adults, and four had died. Seven had resembled an impetiginous eczema; three had had vesicles and bullæ with profuse fœtid discharge. Four had had severe conjunctivitis with purulent discharge. The commonest type resembled impetiginous eczema, affecting chiefly the head and face, with conjunctivitis, and sometimes also otorrhœa and rhinitis. The diphtheria bacillus had been present in all, and confirmed, not merely by the microscope, but by cultural tests and virulence on animals. Ordinary external treatment had been tried for years without effect in most of the cases; they had only yielded after diphtheria antitoxin had been administered. Mr. Dawson was inclined to agree with Trousseau's observation that the bacillus attacked only a skin that was broken; but there was room for investigation as to whether the eczema or other cutaneous disease preceded or followed the invasion of the diphtheria bacillus. Mr. Dawson then gave brief particulars of the ten cases, one of which was shown at the section.

GYNÆCOLOGY AND OBSTETRICS.

THURSDAY, JULY 28TH.

President, Dr. MARY A. SCHARLIEB (London).

Dr. W. W. H. TATE (London) introduced a discussion on

The Treatment of Fibro-myomata Complicating Pregnancy.

He said that the association of the two conditions, pregnancy and fibroids—one physiological and the other pathological—might be a cause of serious risk to the patient, and the successful management called for special care and good judgment. There was a tendency among some gynæcologists and operating surgeons to over-estimate the probable dangers to which a pregnant woman was exposed who was also afflicted with fibroid tumours. Others, perhaps, might be inclined to minimise the risks. Extreme views were usually the result of prejudice, and were not conducive to the best interests of patients. In order to come to a fair and trustworthy conclusion in this subject it was essential to consider the following points: (1) The unfavourable changes which might occur in fibroids during pregnancy; (2) the frequency of miscarriage, and any special dangers arising from this accident; and (3) the increased risk of labour, whether dne to post-partum hæmorrhage, septic infection, suppuration, or sloughing of fibroid. It was obvious that the natural enlargement of the pregnant uterus when associated with a large fibroid would be a cause of discomfort and might occasion serious distress. It was fair to say that where the fibroid was of only moderate size before pregnancy, and formed an abdominal swelling, there was strong reason to hope that it would not give rise to any serious distress from its size alone. When, however, a woman had a very large fibroid the chance of her becoming pregnant was small, but should such an event occur it was quite possible that serious symptoms might arise in the latter half of pregnancy from upward pressure on the diaphragm, owing to the rapid increase in size of the uterus. Necrobiotic change might occur during pregnancy and might cause serious discomfort or persistent pain, which might make interference with the pregnancy necessary. Torsion of the pedicle of a fibroid tumour during pregnancy was so infinitely rare that it need not be regarded as a practical danger. Cases of this accident had been recorded by Ribemont-Dessaignes and Grosse, by Malherbe and Grosse, and by Ivanoff. The next series of risks to be considered were those associated with miscarriage. The actual frequency of miscarriage where fibroids were present had been a matter of some difference of opinion. According to Kelly, 25 per cent. of the patients aborted. As the average for all women was stated to vary between 20 and 25 per cent., any increased frequency due to the presence of fibroids could only be very trifling. This opinion was also held by Herman. Presuming, next, that a patient with fibroids did miscarry, did the presence of the fibroid materially increase the risk of this accident? Should it be found impossible to evacuate the uterus of retained products, and sapræmic symptoms persist, the timely removal of the uterus by the abdominal route would almost certainly cure the patient, if the operation was not postponed too long. The third series of risks were those associated with labour and the puerperium. Where the fibroid was situated in the pelvis below the presenting

part it was found to cause obstruction to delivery, with the probable sequence of rupture of the uterus. The dangerous complications which might ensue from obstructed labour could be entirely avoided by an examination during pregnancy. The risk of severe post-partum hæmorrhage where fibroids complicated labour had been a cause of grave anxiety to medical practitioners for a long time, and the balance of opinion seemed to show that there was some increase in the frequency of this complication. During the puerperium a fibroid tumour might become extruded and present in the vagina. If this happened it would certainly slough and sapræmic symptoms would follow. True suppuration of a fibroid tumour was an extremely rare complication. It was invariably due to some failure in the antiseptic technique, and was therefore an avoidable complication. In his opinion only a very small number of cases called for any interference whatever during pregnancy. The grave warning words which had been expressed by some writers on this subject were contrary to experience, and would not, he believed, be accepted by practical obstetricians. The weighty words of Hofmeier might with advantage be repeated at the present day. Hofmeier said: "I believe most positively from my experience that the complications which myomata present during pregnancy, birth, and the puerperal state cause actual carnest dangers in only a few cases, and may be quite essentially diminished by patience, a cautious treatment of the birth, especially by its strict antiseptic conduct, and by careful attention to the puerperal period." In considering the treatment of these cases it would be convenient to divide them into three groups: 1. Cases in which the fibroid tumour was situated in the pelvis and must *necessarily* obstruct delivery unless the condition was relieved; these cases would include fibromata of the cervix. 2. Cases in which the fibroids arose from or encroached upon the lower uterine segment and might *possibly* cause obstruction to delivery. 3. Cases in which the fibroid or fibroids were entirely abdominal tumours and would *certainly not* interfere with delivery per vias naturales. In the first group two methods of treatment were available. If there was some mobility of the tumour it was usually possible under anæsthesia to push the tumour up above the pelvic brim. When this had been done the further course of the pregnancy was usually uneventful. If the tumour was firmly impacted in the pelvis and great force would be required—even under an anæsthetic—to push the tumour up out of the pelvis; it was safer to perform abdominal section with a view to enucleation of the tumour from the uterine wall. In the case of small fibroids of the cervix when discovered during pregnancy, it might be possible to enucleate these tumours per vaginam without interfering with the course of pregnancy. Olshausen was of opinion that the removal of polypi, and especially the enucleation of submucous fibroids from the cervix, should be postponed till the end of pregnancy, as labour might be expected to follow closely upon such operative interference. Where the tumour did not cause any definite pressure symptoms it was certainly best to postpone interference till the time of labour, when Cæsarean section, followed by enucleation of the tumour, or complete hysterectomy, might be performed. The enucleation of large cervical fibroids per vaginam during pregnancy or labour was not to be recommended owing to the risk of severe hæmorrhage which might be difficult to control. Where the interference became necessary total hysterectomy should be done. When one or more of them were found encroaching on the lower uterine segment some anxiety would be felt as to whether the tumours would cause any obstruction to delivery. They could not predict with certainty the behaviour of these tumours during labour, and there was no justification for advising surgical interference during pregnancy in the absence of urgent symptoms. Expectant attitude was followed by the most encouraging results to both mother and child. It not uncommonly happened that during labour the tumour gradually receded from the dangerous zone. The third group consisted of those cases in which the fibroids were entirely abdominal tumours. These included cases of subperitoneal pedunculated fibroids and also interstitial fibroids. In the vast majority of these cases the absence of severe symptoms made operative interference unwarrantable. Patients when the tumour was subperitoneal might complain of constant pain or severe discomfort. The greater number of these lent themselves regularly to the operation of myomectomy. The cases in which interstitial fibroids justified interference during pregnancy were few and far between. When operative treatment was undertaken in these, the whole uterus might have to be removed and the pregnancy sacrificed. In all these cases, if it should seem possible to enucleate the tumour when the abdomen was opened, the operation of myomectomy was still to be preferred. There were, however, a certain number of cases where the tumour was of large size or where the fibroids were multiple and had shown marked increase during pregnancy, in which operative interference was not only right but imperative, and in which abdominal hysterectomy was the only suitable operation to undertake. The induction of abortion had been almost universally discountenanced as a method of treatment in these cases. The induction of premature labour in the case of fibroids causing or likely to cause, some obstruction was equally to be condemned, as a difficult delivery with a premature child was almost certain to end in the child being stillborn, which constituted an obstetrical failure. Should myomectomy be done for an obstructing fibroid, or for one causing severe pain and probably necrotic, when other fibroids of moderate size were present in the wall of the uterus, but not in themselves causing any symptoms or likely to interfere with delivery? In his opinion the answer to this question should be in the affirmative. One ought never to forget that the occurrence of a further pregnancy in any woman suffering from fibroids must be a doubtful matter, and the only chances of motherhood might depend on the patience and good judgment exercised by her medical attendant in the management of the existing pregnancy.

Dr. AMAND ROUTH (London) pointed out that it was more fully realised now than it had ever been before that fibroids complicating pregnancy only required treatment in the most exceptional cases. The softening which took place in fibroids was really for the good of the child, as it allowed the head to pass. Abortion or premature labour should never be practised in these cases.

Dr. HERBERT R. SPENCER (London) said that marriage took place nowadays at a much later age than formerly, and therefore the association of fibroids and pregnancy was common. He had never performed hysterectomy in a pregnant woman for fibroids before term. In one case he had done a myomectomy and in three cases Cæsarean section. He had had 23 years' experience, and except in these four cases had never known fibroids complicating pregnancy cause any trouble at all. It was true that patients sometimes complained of pain when they had fibroids, but an anodyne and milk diet cured this. Fibroids after abortion or labour sometimes caused inversion of the uterus. He had seen two such cases, both with septic symptoms.

Dr. CUTHBERT LOCKYER (London) referred to six cases of pregnancy complicated by fibroids. In two the pregnancy went to term and labour was spontaneous and normal. In one case pregnancy was progressing normally and the fibroid had risen out of the pelvis, the patient being then seven months pregnant. In three cases operative interference was carried out as follows: (*a*) myomectomy, pregnancy being uninfluenced thereby; (*b*) panhysterectomy, after death of fœtus; and (*c*) subtotal hysterectomy, after abortion.

Dr. ALBAN DORAN (London) thought the treatment depended on the principles of common sense and on the position of the tumour, whether it was in the lower part of the uterus, in the upper part, or about the middle. If hysterectomy had to be performed, he thought that the cervix should be retained.

Mr. C. MARTIN (Birmingham) thought that the induction of abortion was justified if uncontrollable vomiting was due to a fibroid, an instance of which he had in his own practice. He had also operated upon one case of red degeneration.

Dr. A. J. WALLACE (Liverpool) showed a specimen of fibroid illustrating some points brought out in the discussion. He had removed it from a woman who was 45 years of age who had been married two years, and who was four months pregnant when she became very ill with symptoms of peritonitis. On opening the abdomen a sessile tumour was found which was enucleated, and this was followed by rather severe hæmorrhage. The enucleation had to proceed so deep that the placental tissue was involved. The patient made an uninterrupted recovery.

Dr. J. N. STARK (Glasgow) recorded a case where he had to enucleate an interstitial fibroid because it was so large that it impeded the action of the diaphragm. Abortion

llowed two days after a myomectomy, and peritonitis complicated the recovery.

Mr. C. HUBERT ROBERTS (London) thought that interference was only probably necessary in 0·6 per cent. of cases, nd, according to the latest statistics he could obtain, fibroids obstructed labour only once in 36,000 cases. He pointed it that great care should be taken in diagnosis, and related case of Dr. Griffith in which a fibroid of the ovary was misdiagnosed for the head of a second child, the head of the resenting child being perforated to allow of delivery. The atient died from sepsis and a fibroma of the ovary was then ound. He thought red degeneration was a bogey, and ertainly did not occur so often as was thought.

Dr. ARNOLD LEA (Manchester) thought the tendency of he discussion was to minimise the danger of this complicaion, and presented tables of five cases complicating pregancy, three complicating puerperium. In two cases of red egeneration cultures were sterile; in one case after elivery diplococci were found. He thought myomectomy as a risky procedure.

Dr. A. E GILES (London) always thought that he was of a anguine disposition, hut when he considered the optimism f the speakers who had preceded him he could only hold imself out as a rank pessimist. He thought the complicaion of fibroids and pregnancy was always a dangerous ne, and although the patient might get well with xpert skill, speaking generally, she had run a great danger. He had had 12 cases, in 8 of which there were serious omplications.

Dr. J. LLOYD ROBERTS (Manchester) thought that the danger ad been understated and that 50 per cent. of the women miscarried. He had noticed that a large number of the umours became absorbed after the labour.

Dr. MURDOCH CAMERON (Glasgow) did not believe that broids disappeared after labour, and in an experience of 40 ears he had never known this occur. He was of opinion hat in all cases of Cæsarean section the patient should be terilised.

Mr. J. FURNEAUX JORDAN (Birmingham) believed in myonectomy. Women in country districts could always get xpert advice, as competent gynæcologists were now scatered all over the British Isles. He did not minimise the anger, but surgeons were now better able to treat these ases.

Professor S. GOTTSCHALK (Berlin) read a paper on

Two Cases of Occlusion of the Bowels by a Retroverted Uterus.

Owing to the rarity of the condition none of the members had ny experience of it and there was no discussion.

Professor VON HERFF (Basle) contributed a paper on

The Causal Treatment of Dystocia in Cases of Pelvic Contraction,

which was read by the Honorary Secretary. The author said hat the degree of dystocia in cases of pelvic contraction was essentially determined by three principal factors: (1) The xtent and character of the contraction; (2) the size and compressibility of the fœtal head; and (3) the force of the labour ains, which they could not influence. Pelvic dystocia could herefore only he causally treated by dilating the pelvis or by reducing the size of the fœtal head, and, if possible, simultaneously enhancing its configurative capacity. Dilatation of the pelvis, attained either by placing the patient in a special position or by division of the pelvis, obviated pelvic dystocia without, as a rule, endangering the life of the child. By employing a special posture, for instance, the Walcher-Klein hanging posture, for dystocia caused by a narrow superior strait, or the forced lithotomy position for dystocia due to a narrow inferior strait, dilatation could be produced, but unfortunately only in a slight degree. Still, even within such narrow limits, these methods produced excellent results. The mortality of mothers, at all times considerable, was increased by symphyseotomy to 8 per cent., by subcutaneous hebosteotomy to 4 per cent., and probably by subcutaneous symphyseotomy also to 4 per cent. But there was no doubt that the mother suffered disproportionately if the pelvis was divided; at the same time 8 to 9 per cent. of the children were lost. Under these circumstances pelvic section, as a causal treatment, could only be valued as a last resource when the mother absolutely desired a living child, and when the asepticism of the case was too doubtful to admit of any other form of delivery. *Pelvic section should only be employed as a last resource for multipara.* A further treatment of pelvic dystocia made the child the object of attack by the induction of premature labour or by reducing the size of the child by an obstetric operation. Theoretically, and in all well-managed clinics, the sacrifice of a living child should be a thing of the past. As a fact, the author had never in his life sacrificed a living child, except in the case of hydrocephalus. In 80 to 90 per cent. of induction cases delivery occurred spontaneously. It was only necessary to operate in exceptional cases; for instance, in the case of a faulty position, or unfavourable presentation, or if some mistake had been made in calculating the obstruction. He had to perform such secondary operations in 13·5 per cent. of 120 cases of induced labour. He was not able to dismiss more than 80 per cent. alive in the second week after delivery, yet the chances of life of these children were in no way less favourable than those of children delivered by Cæsarean section or symphyseotomy. Even if 20 per cent. of the children born in premature labour died, which was about 11 to 12 per cent. more than in the case of pelvic section, it must not be forgotten that the mother was hardly inconvenienced. Not only were the trials of a painful delivery considerably diminished, if not completely removed, but the lying-in period passed without any complication, the same as after delivery at full term. Neither was there any danger of a permanent injury to the patient, in strong contrast to the results of pelvic section. Undoubtedly the causal treatment of pelvic dystocia with the induction of premature labour was somewhat more than twice as dangerous for the child as division of the pelvis, but the mother was spared in every way. If the dystocia was too severe Cæsarean section must be performed; the child was less endangered; its chances of life were excellent. The total mortality was 7·5 per cent. and in 150 cases reported by Schauta 0 per cent. The mother, however, was exposed to considerable danger. The total death-rate was 7 per cent., and even when the cases were chosen, as in Schauta's cases, 2·6 per cent. Moreover, the lying-in period was more troublesome and often accompanied by unlooked-for complications. Another thing to be feared was rupture of the uterus at a future birth, not to speak of cicatrix hernias. It was true the latter could be avoided by employing supra-symphyseal section. This summary showed that the accoucheur who placed the mother first must employ artificial premature labour as the causal treatment of pelvic dystocia. Those who placed more weight on the child must employ, in the first place, Cæsarean section, and, in the second place, pelvic section. The general aim in treating pelvic dystocia should therefore be, in the first place, the promotion of spontaneous delivery. Causal treatment must be reserved for graver cases. Nowadays, the Parisian schools preached the strictest and most radical conservatism, as if it were an eminent achievement of modern surgery. According to them, we were to await delivery with eventual recourse to Cæsarean section, and to exclude the induction of premature labour, the use of the high forceps, and prophylactic version. But the fact was continually overlooked that the same results were to be obtained with less danger to the health of the mother by means of a moderate conservatism in the form of induced premature labour and the use of the high forceps, leaving on one side prophylactic version. This had been sufficiently proved by the results of the Frauenspital in Basle, the statistics of which he placed before them. A glance through the tables showed that a moderate conservative treatment of pelvic contraction by means of induced premature labour was productive of at least as good results as a radical convervatism combined with division of the pelvis and Cæsarean section. There could be no doubt that accoucheurs who estimated the life of the mother higher than that of the child, who sympathised more deeply with all who suffered in consequence of contracted pelves, must certainly employ the induction of premature labour, a method so easily carried out by means of puncturing the membranes.

In connexion with this paper Professor DÖDERLEIN showed beautiful drawings dealing with his operations of extra-peritoneal Cæsarean section and subcutaneous hebosteotomy.

Dr. J. MUNRO KERR (Glasgow) had often performed pubiotomy, but had never performed extra-peritoneal Cæsarean section. He had experience of 75 Cæsarean sections; the ordinary method of doing it was a very simple one, and he thought that unless there was some great advantage to he

gained it would be a pity to replace it with a more complicated one. He should like to know what advantage Döderlein's method had over the ordinary methods, and thought that certainly in infected cases it should not be performed, since the cellular tissue would become infected. Professor Döderlein stated that by the usual method the intestines often became adherent to the uterus, but he had never known a case in which this occurred.

Dr. SPENCER thought that one of the chief points of Cæsarean section performed by ordinary methods was that the child could be delivered in 60 seconds, whereas Döderlein's method took 5 minutes.

NAVY, ARMY, AND AMBULANCE.

THURSDAY, JULY 28TH.

President, Colonel ANDREW CLARK, A.M S. (T.F.), (London).

Fleet-Surgeon W. W. PRYN, R.N., communicated a paper on

Tests for Colour Vision.

He said that for many years the Admiralty had aimed at a very high standard of physical fitness in executive officers. In 1887 "imperfect perception of colours" appeared in the long list of physical disabilities, and in the same year the use of wools was authorised as a test for colour perception. The importance of the subject could scarcely be overrated. If a candidate were entered with organic heart disease he would probably be invalided in a few years and the cost of his training would become a loss to the State; but should the subject of colour-blindness be accepted he might, at any time, be the cause of the loss of a battleship and seven or eight hundred officers and men. For some 20 years Buxton's marine telechrome had been used for colour-vision testing at the Medical Department. As a rule, candidates named the coloured lights and matched them with wools without the least difficulty, but when lights were misnamed or the wrong skein was selected as a match the wool-test was applied, and Holmgren's directions closely followed. The subject of colour vision had lately been receiving the attention of the Director-General, and with a view to the adoption of an efficient test for general use in the navy Dr. Edridge-Green's latest pattern colour-perception lantern had been on trial. The apparatus consisted of four discs, three carrying seven coloured glasses and one carrying seven modifying glasses, each disc having also a clear aperture. This lamp placed at one's disposal a much larger number of possible combinations. Some very hard things had been said of Holmgren's test, it having been maintained that it allowed some candidates to be passed who ought to be rejected, and others rejected who ought to be passed. Used as a check on the lamp test, as had been the custom at the Admiralty, the Holmgren test had been found very useful. A candidate who had failed with the lamp almost invariably broke down with the wools when the test was carried out strictly in accordance with Holmgren's directions. It had been said that colour-blind persons would pass Holmgren's test; that, however, was not his experience. In conclusion, he thought that an examiner should himself have normal colour vision, and that colour vision as required for sea service was best tested by means of a lamp. Of the lamps which had been used he thought the Edridge-Green was the best form. The practice of requiring the coloured lights to be matched with wools was to be recommended, and the Holmgren test was useful as an auxiliary.

Dr. F. W. EDRIDGE-GREEN (London) said that he must pay this tribute to the Admiralty, that he had examined many men rejected by them and never found one who was normal sighted, though he had examined very many normal-sighted persons rejected elsewhere by the Holmgren test.

Fleet-Surgeon PRYN, in reply, said that if he had examined candidates by the Holmgren test alone he would probably have had the same results as others, but in his experience candidates who failed with Buxton's lamp almost always showed with Holmgren's test at least a feeble chromatic sense, and before a candidate was rejected he liked him to convict himself by deed as well as by word.

Fleet-Surgeon G. T. COLLINGWOOD, R.N., communicated a paper entitled

Naval Recruits.

He referred to the physical and medical examination of recruits and gave tables showing the causes of rejection arranged as nearly as possible in the order the rejection defects were noted. About 50 per cent. were rejected medically as unsuited for the navy, but it did not follow that they were physical wrecks or degenerates. He thought it seemed probable that due attention to the teeth, &c., and the training of the children in our schools, might lead to a diminishing number of rejections from that and other causes.

Lieutenant-Colonel R. J. S. SIMPSON, R.A.M.C., said that many cases of disordered action of the heart were, in fact, of a neurasthenic type (a constitutional condition), associated with high blood pressure, purple hands, and a rapid capillary reflux. The condition did not seriously interfere with the work to be done.

Lieutenant-Colonel S. GLENN ALLEN, R.A.M.C., said that he had been connected with recruiting for the army in the London District during the last two years. He supported the view advanced by Lieutenant-Colonel Simpson as regards the cause of disordered action of the heart. Every man whose pulse-rate reached or exceeded 112 per minute and was maintained at that rate during the examination was rejected. One other point he would like to draw attention to was the large number of rejections for the navy as compared with the army. Apparently all naval recruits had to pass a colour-vision test, which was not required in the case of army recruits. That, however, did not explain the large difference in the figures: there must be some difference in the physical standard demanded or in the quality of the recruits seeking admission.

Fleet-Surgeon PRYN said that for the public service he thought it wise to aim at the normal. With regard to the question of smoking and heart trouble, he thought that a candidate who abstained from smoking for three months would very likely pass, but, at the same time, he would very likely be undesirable, as he would probably smoke after entry and suffer again.

ODONTOLOGY.

THURSDAY, JULY 28TH.

President, Mr. J. HOWARD MUMMERY (London).

Mr. KENNETH W. GOADBY, continuing the discussion on

The Prevention of Dental Caries,[1]

first briefly reviewed the steps in the pathology of dental caries, pointing out that while many predisposing factors of etiological importance existed, the real exciting causes were fermentative bacteria producing localised acid formation. Speaking on the reaction of the buccal secretions, he said that from the point of view of the bacteriologist a good deal of importance attached to the reaction of the oral secretions. Saliva was generally stated to be alkaline, but it was rare to find saliva other than slightly acid to litmus paper even in mouths entirely free from caries. In examining the mouths of patients at the Seamen's Hospital he had noted two facts: (1) that the mouths were invariably slightly acid; and (2) that although dental caries was not present, turgidity and early inflammation of the gum existed in a large number, and definite gum affections were present in a very considerable number; whilst in the healthy mouths free from caries a considerable number of the organisms of putrefaction were present, associated with a small number of organisms capable of producing acid from carbohydrates. In examining a number of monkeys at the Zoological Gardens some time ago an exactly similar condition was found—namely, a large number of organisms of the putrefactive type, a smaller number of carbohydrate fermenters, together with a slightly acid reaction. Individuals suffering from dental caries could be divided into two classes: (1) those in which caries was rampant, where fillings rapidly gave out at their edges, and in whose mouths it was common to say the teeth were chalky; and (2) those in which dental caries was progressing but slowly, attacking perhaps only a tooth around the bands of an artificial denture or in some sequestered position which did not get cleaned in the ordinary processes of mastication or of hygiene. It was impossible to enumerate all the acid-forming bacteria found, but certain species were present more frequently than others, and were conveniently grouped as follows: Members of the coccal group—staphylococci (generally S. albus), streptococci (commonest type S. fæcalis); sarcinæ, S. lutea, S. alba (occasionally), S. aurantiaca (rarely); bacilli of the lactic acid group; saccharomyces group. In

[1] THE LANCET, August 6th, 1910, p. 399.

the majority of instances a 2 per cent. solution of glucose or maltose in peptone water having a reaction neutral to litmus would show an acid reaction in from five to six hours, often less, with any of the above organisms. He had made a number of experiments with regard to the fermentation of cheap sweets with cultivations of bacteria obtained from carious mouths. Solutions containing 2 per cent. of the given carbohydrate obtained from a given sweet were made up with 1 per cent. peptone water and brought to the same degree of alkalinity. These were inoculated with cultures obtained from carious months of bacilli of the lactic acid group, organisms of the coccal group, and yeasts. In 24 hours the amount of acid produced in the case of chocolates was equal to about 1·0 per cent. of decinormal lactic acid, whereas in the case of sweets of the barley sugar type the amount of acid in the 24 hours could scarcely be estimated. The class of organisms, blastomyces, were found constantly associated with acute caries. In the films made from the carious process direct, the organisms existed as longish rods, occasionally as mycelium; but when grown on artificial media generally took on the ordinary yeast form, only occasionally developing true mycelium. These organisms were able to withstand a considerable concentration of lactic acid, and at the same time able to go on fermenting fresh supplies of carbohydrates, providing the excess was neutralised locally, as it invariably was, in dental caries by the adjacent lime salt of the tooth. The staphylococcus viscosus became attached to the teeth generally in sheltered positions, and fermentation occurred through the layer which was formed on the surface of the enamel as through an osmotic membrane, the dissolved lime salt diffusing out and the fresh acid diffusing in. In this way considerable patches of enamel became damaged and later on broke down, or other bacteria found their way through the damaged enamel and gradually continued the process already set up. Prophylaxis of dental caries might be attempted in two ways—either by the removal of the fermentable substance by the use of the usual methods of hygiene and the adoption of a suitable diet in chronic caries, or else by changing the flora of the mouth itself in acute caries. In one of his earlier papers he had suggested that it might be possible to combat dental caries by crowding out the acid-producing organisms by others less virulent so far as dentine was concerned. Since then he had carried this point further and had found that in the treatment of dental caries a great deal could be done by proper attention to the bacteriological condition of given cases. Certain bacteria, particularly those of the mesentericus group, did not ferment carbohydrates to acid but produced a definite alkaline reaction. It was true that they produced proteolytic enzymes, but these were of no moment where no actual dentine was exposed. The method adopted was first of all to make a careful bacteriological examination of the mouth and determine the type of organism which was present in the largest numbers. After this there should be careful cleansing of all portions of the mouth with solutions particularly directed towards the inhibition of the growth of the special bacteria present. Cultivations of some innocuous form of organism were then made use of, the spores of the selected organism were sown freely about the mouth, and from time to time the number present was increased by the use of lotions containing a pure culture of the organism. There was no risk of digestive trouble following the use of organisms in this way, provided pure cultures of innocuous bacteria were made use of. Treatment for rampant caries in this way had given excellent results in his hands.

Mr. F. J. BENNETT (London) was much interested in several of the points raised by Mr. Goadby, particularly the translucent zone to be observed around carious cavities. This, he pointed out, the late Professor Miller thought was a vital manifestation, whilst he himself had always regarded it as caused by decalcification. The presence of yeasts in acute caries was of great importance, particularly in the face of a work by Harbin and Young published in the Proceedings of the Royal Society. The fermentation produced by yeasts from carbohydrates had been studied, and it had been found by the two observers mentioned that hexa-phosphoric acid increased carbohydrate fermentation of yeast extract both in quantity and rapidity, and it was possible, perhaps, that a combination of the extracts of these yeasts was more stimulated by the acid radical of tooth substance than by the basic substance. Another point which occurred to him was that clinical experience showed the beneficial effect of alcohol as a tooth preservative when used either as absolute alcohol, aromatic spirit of ammonia, or eau-de-cologne. Was this clinical experience supported by bacteriological knowledge?

Mr. P. SIDNEY SPOKES (London) was anxious to know whether sour milk was likely to produce dental caries, and, if so, whether the practice of giving alkaline solutions after taking lactic organisms in milk was a proper method of treatment, as he should like to know whether he had been following a proper line of treatment in so doing.

Mr. J. H. BADCOCK (London) expressed himself as particularly interested in the question of sweets. It was a common thing to be asked by parents if children could have sweets, and if they were told they must not have any sweets they generally disregarded the advice. What was a safe form of sweet, or at any rate the least deleterious form?

The PRESIDENT was interested in the yeasts, but owing to their size they would, of course, not penetrate the dentinal tubules but remain on the surface, and therefore be more related to surface cavities than to deep infection. Mr. Goadby seemed to regard the presence of a large number of bacteria as a pathological factor, but any person—and he spoke from experience—who made a cultivation of the mouth would find large numbers of organisms present, in fact teeming with bacteria, and he presumed Mr. Goadby would regard this as a pathological condition.

Mr. GOADBY, in reply, was of opinion that the phosphoric acid was probably of considerable importance to the development of yeasts in the mouth, more especially as the specimens he had shown of yeast cultivations flourished best on oleic acid agar. He was familiar with the work of Harbin and Young which Mr. Bennett had quoted. With regard to the sour milk, it was a very well known pathological fact that acid (lactic or acetic) when it reached a certain definite concentration inhibited the activity of the bacteria which produced it, and as dental caries was never a disease affecting the whole surface of the teeth at once, but only due to a localised production of acid, the best method of prevention was the use of acid lotions. If necessary some form of antiseptic such as carbolic should be combined with it. With regard to sweets, the harder and more crystalline sweets containing for the most part cane sugar were much the least deleterious so far as the teeth were concerned, and furthermore had the advantage of being freer from impurities. He pointed out that the discussion was only related to the prevention of the early stages of caries, but it was possible that yeasts, if they produced fermentation locally, could cause deep-seated caries by the acid products diffusing into the tooth. Very few mouths indeed were absolutely normal and free from disease, and the presence of large numbers of bacteria indicated that some pathological lesion existed, perhaps even an unclean denture.

Mr. BADCOCK contributed a paper on

The Need for the Correction of Malposition of the Teeth,

which was illustrated with a series of lantern slides of normal and irregular teeth. He said that the arrangement of teeth in the jaws was an important predisposing cause of caries. Contact points, not unlike the points of contact of two billiard balls, were found between normal teeth. Small facets appearing at the points of apposition, due to the movement of the teeth, the natural forward movement of the molars closed up the small spaces produced by normal friction and prevented the formation of spaces in which food lodged. Alteration in position due to irregularity destroyed this normal arrangement, and therefore easily allowed food masses to become impacted and to act as the starting-points of dental caries. Crowding should therefore be always treated by regulation of the position of the teeth in a normal arch. Two main methods were possible: (1) expansion of the crowded arch with an approximation to the normal arrangement; and (2) judicious extraction of teeth, followed if necessary with mechanical means for the adjustment of the remaining irregularity.

Dr. J. MILLIGAN (Barrow-in-Furness) agreed that the contact points were of great importance, and it was possible that the shape of teeth in different individuals was a matter of heredity. Was it possible that the shape of the teeth themselves had undergone degenerative changes since palæolithic man?

Mr. BENNETT thought that in the vast majority of ancient skulls the cusps of the teeth were worn away and practically no longer interdigitated; hence the cuspal locking of upper and lower teeth was not a matter of such prime importance.

Mr. BOOTH PEARSALL (London) had examined a large number of ancient skulls and had seen contact surfaces as large as 2 millimetres, but he thought the wearing away of the cusps was not important.

In reply, Mr. BADCOCK could not say how far the shape of the teeth, and therefore the interdental facets and points of contact, had undergone evolutionary changes. It was true that the cusps of teeth were much worn down in old skulls, leaving the surfaces almost smooth, and that the facets were also well defined. The wearing away of the cusps contributed to mutual cleansing.

Dr. HAROLD AUSTEN (London) read a paper on

The Correction of the Effects of Drugs taken as Medicines,

and said that there was a very widely spread and deeply seated popular belief that the taking of medicines was a common cause of the decay of the teeth. This belief was fostered, first, by the fact that certain drugs, such as iron, caused an obvious, though superficial, blackening; and, secondly, that decay of the teeth was found to be prevalent after such disturbances of the general health as were commonly treated by the administration of medicines. The belief that drugs injured the teeth appeared, however, to rest upon but slender foundations, the popular prejudice resting upon a basis of "post, ergo propter, hoc." Two classes of drugs would appear *prima facie* to be a potential source of caries: 1. Acids, administered internally or used as local applications to the fauces. Very dilute solutions of weak acids, if applied continuously, had been shown by experiment to appreciably destroy the enamel. But in the mouth acid medicines and gargles were not applied continuously, but very intermittently, and, in the case of fluids, mostly to the exposed surfaces, which were constantly washed by the saliva. All modern research tended to prove that the acids really injurious to the teeth were those generated *in situ*, in places which did not admit of natural cleansing, by the fermentation of the remains of carbohydrate foods. 2. Mercury. Mercurials when administered in infancy had been credited with the production of hypoplasia of the teeth, the so-called honeycombing. The evidence for this was far from convincing. If, however, the point were proved, it would be an instance of a medicine causing predisposition to decay, to which hypoplastic teeth were very liable. Mercurials administered in large doses had long been known to cause well-marked disturbances in the associated tissues, the gums, and even bone. It was conceivable that mercury acting in this way, where there had been actual ulceration and permanent loss of tissue, might cause a predisposition to caries at the necks of the teeth. Lead, bismuth, silver, or copper, being drugs partly excreted by the oral mucous membrane, had been credited with occasionally producing similar effects to mercury in septic mouths. The only treatment for the correction of the effects of these drugs, if any was required, seemed to be to maintain complete cleanliness of the mouth, and to neutralise the effects of acids taken by the immediate use of an alkaline mouth-wash.

Mr. SEWELL (London) said that in the County Council schools little or no evidence was forthcoming that mercurials caused hypoplasia, the incidence of which bore no relation to the fact that a large number of these children were constantly dosed with mercurials in their early life.

Mr. GOADBY remarked that the teeth of persons engaged in lead works showed no predisposition to dental caries, and also that the usual acid mixtures prescribed were no more acid than a mouth lotion might be.

Dr. SIM WALLACE (London) said that medicine made up with malt extract was a common preparation, that many medicines were also put up with chocolate, and in these cases the contained drug was not related to caries, but the vehicle.

Dr. AUSTEN, in reply, said that he was very glad that no out-of-the-way drug was known to any of the speakers which especially predisposed to tooth decay. So far as his experience went, no drug could be properly blamed as the cause of dental caries. Malt extract was a food, and was generally prescribed as such.

The PRESIDENT contributed the concluding paper to the discussion on

The Reasons for Susceptibility and Natural Immunity to Dental Caries.

He observed that previous speakers in the earlier part of the discussion thought that the problem of caries was a very simple one; in fact, one speaker regretted that any other issue was considered than that of food, notwithstanding the fact that a considerable number of important secondary issues were undoubtedly concerned, for in dental caries, just as in other pathological questions, the issue was never a simple or a direct one. Alexins in the saliva might perhaps be concerned in the question of immunity. Miller had experimented in this direction, but found that in saliva from immune and susceptible people exactly the same amount of lactic acid could be produced. Black, on the other hand, had made long research into the differences of hard and soft dentine, and had come to the conclusion that there was no difference so far as dental caries was concerned. Rosé, however, pointed out that enamel was the first affected, and that when enamel was examined, both by combustion and by the agency of polarised light, distinct differences were to be found in its translucency and in its ash. Rosé also was of the opinion that metabolic changes took place in dentine during life, but to a limited extent. Further, different enamels exhibited different actions and reactions when treated with weak acids, and this difference, pointed out by Mr. Stanley Mummery, might explain some of the differences in the attack of individual teeth. Sanarelli's experiments relating to the antiseptic condition of the saliva were of no value, as the saliva was filtered and no pabulum was present for the growth of the organisms. Saliva did, however, contain diastasic ferment, the salivary corpuscles possessed the power of positive chemiotaxis towards free bacteria, and in addition the mechanical action of saliva was very large. Recent researches with regard to the action of sulpho-cyanide threw no further light on the action of that compound with regard to the inhibition of caries or the growth of bacteria. Different animals varied considerably in their salivary secretions. If the saliva of a horse were mixed with sugar very little change took place, although in a number of horses definite dental caries was to be found. The reaction most suitable for the development of acid-forming organisms was an alkaline one, and practically no caries took place where a slightly acid reaction of the mouth was present. Retention points where food stagnated between teeth, particularly irregularities of the dental arch, allowed the accumulation of food into which antiseptics could not penetrate, and no amount of mouth antiseptic was of any value if retained food was present. Variations in the composition of saliva occurred in individuals; occasionally, particularly in diabetes, glycogen was to be found. Michaels had studied the presence of glycogen and had come to the conclusion that its presence was more frequent than was generally supposed, and that it might have a distinct bearing on the question of immunity to caries. Kirk in some recent work on the mucin of saliva pointed out that mucin was an alkaline substance precipitated by acids, and that thin, limpid saliva was generally acid in reaction, whereas the thickish mucoid saliva was alkaline. Lactic acid would precipitate mucin from this alkaline saliva, and it was possible to form plaques and deposits on a tooth by precipitation of mucin with lactic acid. Local precipitation could occur. As a solvent of this precipitated mucin lime-water had been often used with considerable success. With regard to heredity, it was very difficult to say how far such influence as natural selection had any effect in predisposing to dental caries, but he was inclined to think that considerable deficiencies and variations had occurred in the immunity of races of men, and that at the present time artificial selection was not sufficiently in force to correct these variations.

Mr. GOADBY, in discussing the President's paper, was glad to find that he was in entire agreement with Mr. Mummery, but he would like to point out that Sanarelli's experiments, although, in the first place, he claimed an antiseptic action for saliva which was not tenable, yet showed a certain quantitative bactericidal effect, and that if to a given quantity of saliva a loopful of bacteria were added distinct diminution in the numbers could be

observed in the first 48 hours, after which the numbers again increased until they were innumerable. He was in entire accord that a very large number of instances existed in which the mere question of food, either hard or soft, could not explain the immunity to caries; in many instances in his own experience children of the same family showed marked variations in immunity, although the food eaten by such a family was identical. A large number of problems were waiting solution with regard to the composition of the various bodies in the saliva itself, and it was to be hoped that some workers would turn their attention in this direction.

Dr. SIM WALLACE also joined in the discussion, and the PRESIDENT, in a brief reply, pointed out that immunity certainly existed in individual cases, and quoted a special case in which Professor Miller and himself had been particularly interested, where, notwithstanding the fact that no great care of the teeth was taken, and all ordinary food had been made use of, yet no dental caries appeared in a man of 50 years of age. There was something more in such a case than food composition to account for very definite immunity.

OPHTHALMOLOGY.

THURSDAY, JULY 28TH.

President, Mr. CHARLES HIGGENS (London).

The meeting commenced with a series of demonstrations, which included Methods of Testing for Colour Blindness, by Dr. F. W. EDRIDGE-GREEN (Hendon); New Operation for the Production of Filtration Cicatrix in Chronic Glaucoma, by Mr. H. HERBERT (Nottingham); Use of New Registering Form of Diaphragm Test for Measuring Binocular Vision, by Mr. N. BISHOP-HARMAN (London); and Use of Carbon-Dioxide Snow in the Treatment of Trachoma, by Dr. E. R. MORTON (London).

Mr. W. T. HOLMES SPICER and Mr. STEPHEN MAYOU (London) then opened a discussion on

The More Chronic Forms of Anterior Uveal Inflammation: (a) Extra-ocular Manifestations; (b) Intra-ocular Manifestations.

Mr. Spicer, in speaking on (*a*), said that he would exclude the evanescent type of episcleritis described by Fuchs and pustules beginning in the conjunctiva which were local affections, also gumma of the ciliary region spreading externally. That left him scleritis and episcleritis. Text-books distinguished between these, but there was no essential difference save the variation in incidence with the time of life and the depth of penetration of the inflammation. So far as their connexion with uveitis was concerned, that depended upon the depth and intensity of the inflammation. He found two types of scleral nodules—one hard and raised, which on incision proved to be mostly solid, though occasionally a bead of pus was found within. The second type presented a boggy undermined condition; the surface was blue, soft, and yielding. Some cases began as a vesicular eruption. Considering the sex and age incidence, he found that of 55 cases 15, or 28 per cent., were males, and 40, or 72 per cent., females; the difference was striking. As to the liability of the eyes to inflammation, the right appeared most frequently affected, but he thought there was little in the observation. Of ages: the decades of maximum incidence proved to be between 20 and 40 years; but in considering this it had to be borne in mind that the duration of the cases was long—it might extend to 15 years. The features of corneal invasion were of interest; he noted the occurrence of crescentic areas of infiltration, separated from the patch of scleritis by a band of clear cornea; these crescents had their concavity towards the limbus. When there were frequent attacks of scleritis in different parts of the eye a complete ring of these small crescents might result simulating arcus senilis. He thought they were due to obstructed lymph circulation in the cornea; he had observed similar crescents capping fascicular ulcers. The invasion of the inner parts of the eye was due to extension of the poison: cyclitis, iritis, and opacities of the cornea were evidence of the severity of the inflammation. Coming to etiology, he found evidence of rheumatism in 24 per cent. of cases, and a definite absence of it in 26 per cent. Indigestion and constipation and pyorrhœa alveolaris were exceedingly common, but were these not common in most hospital patients of this age and sex? The preponderance of females suggested the possibility of disease peculiar to female organs, but the most careful examination of many cases brought no evidence of this. The most noticeable point was that the subjects were for the most part young women of sedentary habits—milliners, dressmakers, and the like. Dealing with pathological features, sections of nodules showed no evidence of tubercle; cultures from these cases were most often sterile; in one where the staphylococcus aureus was isolated a vaccine was prepared but it proved useless. Von Pirquet's reaction was tried four times; two were positive and two negative. In the positive cases tuberculin injections were made; both recovered, though no striking changes in the scleritis appeared after the injections. Three cases were examined for syphilis by the Wassermann test and all were negative. As regards treatment, he had excised nodules in nine cases with varying results; on the whole he thought well of it. He suggested incising the patch and touching it with carbolic acid. Injections of cyanide of mercury had proved useless. Iridectomy had been done for secondary causes; in one case the scleritis recurred four months later; in another not for several years. Hot vapour baths were very good during attacks, but did not prevent recurrence. It was too early to estimate the value of ionisation; he found the reaction severe, it increased the severity of the attack; but one case appeared to improve. He was not inclined to recommend it, for it was too painful. Salicylic ionisation seemed much more pleasant. In his opinion the disease was toxic—i.e., not due to a local organism, and he based this opinion upon the absence of organisms in the nodules. He thought it was a local thrombosis, something like a chilblain, but by that he did not mean a cold weather disease, nor was warmth a great factor in relief. It was a toxic thrombosis, and possibly the manifestation of tubercle in other parts of the body, yet it was not confined to tubercle. At present they had no means of distinguishing these toxins.

Mr. MAYOU, dealing with (*b*), said he purposed considering the bacteriological aspect. He had investigated 38 cases by the best methods known to them. It appeared that there were three main causes of infection—the tubercle bacillus, staphylococcus, and the spirochæta pallida. Of 30 cases in which there was good evidence of the cause of the inflammation 15 proved tuberculous, 10 staphylococcal, and 5 syphilitic. Apart from wounds of the globe the infection must be by the blood stream, and therefore from some other focus elsewhere in the body. That organisms cause uveitis had been demonstrated, but there was no evidence of toxins producing similar effects. Tuberculous affections of the lungs and glands, pus infections of teeth, boils, leucorrhœa, and possibly disorders of the gut were common primary foci. Chronic middle-ear disease had also been held responsible. He looked on these affections as a chronic pyæmia, and held that this accounted for the cachexia so common. All his septic cases had been in females. Some clinical indications of the causal agent could be derived from the nature of the deposit on the back of the cornea—keratitis punctata; in staphylococcal and syphilitic cases it usually consisted of a cloud of fine dots, whilst in tubercle the spots were large like "mutton fat"; this was probably due to differences in agglutination. The changes in the iris were essentially atrophic, following vascular sclerosis. The occurrence of cataract secondary to the inflammation was probably due to toxic effects upon the lens epithelium, and loss of protection from aqueous absorption. Choroiditis when anterior was probably due to spread of the disease, but isolated patches posteriorly might be separate foci. The increase in tension sometimes noted was likely to be due to two causes: altered secretions and altered osmosis through the diseased hyaloid. Low tension he found in one case due to the shrinkage of the vitreous. Iritis adhesions were less common with staphylococcal infections. Vitreous opacities were slight in tubercle, always present in syphilis, and most marked in staphylococcal cases. The determination rested, however, on specific tests. Von Pirquet's reaction was of doubtful value. Of the Wassermann reaction he had little experience as yet. The local reaction of the eye following injections of toxin into the blood was most valuable; in 48 hours there was increased ciliary injection and vitreous opacities, the patient noticed the loss of vision; choroidal patches became œdematous. Bacteriological examination of the aqueous was the only certain proof. Smear preparations were no use. Inoculation of the aqueous into animals would alone give positive results in tubercle.

Inoculation of the aqueous on to blood serum was sufficient in staphylococcal cases. As regards treatment, paracentesis had been established as a most beneficial measure; it allowed the site of the lesion to be drained and then flooded with blood serum containing protective bodies. He did not hesitate to repeat the operation. Vaccine treatment he found of great value, and wherever possible the vaccine was prepared from the patient's own organism.

The PRESIDENT said it did not appear that they had made much advance as regards treatment, with the exception of the tentative use of vaccines. He confirmed Mr. Spicer's observations of the peculiar corneal marking left after scleritis. In his experience irido-cyclitis and kerato-iritis were much more common in young women and in hospital cases. In six recent private cases, four had given a positive Wassermann reaction, and one other he thought syphilitic.

Mr. A. W. ORMOND (London) said the possible causes of irido-cyclitis were almost numberless: syphilis (acquired and inherited), gonorrhœa, rheumatism, tubercle, malaria, leprosy, dental caries, and Bright's disease were well-recognised causes. In other cases the cause was not discoverable. Ramsey had suggested that faulty metabolism was at the basis of them, and he thought auto-intoxication from the gut might have a determining influence. It was, however, more likely that the affection was due to organisms acting directly than to toxins acting from a distant focus. In this connexion the examination of the blood was important. In three recent cases of sympathetic ophthalmia this had been done by Dr. C. Price-Jones. There was a tremendous increase in the percentage of mononuclear leucocytes; it reached 16 to 20 per cent. instead of the average 2 to 4 per cent. The change suggested a protozoal and not a bacillary infection. In treatment of irido-cyclitis he strongly urged paracentesis and irrigation of the anterior chamber with normal saline solution.

Dr. W. H. BRAILEY (Brighton) quoted a case of uniocular irido-cyclitis which was probably due to the sting of an insect on the side of the nose. He commented on the difficulty in obtaining reliable evidences of rheumatism and on the fallacies of statistics as indicative of the prevalence of any chronic disorder in males and females owing to the fact that men did not trouble so much about these conditions.

Dr. R. A. REEVE (Toronto) commented upon a case of homolateral irido-cyclitis consequent on follicular tonsillitis. First one side of the throat was affected and the corresponding eye; later, the other side of the throat and the other eye. He had frequently noted correspondence of tonsillar affections with the eye inflammation.

Mr. A. HILL GRIFFITH (Manchester) said that when using the cautery in cases of scleritis he had found pus in some of the nodules. He thought solid nodules were rare. Commenting on the peculiar corneal scars left in scleritis, he asked if they were analogous to the white corneal lines sometimes seen in dermoid of the limbus. In some cases the interval between the inflammation of the two eyes extended to many years. He noted that Mr. Mayou accepted the explanation of the occurrence of keratitis with solitary patches of choroiditis he had put forward some 23 years ago.

Dr. G. A. BERRY (Edinburgh) said the proof of toxic origins of inflammation was much more difficult than the detection of the presence of organisms, and this should have some influence in our judgment of difficult cases. He thought that tuberculous irido-cyclitis had many features in common with sympathetic ophthalmia; the latter might almost be analogous to a malignant form of the former. As regards staphylococcal infections, he was strongly of the opinion that the soil in which these were found as apparently causal agents was prepared by tuberculous infections elsewhere. He agreed in the preponderance of cases in women, but he would put the percentage as high as 90 per cent.

Mr. BISHOP HARMAN (London) said that with the aid of Dr. Bernstein he had investigated a large number of eye cases by the Wassermann reaction. He was much impressed by its reliability. Citing the cases of two young women, the remnants of a large family, both suffered from forms of chronic uveitis—one had scleritis during 20 years, the other posterior inflammation. With the introduction of the Wassermann test they were each examined twice and gave positive reactions. Another woman with granuloma of each iris and the "mutton fat" variety of keratitis punctata had been thought to be tuberculous, but the Wassermann reaction was positive, and mercurial treatment proved much more beneficial than tonics. It must be borne in mind, however, that the test only signified a general taint; it did not prove that a given lesion was syphilitic; for this the test must be standardised. His experience of paracentesis was most happy, and in this connexion it was of great interest to read the ancient experiences of Wardrop.

Dr. CECIL E. SHAW (Belfast) expressed his approval of Mr. Spicer's view that many of the cases of sclero-keratitis were toxic. He had been struck with the number of patients who seemed otherwise healthy, but who led sedentary lives without sufficient open-air exercise, e.g., domestic servants. As regards infection in uveal inflammation, he thought the nose should be carefully examined, as it was probably a frequent source of septic infection. Mr. Mayou had referred to boils as primary foci, but he thought both boils and the eye infections were secondary.

Mr. SPICER and Mr. MAYOU replied.

Dr. A. HUGH THOMPSON (London) read a paper on

The Operative Treatment of High Myopia.

He discussed operative procedure, the degree of myopia justifying the operation, and the age at which it was most favourable. He did not consider that operation checked the progress of myopia, so that it might be done for a less degree of myopia in the young than in the old. Much choroidal degeneration contra-indicated the operation. The conditions of the second eye had to be taken into account; there was no use operating if the other was emmetropic, and they could not take the risk if the other was seriously diseased. He then gave the visual and after-history of 20 eyes he had operated upon. These required altogether 65 operations. Distant vision was improved in 17 cases; in 10 it was better without a glass than it had been before with glasses. Of the three failures, one developed a thick cyclitic membrane, one was a brilliant success for five years and then had grave cyclitis, and the third had a macular hæmorrhage eight months after operation. He did not think that the operation caused any serious increase of liability to detachment of the retina. The liability was perhaps enhanced if vitreous opacities were present before operation or if much vitreous was lost at the operation. If the operation had a bad influence he would expect it to be exerted within a year of its performance.

Mr. CHARLES WRAY (London) said he found that recent statistics confirmed results he published some years ago, that the removal of the lens did not stop the progress of the myopia. He thought the operation seriously increased the risks of blindness, and cited three cases of young subjects whom he had recently seen quite blind.

Mr. GRIFFITH said he had operated upon from 40 to 50 cases, and in no case had the eye been lost. He did free discission followed by suction. He never attempted the operation unless No. 1 Jaeger test-type could be deciphered. He did not think the operation induced detachment of the retina unless acute cyclitis followed, and this might occur in any extraction, infantile or senile.

Major H. A. J. GIDNEY, I.M.S., having said his experience of the operation was satisfactory, Dr. THOMPSON replied.

Mr. ARTHUR H. BENSON (Dublin) read a paper on

The Method of Enlarging Certain Forms of Contracted Socket.

He entered a plea for the more extended use of mucous membrane excised from the mouth as grafts, instead of skin or epithelial flaps, in plastic operations. The floor of a shallow socket was split longitudinally, and the gap left in the conjunctiva lined with a flap removed from the inside of the lip. The flap was sutured into place, and the socket packed with pellets of cotton wadding impregnated with xeroform, so as to put the lids on the stretch. It was then bandaged firmly and left for two or three days. He said that mucous grafts were extraordinarily tolerant of removal and transplantation, so that no elaborate precautions were necessary as with skin grafts, and further, the membrane of the lips, being educated to withstand the pressure of the teeth, would tolerate the pressure of a shell.

Lieutenant-Colonel L. J. PISANI, I.M.S., read a paper on

The Conditions which may Account for the Greater Prevalence of Cataract in India.

From an examination of the statistics of cataract operations performed in Government and State institutions, it appeared that cataract was twice as prevalent in the Northern

Provinces as it was in the Lower India and Burma provinces. Comparing certain provinces the difference was intensified; the incidence was four times greater in the Northern Provinces. Next he examined the climatic conditions of these provinces and showed that they were marked by intense light and glare, both from direct sunlight and from reflection from the bare soil, and also to great dry heat. Then he discussed the influences of intense light and the influence of heat in the production of cataract. So far as experimental work had been conclusive, heat effect seemed more likely to cause cataract than light. The food factor he thought of little influence, for the whole of the common people of India lived on similar food. The ultra-violet rays did not seem to exert a serious influence, seeing that cataract was less prevalent in mountainous regions where the rays most abound. It was possible that one form of cataract might be produced by different causes, but that in any case a senile lens was a necessary condition. It was at the time of failure of accommodation that the liability was greatest. On the whole, he thought the prevalence of cataract in India was mainly attributable to exposure to prolonged intense dry heat, which altered the aqueous humour and secondarily the lens.

Mr. WRAY said the relation of humidity to cataract was in confirmation of his observations that cataract in England was most frequent in subnormal water drinkers.

Major GIDNEY thought the essential factor in the production of cataract was premature senility; climatic influences he thought of little consequence. He said it was not just to suppose cataract incidence agreed with official statistics of cataract extraction, because they took no account of the enormous number of cataracts that were operated upon by quacks.

Mr. ANGUS MACGILLIVRAY (Dundee) said he had a considerable knowledge of Anglo-Indians engaged in the jute trade. He did not find their residence in India increased their liability to cataract.

Colonel PISANI said that the jute trade was carried on in the most moist part of India where cataract was least prevalent.

Dr. SHAW said that reference should be made to the recent report of the Belgian Ophthalmological Society into the causes of accidental injuries to the eyes by electricity. There was an admirable summary of the influence of extreme light effects, and there appeared a large number of cataract cases.

Mr. A. F. MACCALLAN, chief ophthalmic inspector in Egypt, read a paper on

Five Months' Work in Luxor in 1910,

in which he sketched the arrangement now existing for the treatment of eye disease in Egypt, and gave some statistics of the variety and incidence of disease. One of the branches of their work was the inspection and treatment of school children in certain towns. 96 per cent. suffered from trachoma. Three years' work in one school had reduced the proportion to 43 per cent. Beside combating trachoma, much work had been done in cataract extractions and in the relief of glaucoma.

OTOLOGY.

THURSDAY, JULY 28TH.

President, Dr. EDWARD LAW (London).

Dr. ROBERT BÁRÁNY (Vienna) and Mr. C. E. WEST (London) opened a discussion on

The Diagnosis and Treatment of Infective Labyrinthitis.

Dr. BÁRÁNY distinguished the following forms of the disease: (1) Acute purulent labyrinthitis; (2) latent purulent labyrinthitis; (3) fistula of the labyrinth with intact membranous labyrinth (circumscribed labyrinthitis); (4) fistula of the labyrinth with slight lesion of the membranous labyrinth; (5) fistula of the labyrinth with severe lesion of the membranous labyrinth; and (6) serous labyrinthitis. The differential diagnosis between those diseases was made possible by investigation of the condition of the semicircular canals, the methods of which were partly originated, partly worked out, by Dr. Bárány. The most important sign of the diseases of the semicircular canals was the spontaneous vestibular nystagmus, which might be present either continuously (acute labyrinthitis) or only during attacks (circumscribed labyrinthitis). The investigation into the function of the semicircular canals consisted in the experimental irritation of the canals by means of (1) turning, (2) rapid head movements, (3) syringing with cold and hot water, (4) galvanisation, and (5) compression and aspiration of the air in the meatus. All these different irritations produced quite definite forms of vestibular nystagmus, which must be observed carefully. Also intracranial diseases produced vestibular nystagmus, especially those of the posterior fossa (cerebellar abscess, meningitis). Dr. Bárány gave the differential diagnosis between the diseases of the labyrinth and the intracranial complications which often accompanied the labyrinth trouble. That diagnosis was based upon the observation of the spontaneous nystagmus and the exact examination of the irritability of the semicircular canals.

Mr. WEST said that infections of the labyrinth might be either pyogenic or non-pyogenic; the former constituted the main subject of the paper. Pyogenic infection might be either diffuse or localised to a portion of the labyrinth; that part might be restricted to the labyrinthine wall. Diffuse infection might be either acute or chronic; localised infection was always chronic. Necrosis of the labyrinthine capsule might take place in either acute or chronic conditions. The dangers and incapacities caused by infective labyrinthitis; the treatment of infective labyrinthitis chiefly operative by the necessity of the case; the aims of operative treatment; the treatment of chronic local infections by the radical mastoid operation and curettage; the operative treatment of the diffuse infections, whether acute or chronic, by drainage of the labyrinth, were all dealt with. The vestibulotomies, inferior and double, technique and after-treatment; tuberculous labyrinthitis; necrosis of the labyrinthine capsule; non-pyogenic infections of the labyrinth, syphilis, mumps; and non-suppurative labyrinthitis in otitis media were considered and discussed.

Mr. SYDNEY R. SCOTT (London) gave a demonstration of nystagmus in a case of labyrinthine disease by means of kinematographic photographs.

Dr. ALBERT A. GRAY (Glasgow) inquired whether tinnitus continued after the destruction of the cochlea on both sides; if it did, then it pointed to a central origin and nerve change.

Mr. DAN MACKENZIE (London) considered that spontaneous nystagmus was not to be relied upon alone as a localising symptom. In this respect nystagmus was on a level with vertigo.

Dr. DUNDAS GRANT (London) cited the adage that it was difficult for an old dog to learn new tricks. Whilst he was desirous of learning the most recent methods of detecting labyrinthine disease, he was curious as to the cause of the frequency of the disease, which was rare, comparatively speaking, in his own experience.

Mr. HUNTER TOD (London) had missed in the opening papers by Dr. Bárány and Mr. West what he wanted most—namely, the indications for operation on the labyrinth. He still wondered whether the cases of suppurative labyrinthitis were so numerous as recent publications would lead one to believe, and he could not help feeling from his own personal experience that in many of these cases suppuration did not exist, although the diagnosis might have been suggested by the tests applied. In his own hospital he or his assistants had operated upon 302 cases of mastoid disease during the three years ending 1909, including amongst these acute and chronic conditions, and also intracranial complications. Of the fatal cases, on which a necropsy had been made, suppuration of the internal ear was found in only one, and this was noted at the time of operation. The reasonable deduction, therefore, was that even if suppurative disease of the internal ear in some of these cases had not been recognised, nevertheless they had recovered with the mastoid operation, apart from any labyrinthine operation being performed, or, on the other hand, suppurative disease of the internal ear had never existed. In either case the mortality from internal ear suppuration seemed to be very small indeed. Mr. Tod only cited what he had been told with regard to the necropsics.

Dr. JOBSON HORNE (London) asked Mr. West what had been the ratio of the number of operations for labyrinthine suppuration to the total number of radical mastoid operations in his clinic.

The PRESIDENT thanked the openers for their papers, and Dr. BÁRÁNY and Mr. WEST replied.

Mr. WEST, in his reply, said that he was not able to answer Dr. Gray. He doubted whether the tympanic plexus was not already destroyed by chronic suppuration long before operation. The indications for operation on the labyrinth he considered to be quite clear; first, the presence of acute infective labyrinthitis, the diagnosis of which Dr. Bárány's paper had put clearly; secondly, the diagnosis of a defunct labyrinth, confirmed by the discovery at operation of a fistula through the ampullæ or through the inner tympanic wall, or in the absence of previous diagnosis by default of proper testing such discovery of undoubted aperture into the vestibule; thirdly, the continuance of disabling vertigo in fistula of the external semicircular canal after a radical mastoid operation and local curettage had failed to give relief. Such cases were rare. In reply to Dr. Jobson Horne, he had no recent statistics ready as to the ratio of labyrinthine operations to the total number of radical mastoid operations in his own clinic, but he had found that about 1 in 10 of his mastoid operations required labyrinthine operation.

STATE MEDICINE.

THURSDAY, JULY 28TH.

President, The Right Hon. Lord ILKESTON (London).

Dr. JOHN ROBERTSON (Birmingham) read a paper on

Town Planning in Relation to Public Health,

in which he pointed out that the necessity for town planning had largely arisen from the enormous growth of towns in which the structure and sanitation of individual dwellings were alone controlled. He did not think the Housing, Town Planning, &c., Act could be regarded as a contribution to the legislative powers which were needed to carry out efficient town planning. One of the principal objects to be aimed at was the reduction of the number of houses per acre, and this could largely be done by reducing the cost of roads. Non-traffic roads should be narrow and could be arranged in a healthful manner, while traffic roads should be constructed largely at the public expense. The town planner should set aside land for playing fields and for purposes of recreation, and should allot special areas at a cheap rate to manufacturers and for railway and canal purposes. The dust and smoke of factories could thus be removed from the residential areas.

Dr. E. W. HOPE (Liverpool) sent a paper, which was read by the Honorary Secretary of the section, in which he stated that no more conspicuous example of the mischief resulting from the rapid development of a great city could be instanced than that of the city of Liverpool. In recent years the provisions of the Housing Acts had been freely made use of there, and large areas of slums had been swept away and replaced by municipal dwellings, connected with which were ample open spaces and recreation grounds. Under the provisions of a local Act the outlying portions of Liverpool had received special treatment.[1] A main road 108 feet wide and completely encircling the city had been constructed. From this there were radiating minor roads which were much narrower. Excellent houses had been erected and the suburbs had been opened up and dealt with on rational lines. Private landowners had been encouraged to develop their estates in a similar manner, and there was every probability of a garden city being created on the estate of the Marquis of Salisbury.

Mr. T. C. HORSFALL (Manchester) said that as Mr. John Burns in the Housing, Town Planning, &c., Act had taken away with one hand that which he had given with the other, there must inevitably be at an early date an amending Act, for very little could be done under the provisions of the Act or under the Regulations which had been made by the Local Government Board. The evil of continental towns was the crowding of people on area, and this had the effect of increasing the value of land, so that landowners and houseowners would, no doubt, endeavour in any amending Act to procure conditions of broad streets with large houses on either side. Manufacturing towns, he maintained, were repulsive, but as the average English house was a better type than those to be found in other countries, what was wrong in our towns was the town itself and not the house. He agreed with Dr. Robertson that a self-respecting race could not be reared in conditions where squalor existed, and that we must bring more of nature into our towns. The Hampstead suburb had solved the difficulty as to how best to provide sufficient air space by a system of broad traffic streets with narrow residential streets leading out of them. Every unnecessary inch of macadam was an evil, and bad results had been brought about by the mania for unnecessarily wide streets. Though the dwelling problem was a most appalling one, he considered that the English workman lived under conditions which were incomparably better than those of the German workman, with the consequent result that the death-rate from all causes and from phthisis, and the infantile mortality-rate were considerably higher in Germany than in this country. He placed before the meeting plans of typical German houses, and stated that the German building regulations were very strict, requiring exceptionally thick walls and fire-proof staircases necessitated by the system of building dwellings in flats.

Mr. F. E. FREMANTLE (Hertfordshire) pointed out that the only entire scheme of town planning in this country was the first garden city at Letchworth, which was arranged from the first on a pre-arranged plan. The distinction between a garden city and a garden suburb was absolute, the latter arranging for the housing of a single section of the residential population and dealing with existing conditions, whereas the former was entirely new from the beginning and arranged for a self-contained population, the industries, shops, banks, public buildings, and residential houses being each allotted their appropriate positions. After describing the particular planning of Letchworth, he gave an account of the Valentine's estate at Ilford of some 44 acres which was about to be developed as a garden suburb on correct financial lines. He appealed to medical officers of health to take up with vigour the question of securing similar suburbs in their respective districts with a view to the prevention of slums and the securing of houses which would be satisfactory to the health of the people in their inter-relations, as under the building by-laws they must now be in their individual structure.

Dr. GEORGE REID (Staffordshire) read a paper upon

The Administrative Control of Ophthalmia Neonatorum,

in which he stated that no arguments were needed to emphasise the importance of providing machinery for dealing with that disease, which it had been estimated was the cause of at least one-third of the cases of permanent blindness in this country. After referring to the scheme which had been in operation in the Staffordshire Potteries for some eight or nine months, he sketched the procedure necessary to make that or any similar scheme successful. Compulsory notification of the disease was requisite, and this could be obtained by securing the addition of the disease to the list of notifiable diseases contained in the Infectious Disease (Notification) Act. If a notification were received from a midwife the medical officer of health should cause inquiry to be made through a health visitor into the circumstances, and should take steps to ensure that medical help should be obtained, informing the medical man that if required the sanitary authority would provide nurses for the case. If a case were notified by a medical man he should be asked if he desired that nurses should be supplied. All the authorities in whose districts in the Potteries the scheme had been adopted had assumed the responsibility of providing and paying for the nursing assistance needful, and in one district provision had been made for defraying the cost of medical treatment, a fee of 1 guinea being paid per case. Dr. Reid pointed out that the number of cases of the disease would undoubtedly diminish year by year as the ancient type of midwife gradually became extinct and was replaced by properly trained women, but that as this weeding-out process would take time, and meanwhile the damage being done was serious, it was desirable that some such scheme as that in force in Staffordshire should be adopted in the country generally.

Dr. N. BISHOP HARMAN (London) considered that on the occurrence of a case of purulent conjunctivitis in a newly-born infant the medical man in charge should be required not only to notify it to the medical officer of health but also to send to the public bacteriological laboratory for microscopical examination two film preparations of the pus on glass slips. The bacteriological diagnosis of such cases was of the first importance. By film preparations stained with methyl blue and by Gram's method the distinction of inflammation due to the

[1] THE LANCET, June 18th, 1910, p. 1718, and July 2nd, 1910, p. 60.

micrococcus of Neisser and of inflammation due to other organisms such as staphylococci and the Koch-Weeks bacillus could be made with little short of certainty. The necessity for this distinction was evidenced by the fact that risk to the sight of the infant was only to be feared when the micrococcus of Neisser was the infective agent. The medical officer of health should have at his call some surgeon capable of giving expert advice in the care of such cases, and as there might be certain difficulties connected with the calling in of a general practitioner he suggested that the school medical officer might be made use of for this purpose. The occasional change from school work would be a welcome relief to him, and he should be required to make himself thoroughly conversant with the disease and its treatment. Nursing being of the highest importance, he was of opinion that, where possible, the cases should be treated at some institution rather than at home. For the most part they occurred in the homes of the very poor, where there was not only the difficulty of housing nurses and of obtaining ordinary domestic appliances, but there was a liability of re-infection during the lying-in period of the mother. He deemed it of the greatest importance that the number of cases occurring should be collected and published annually, so that there could be obtained a correct idea of the incidence of the disease and of the effectiveness of the measures adopted in connexion with it.

Mr. HERBERT H. FOLKER (Hanley) said that as the success of any measures towards the extermination of ophthalmia neonatorum depended upon early treatment it was absolutely essential that the disease should be compulsorily notifiable. There must also be a complete machinery for dealing with those cases which were notified. On receipt of a notification certificate a lady inspector should be sent to the house (where the case was in charge of a midwife) in order that the necessary arrangements might be made for medical help and nurses. These arrangements included the provision at the cost of the municipality of two nurses, one for day duty, the other for night. When the house was of such a character as to be detrimental to the recovery of the infant a cottage home with accommodation for about four patients should be provided to which the mother and her child could be removed. The Liverpool corporation had adopted the latter course with wonderful success. In the Staffordshire Potteries Towns, now the federated borough of Stoke-upon-Trent, there had been during the space of nine months 78 cases of the disease reported, and two had resulted in total blindness. Wherever nurses or medical aid had been required, they had been supplied at an average cost to the local authority of £3 1*s.* 9*d.* per case. He maintained that if all these cases had been left to be dealt with by a midwife the percentage of cases of blindness would have been very considerably greater. As the average cost of educating a blind child was about £490, the saving to the community was at once apparent. He considered that when a mother and her child were removed to a cottage home the patient should continue under the charge of the medical attendant and not under that of the health authority.

Dr. H. COOPER PATTIN (Norwich) presumed that Mr. Bishop Harman was not a medical officer of health, though he instructed them benevolently in the elements of their calling. The notification of ophthalmia neonatorum was obligatory in Norwich, and every case notified was at once investigated by a health visitor who was also a trained nurse and capable not only of giving sage advice, but also of affording skilled assistance. He pointed out that medical officers of health would be enabled more quickly to effect the removal of mother and child from unsuitable surroundings to a suitable hospital when all the forms of medical aid were coördinated in and made a part of the public health department of a community. Mr. Bishop Harman considered the disease with the obsession of a specialist, whereas the medical officer of health gave consideration in addition to the interests of the public, including its purse. Mr. Folker's observations on the economics of the question were very pertinent, and Dr. Pattin suggested that when medical officers of health reported to their authorities on the question they should not overlook that aspect as it had been placed before them by Mr. Folker.

Dr. J. C. MCWALTER (Dublin) maintained that ophthalmia neonatorum ought never to occur. If it did, there was a *primâ facie* case that there had been negligence on the part of the nurse or doctor in attendance. The duty of preventing such cases should be insisted upon, and when they did occur the general practitioner ought not to be relieved of his duty to treat them. There was a danger that the public would soon cease to attend to the warnings of doctors if the only remedy suggested was the appointment of more specialists. One distinguished oculist had told them that they should take a smear preparation of a suspected case, whilst another specialist had stated that unless a case were treated within 12 hours no good could be done, so that if one waited for the report of the bacteriologist it would be too late to take effective action.

Mr. E. H. T. NASH (Wimbledon) criticised the figures given by Mr. Folker with regard to the amount saved to the community, and called attention to the previous statement that 76 of the 78 cases notified in the Potteries were saved from blindness. That statement had been taken to mean that every case notified would have become blind but for the action resulting from notification, which was far from being correct.

A paper by Dr. JAMES NIVEN (Manchester) was read by the Honorary Secretary of the section upon

Summer Diarrhœa in Relation to House Flies,

in which the subject was dealt with as it occurred in Manchester. The advantages of this course were, in Dr. Niven's opinion, that the meteorological and telluric conditions were nearly the same throughout, and differences of rainfall as between one locality and another could be left out of account. Moreover, the fatality from diarrhœa being much influenced by social conditions it was almost impossible for one observer to form a judgment on the extent to which social conditions were at work in different large centres; but it was not nearly so difficult to form a correct judgment on this factor for one locality; and lastly, sanitary conditions could be better gauged for one area. The annual increase of diarrhœa in certain months of the year indicated a rapid transmission in some manner from person to person, and however the disease was kept alive from year to year it was certain that it remained at a low level of fatality from January until the fly season set in, when the fatality began to ascend rapidly, and after a brief period of consummation descended with nearly equal rapidity. However it was kept alive during certain months of the year it was so kept by direct infection, though the precise mode of transfer had as yet received no sufficient attention. Whatever might be the precise mode of conveyance, the infection was carried from infected human excrement to the food or lips of the infected person. The movement in the level of diarrhœal infection was the period at which the house fly began to be abundant. So far as the Manchester observations had gone, house flies had been very numerous in those households in which diarrhœa had occurred. A close correspondence existed between the number of flies captured in traps distributed in Manchester and the number of fatal cases commencing in the same week, or of deaths occurring in the following week or in the week next but one. When the incidence of the disease on districts was compared year by year it was found that the privy midden districts of Manchester tended to show exceptional fatality in warm years, corresponding to the fact that in those years middens became relatively to a much greater extent a source of flies. Dr. Niven urged that all horse manure and other fermentable refuse should be removed to a distance from centres of population at intervals not exceeding a week.

Dr. J. M. CLEMENTS (Beckenham) gave some notes upon an investigation of 44 cases of summer diarrhœa in a town in the West Riding in which flies were suspected to be a probable cause. A rough estimate was made of the number of flies in the infected houses, and flies were collected from 15 cases for bacteriological examination. In every house where diarrhœa occurred there was a large number of flies and some of the houses were infested with them. The samples of flies, 11 to 18 in each sample, were collected in sterile test tubes and classified according to species before being sent to the laboratory. They practically all belonged to the species *musca domestica*. When kept for a few hours the flies deposited large numbers of eggs on the side of the test tube, and from several batches the eggs were taken and deposited on moist bread and kept in the incubator, and the well-known larva and pupa stages observed. From collections of manure in various parts of the town some fly larvæ were obtained and their development

compared with those grown in the incubator. The larvæ hatched in the manure heaps looked almost black compared with the creamy white appearance of those grown in the incubator, due, no doubt, to their alimentary canal being filled with the contents of the manure pit. This fact should suffice to make us regard the fly with suspicion, even if its legs were not so admirably constructed for picking up and carrying whatever material its unsavoury habits induced it to rest upon. Dr. Clements expressed the opinion that summer diarrhœa was a disease depending on filth conditions, the poison entering the body usually in contaminated food, the common house fly being an active agent in distributing the poison. He did not consider that the capacity of patients for infecting others was very great.

Dr. JOHN BROWN (Bacup) said that the possibility of the house fly being a carrier of disease had been strongly urged by many medical men, especially by those who had been in tropical regions where typhoid fever was endemic. As a filth carrier and as a house pest the house fly should be destroyed, though it might serve some useful purpose in nature of which we were not now fully aware.

Mr. HERBERT JONES (Hereford) suggested that the nuisance caused by the large accumulations of excremental filth in country districts might be very materially lessened if the provisions of the nuisance sections of the Public Health Act, 1875, were more stringently enforced.

Dr. MCWALTER considered that the idea that the house fly was the cause of disease was a mere superstition, though he admitted that a great deal of good might be accomplished by removing accumulations of filth on which the flies were bred. In continental cities flies were very prevalent, but epidemic diarrhœa was not so common as with us.

TWELFTH SOUTH AFRICAN MEDICAL CONGRESS (1910), CAPE TOWN.—It was originally decided to hold this Congress in October, but it has since been decided to hold it from Nov. 7th to 12th. The Union Parliament is expected to meet on Nov. 4th and during that week and the following one the Union festivities, pageant, and other proceedings will take place. The President is Dr. C. F. K. Murray; the vice-president is Dr. C. Macgowan Kitching; the honorary treasurer is Dr. R. Arderne Wilson; and the honorary secretary is Mr. H. A. Moffat, F.R.C.S. Eng., whose address is Norwich Union Buildings, St. George's-street, Cape Town. There are the following sections—viz., medicine, surgery, obstetrics and gynæcology, public health, eye, ear, nose, and throat, pathology, and special subjects. Every registered medical practitioner in South Africa is eligible for membership. The subscription is 1 guinea. The secretary informs members of the medical profession intending to be present at the Union celebrations that they will receive a hearty welcome at the Congress. Dr. A. Jasper Anderson, medical officer of health of Cape Town, is chairman of the entertainment and reception committee.

NINTH INTERNATIONAL ANTI-TUBERCULOSIS CONFERENCE, BRUSSELS.—This Conference will take place at Brussels from Oct. 5th to 8th. On Oct. 4th there is a preliminary visit to Mons to inspect the measures there against tuberculosis. On the 5th there will be several meetings of various commissions—viz., those on sanatoria, milk-supply, solar radiation, international statistics, and international marks (or symbols) for the state of the lungs. On the 6th various well-known speakers will address the conference; among the list we observe the following abbreviated significations—viz., Philip—Edinburgh, Raw—Liverpool, Williams—London, Woodhead—Cambridge. On the 7th the following subjects will be discussed:—Protection of Children from Tuberculosis, Tuberculosis and School, and the Campaign against Tuberculosis and the Women. On the 8th there will again be meetings of the various commissions and reports on the progress of the campaign against tuberculosis in the various countries. These serious proceedings will be followed by an excursion to Antwerp, and on the Sunday an excursion to see the arrangements for the tuberculous at Liége, at the Sanatorium Borgoumont, and at the sanatorium of Mont sur Meuse at Namur. The conference is under the patronage of His Majesty the King of the Belgians. The honorary secretary is Dr. Pannwitz, Avenue Van Volxem, 253, Forest-Brussels.

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 18th, 1832.

REMARKS ON THE

DISINFECTING POWER OF HEAT,

As an Agent for destroying Contagion or Pestilential Miasmata.

By J. HANCOCK, M.D., London.

IT has been with some surprise that I have observed, that the disinfecting power of heat is regarded by gentlemen of science as a new discovery. I considered it a very common and prevalent idea, and recollect seeing the method employed, many years ago, on clothing, which had been worn by persons in small-pox, being smoked and *roasted*, I might say, by nurses, before a strong fire, for the purpose of destroying infection. I do not say this to invalidate the experiments of Dr. Henry,[1] who, it may be said, "improves whatever he touches." I have seen the same alluded to, or directed, I think in the old French Encyclopedia, and other works, which I cannot now call to mind; but I may refer, on this subject, to the letters of Dr. Lobb, addressed to Martin Folkes, Esq., president, and read at the meetings of the Royal Society, 1743-4. From these I beg leave to give a brief extract. "I will take up no more time," says Dr. Lobb, "at present, than to mention two methods for removing the *pestilential particles* from *infected goods* or apparel, which may prove both effectual and expeditious. One is by airing them before *brisk fires* made in chimneys;" and he conceives that, "as water is carried off by heat, so the pestilential particles also, which are more volatile, must be speedily removed by the action of heat from infected goods; that although simple exposure to the air would in time effect the same purpose, yet the means proposed *by heat* is likely to do more in one hour, than the other in several days." On the same principle he recommends, that persons who have been exposed to the *fomes* of pestilences, should take the earliest opportunity of approaching a brisk fire, turning round before it to get rid of any infection received in their garments. This, he thinks, deserves the attention of all who have been exposed amongst the sick.

The other method of disinfecting is, by boiling all such articles as may not be spoiled by the process, by which means, as in the application of *dry heat*, the pestilential particles will be carried up the chimney; for he believed the miasma is not destroyed or decomposed, but driven off by heat. *Lobb on the Plague*, p 48-51; and this opinion would seem to have been borne out by experiments on small-pox, as cited in *Lyon's Treatise on the Prevention of the Plague*, where it is stated that the smoking of infected clothing conveyed the infection of small-pox to some distance, denying that fire will destroy the pestilential miasm, if confined, but he believes it extremely evanescent on the approach of heat, p. 359. I may observe that this book of Dr. Lobb, although abundantly mingled with the superstitious philosophy of his day, contains much sound sense and useful information, and that his pathological opinions are rational, and rather superior for one of his time.

It would appear that, in earlier times, ships, merchandise, and all, were frequently burnt to get rid of contagion, but the good Dr. Lobb, conceiving the *pestiferous particles* may be thus disseminated in the air, proposes another measure equally rational and efficient—that of "*sinking* the infected ships to the *bottom of the sea!* and burying infected goods deep in the earth," which, he says, is likely to prove very effectual for preventing the propagation of *pestilence!* See p. 366. This would put out of countenance, perhaps, even the most zealous and froward advocates for contagion and quarantine of the present day. The fact seems to be that, in those days, they actually believed in the vagaries which are now known, and acknowledged by most honest men, to be set up as mere *scarecrows*.

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[1] Vide "Looking Back" in THE LANCET, Jan. 22nd, 1910, p. 261, and April 23rd, 1910, p. 1147.

THE LANCET.

LONDON: SATURDAY, AUGUST 20, 1910.

Florence Nightingale.

ON Saturday last the world learnt that FLORENCE NIGHTINGALE was dead. By her death we have lost a woman worthy of commemoration for her deeds and her creeds alike, the founder of our modern institutions for the training of nurses, and the example pre-eminent in our day of the Christian life, the life that is lived for the sake of others. By her initiative, by her achievements, by her example, FLORENCE NIGHTINGALE will stand for all time as the pioneer of skilled and scientific nursing; no less will her kindness of heart and tenderness of touch, sympathy of soul and desire to serve the sick and afflicted pass into the region of history. The primal qualities, without which no woman is a nurse—be her uniform and training what they may—were as fully developed in her as her powers of organisation and her ability to think largely. Susceptibility to the sorrows of others and capability to nurse the sick and suffering we have in abundance, and there is not a day nor an hour in which many patients do not feel that they have been bountifully blessed in the nursing administration placed at their disposal; but the career and personality of FLORENCE NIGHTINGALE are so important because in her, the apostle of scientific nursing, it was proved that such nursing does not consist in the exhibition of loveable or dutiful characteristics, needful though these are, but requires the recognition of the futility of any struggle against disease which is not based upon a knowledge of the physical causes which underlie disease, and a recognition of the hopelessness of remedies not directed to the removal of such causes. With the advance of medical and surgical knowledge the art of nursing has become more complicated. Newer and better methods have replaced the old, and a higher measure of general and technical education is required from women who contemplate entry into the ranks of trained nurses. But the underlying principles are the same as those which guided FLORENCE NIGHTINGALE in her spendidly successful efforts to elevate the profession of nursing into an organised and scientific calling.

We make no attempt to write a detailed biography of FLORENCE NIGHTINGALE; what she actually did is well known to all, while every newspaper in England has recalled to our recollection during the week the salient points in her career. But consideration of her most dramatic action will be in place, proving, as it does, how free from all exaggeration is our present and past eulogy of her. The hospital at Scutari, when FLORENCE NIGHTINGALE arrived there with her band of nurses on the eve of the battle of Inkerman, was a seething scene of loathsome confusion; the vilest of dangerous and contagious conditions were rife and were unalleviated by any of the usual accessories and supplies of a hospital, the patients in which were suffering, and of course with disproportionate acuteness, from the break-down of the commissariat. The miserable inmates had neither changes of clothing nor proper food; fever-stricken and pest-ridden, their admission to the hospital in itself was depriving them of what chances of life they might have had. Into this hell came FLORENCE NIGHTINGALE unafraid; courage and knowledge were her equipment, and not the least part of her knowledge was shown in her belief in order and the power of discipline. She could be inflexible as well as loveable. She left the hospital at Scutari cleansed. Routine was called up in chaos, hope replaced panic, and almost hourly the appalling death-rate dropped. We have spoken of her knowledge, and it is particularly important that no one should imagine that FLORENCE NIGHTINGALE went out to her work untrained. Ten years of her life had been spent in preparing, unconsciously, for the gigantic opportunity of benevolence which came with the Crimean war. A woman of means, and deeply touched by the sorrows of the sick poor, she left society on one side and sought a wider experience of nursing than was obtainable in a little Derbyshire village. There, as the squire's daughter, she was the benefactress of the villagers, and there the idea grew up strong in her that such individual efforts as she could make would be a source of immense strength to any nation if they could be properly coördinated and systematically trained. She visited all the hospitals in London, Dublin, and Edinburgh, many county hospitals, and some of the naval and military hospitals in England; then the hospitals of Paris and Lyons, Brussels, Berlin, Rome, Alexandria, and Constantinople. Trained in this strenuous way her talents of organisation were first displayed when she took over the control of the Home for Sick Governesses, and, with the help of Lady CANNING, succeeded in re-establishing the institution upon a sound basis. She had therefore practical and scientific experience at her command when the whole country was moved to rage and tears by the cry of RUSSELL, the war correspondent of the *Times*, in which he said: "Are there no devoted women among us able and willing to go forth and minister to the sick and suffering soldiers of the East in the hospitals at Scutari?" SIDNEY HERBERT, the War Minister, turned to FLORENCE NIGHTINGALE, and history says that she simultaneously turned to him; and within a few hours "the lady with the lamp" was on her way to the front. This is the way in which the whole story must be remembered, for the essence of it is that FLORENCE NIGHTINGALE did not so much perform a splendid deed of devotion out of her loving-kindness and patriotism, as place at the service of her country talents that had been matured with no idea of great deeds and eternal fame, but with the humbler hope of alleviating some misery in her generation. Heroine she was, but by no accident of temperament or emotion; she showed as a great woman on the stage of history because, and with no hope of playing any supreme part, she had prepared herself for all calls.

The deficiencies of the Army Medical Service during the Crimean campaign gave rise at the time to false ideas of medical neglect and incompetence, but FLORENCE

NIGHTINGALE was never in any doubt where the blame really lay. Her chief victory was over ignorance in high places. Medical men and medical officers of our army were well aware of the causes which led to the terrific toll of human life demanded by the conditions at Scutari, but science was powerless against crass officialdom. Letters from Sir ANDREW SMITH relating to the sanitary care of our army in the East, and published in THE LANCET in 1855, demonstrate the fact that if our soldiers were dimidiated by disease, exhaustion, and exposure, it was not because the medical department displayed lack of foresight, absence of zeal, or poverty in counsel. These letters are replete with wise suggestions, and the neglect with which they were treated by those who had the power and the indiscretion to override the Medical Director-General in his own department proved the need for reform in the war administration which afterwards was allowed on all hands to exist. Not the least of FLORENCE NIGHTINGALE'S achievements was that of awakening the official mind to the necessity in medical things of seeking, accepting, and acting upon the opinions and recommendations of sanitary and medical experts. She showed in her own life, and in a way that it was impossible not to understand, the value of trained and enlightened special knowledge; and in no small measure her career has been responsible for the growing, if slowly growing, respect with which scientific views are treated by government bodies.

Emotion as a Factor in the Development of Neuropathic and Psychopathic Symptoms.

IT is a commonplace of the novelist to depict the Anglo-Saxon as stolid and the Latin as volatile and emotional, and one of the redeeming features of the platitude is its truth. There are few who will deny, in spite of our ignorance of the psychology of crowds, that the Parisian mob is more prone to become inflamed by any passing wind of emotion, more instant in its cry of "Conspuez ZOLA!" or any other individual who has become for the moment its special aversion, than any corresponding mob of Teutonic origin. No attentive reader can scan the columns of the *Journal de Paris* without being struck by the daily recurrence of major and minor crimes which evidence a complete (and perhaps congenital) absence of self-control and an utter surrender to transient emotion on the part of the perpetrator. Our Italian correspondent has called attention frequently to the same position as it exists throughout Italy. While, no doubt, the human mind is essentially the same the world over, national and racial differences of temperament are so great that psychoanalysis is fated to be inadequate if their importance as factors in the genesis of neuroses and psychoses is ignored. It is well recognised, for instance, that among the Jewish race so-called functional nervous disease is more rife than among, say, the Scots; and, further, it is questionable if the "*grande hystérie*" of the Polish Jewess can be duplicated in the Scottish patient. If hysteria is the expression of mental disaggregation or dissociation, its phenomena must depend on the mental constitution of the subject, and this is a matter of the race. The traveller in Brazil may be witness of a sudden and violent altercation in the course of which knives are drawn, and be astonished to learn that the subject of dispute is whether a certain street leads to the railway station or away from it. That sort of thing is not likely to be observed in Bavaria, and hitherto has been unknown in this country, where, however, the national phlegm is no longer so pronounced.

During last winter the Société de Neurologie and the Société de Psychiatrie of Paris, which number among their members some of the most honoured names in medical science of to-day, held a *réunion* or joint meeting, or rather series of meetings, at which the subject of discussion was the rôle played by emotion in the genesis of neuropathic and psychopathic affections. The official report of the proceedings runs to more than 130 pages in the *Revue Neurologique*. The whole discussion was maintained on a high level, and many of the communications were profoundly interesting and suggestive, while the proceedings were fascinating by reason of the sidelights thrown on the working of the minds of some of our most distinguished French colleagues. Professor DEJERINE, for instance, admittedly one of the most experienced of the neurologists of to-day, avowed himself an ardent adherent of the view which assigns the development of hysteria and neurasthenia to an emotional shock. He considers emotion as much the most important—indeed, he would say the unique—factor in the genesis of these conditions. The explanation of the mechanism whereby hysteria develops after *le choc émotif* is more difficult. Why emotion should react on the vasomotor system of one individual, on the digestive apparatus of another, on the motor or sensory system of a third is unknown. Professor DEJERINE maintains stoutly that such diverse phenomena are prime; he denies that they are the result of any suggestion of any sort whatever, and believes that the peculiar mental condition of the patient will decide whether they are to be transitory or permanent. It is this peculiar mental constitution of the hysterical patient that explains why it is that in his case the symptomatology produced by an emotional shock is different from what is produced by the same cause in a case of neurasthenia. Many clinical instances were quoted apparently supporting this contention. Now when a neurologist so experienced as Professor DEJERINE expresses such weighty opinions, we naturally wonder what are the elements that make up the mental content of his patient—what, in fact, is the type of patient that has come before him. That emotion *per se* should be the exciting cause of neurasthenia and hysteria is not likely to be considered usual by those who are familiar with the matter here in England. As a nation we are less emotional, less exuberant, less gesticulative; we are more inclined to inhibit the outward expression of our feelings, to suppress their action on the motor system; and while emotional shocks are of frequent occurrence among our patients, their results are less noticeable and less permanent. It is important to remark, moreover, that M. BABINSKI was entirely opposed to the views enunciated by Professor DEJERINE. For him, hysteria is never the result of a shock, but always the result of suggestion, autosuggestion or otherwise. He quoted the observations of

Dr. NÉRI, who proceeded to the scene of the catastrophe at Messina immediately after the earthquake and fire, and who, examining more than 2000 persons suffering from shock, failed to find a single instance of hysterical contracture or paralysis. Further, M. BABINSKI personally questioned the mortuary attendants of four or five of the large Parisian hospitals, men who had seen during their term of office some 200,000 visitors to their mortuaries, and who naturally had been witness of many distressing scenes. He elicited from them the fact that they had never observed any hysterical attacks among the visitors, at least none which were severe enough to warrant the house physician being sent for. On these two facts he laid the greatest stress in his arguments against the emotional origin of hysteria.

The contributions of Professor JANET to the discussion were admirably lucid, and marked by rare clinical and psychological acumen. He deprecated exaggeration of the rôle played by suggestion in hysteria; the influence that a simple idea or ideas may have on conduct, on moral health, on the organism generally, is not sufficiently understood. It is very easy, according to Professor JANET, to say that the idea of such and such an accident has changed an individual's nature, made him ill, rendered him liable to "crises" of various sorts, produced paralyses or contractures, necessitated his sojourn in a hospital for months, perhaps years. The conception is strange, in spite of the eagerness with which it is accepted to-day. In an ordinary way ideas much more clear and important often fail to exercise any particular influence on our conduct and mental health. We are astonished to see men of science devote long years of their life to the prosecution of a single idea—we note and admire such concentration; yet we are not astonished to find feeble women, without any special moral or mental strength, consecrate ten years of their life to the idea that they have had an "attack of the nerves" and that paralysis has been suggested as the result. Professor JANET thinks that suggestion, or rather suggestibility, is merely one hysterical symptom among many others, and that it is caused by some other disturbance or impairment the roots of which pass much deeper into the mental life of the individual.

Science in the Country.[1]

Sir HORACE PLUNKETT is so well-known a personality that we need not apologise for introducing him in this instance in the limited character of an Irishman writing for the benefit of citizens of the United States upon a subject which he has made his own by experience in Ireland and in America. But it must be remembered that he is also a thoroughly wise man and a well-equipped scientific observer, so that we should be ungrateful if we did not recognise that his book teems with hints and suggestions applicable to our circumstances in England. In England, as in the United States, we have an insistent rural life problem upon the solution of which our continued national prosperity may depend in a greater degree than many of us recognise. The development of agricultural prosperity in the United States and its threatened decline have followed a different course, owing to natural circumstances, from that which has brought about the state of affairs now existing in England. In Ireland the extraordinary position has been reached that a whole new rural history can be, and is being, commenced, from which it follows that to Ireland those interested in land problems will probably look in the near future for many practical lessons. But for the present we make no mention of Ireland, and confine our attention, in the perusal of Sir HORACE PLUNKETT'S pages, to the application of his observations to one only of the countries composing the United Kingdom.

He starts with the proposition that in the United States, as in other English-speaking communities, the city has been developed to the neglect of the country. We need hardly refer to the excessive influence of the town in our own politics, to the preponderance assigned in our elementary education to the requirements of town life and town industries wherever that education may be administered, or to the migration from country to town which has depleted our villages to see that we have an analogous situation in England; for undoubtedly with us urban attraction has seriously handicapped any development of rural prosperity to correspond with the increasing wealth and influence of urban districts. With us, as in the United States, it is possible to say, in the words of Sir HORACE PLUNKETT, that "modern civilisation is one-sided to a dangerous degree, that it has concentrated itself in the towns and left the country derelict"—a tendency which he regards as peculiar to English-speaking countries where great industrial progress has left as its consequence the question whether rural progress cannot also be set in motion and the townward tendency checked. The methods by which this may be attained must differ widely in detail according to immediate circumstances, but the general conclusions arrived at in the volume before us deserve close study, and in particular we recommend these matters to medical men as food for valuable thinking. That the welfare of this country largely turns upon the health of the population is a truism; and that a return of a proportion of the population to properly paid agricultural pursuits would bring a vast improvement in public health is another. The imminent provision of a modified service of State medicine will take the second into account, as well as the first, and our profession ought to be equipped with as much information as they can obtain upon such matters. We read in Sir HORACE PLUNKETT'S book that "the predominance of the towns which is depressing the country is based partly on a fuller application of modern physical science, partly on superior business organisation, partly on facilities for occupation and amusement; and if the balance is to be redressed the country must be improved in all three ways. There must be better farming, better business, and better living. These three are equally necessary, but better business must come first. For farmers the way to better living is coöperation, and what coöperation means is the chief thing the farmer has to learn." Needless to say, the question of scientific farming is a very different one at home from that which makes itself heard "on the mammoth wheat farms where, as the fable ran, the plough

[1] The Rural Life Problem of the United States: Notes of an Irish Observer. By Sir Horace Plunkett. New York: The Macmillan Company. 1910. Pp. 174.

that started out one morning returned on the adjoining furrow the following day," and where the invocation of mechanical science has aided in the perpetration of "the greatest soil robbery in agricultural history." With us, however, as in Northern America, in different degrees and for different reasons, it may fairly be said that "the application of science to legitimate agriculture is comparatively recent." The scientist, classified by the cowboy as a "bug-hunter," is not regarded as yet as a possible instructor or collaborator by the old-fashioned British farmer, yet scientific entomology in our islands may find little less destructive insect pests on which to exercise itself than on the grain or fruit farms of the United States, and it may find a population of farmers equally or more unready to recognise its potentialities and to further its experiments. The scientific aspects of improved cultivation should contain elements of interest to the medical profession no less than the prospect of seeing an increased number of the population growing up in those health-bringing surroundings which are unattainable in the town dwellings available for the working poor.

The medical profession has watched with regret that movement which has come to be known as the "rural exodus," and which has not only brought loss to many of its members having their homes in country districts, but has produced upon all of them a sense of hopelessness when the far-reaching troubles of over-crowded town tenements and impossible rural dwellings are contemplated. In Sir HORACE PLUNKETT'S book we find recommendations as to how, by coöperation among those interested, better marketing of country produce may be obtained, and, what is no less important, how through that coöperation and the community of business interests accompanying it the diffusion of growing knowledge, the adoption of better methods of production, the enjoyment of common social recreation, may combine in the achievement of "rural regeneration." With regard to the assistance to be sought from the State in all this, the examples and illustrations derivable from what is already being done in the United States may not be readily accessible to us, nor may they be of easy application to our case owing to widely different circumstances of life; but the operations of the Irish Department of Agriculture and other Industries and for Technical Instruction bring us nearer home. The part which Sir HORACE PLUNKETT played in the initiation of that organisation is well known and the potentialities suggested by his words are vast. All interested in the welfare of this country should be glad to inform themselves upon the factors which have led to rural depopulation and upon the opportunities that may be with us for arresting the mischief. And especially do these matters concern medical men, for primarily it is the physique, the prolificity, and the hereditary influences of the nation that are in question, and it is to medical men as a body that the care of the population in these respects must be confided.

WE are informed that His Majesty the King has graciously consented to become a patron of the Earlswood Asylum, the well-known national training school and home for the feeble-minded at Redhill, Surrey.

Annotations.

"Ne quid nimis."

THE SUN-BURNT FACE.

RIGHTLY or wrongly, the face browned by the sun is regarded as an index of health, and there are some persons who feel that the money spent upon a holiday has been well spent if they come back sun-burnt. This view is in general justifiable, since the sun-burnt face implies that the individual has been exposed to a fresh, healthy, and open environment—to surroundings, that is to say, which have reacted upon him in a way which routine fails to do. It is true that nowadays the mere pigmentary effect of the sun upon the skin can be readily imitated by employing the chemical or ultra-violet rays of the electric light, and in particular the rays of the quartz mercury lamp; and so, if all the result required of a holiday was merely a sun-burnt face, this could be done in the space of minutes instead of an expensive holiday at the seaside extended over weeks. It follows that mere sun-burn is not, strictly speaking, an index of acquired health. No amount of ultra-violet ray treatment, however, can produce the decided general improvement in health and tone which a change of air and scenery does. The truth is that the sun's rays are only one contributory factor to the restoration of health, and therefore the sun-burnt face is merely evidence that the opportunity of an outdoor life has been seized. But the outdoor life connotes constant fresh air and exercise, in the wake of which follow healthy functional activity, good nutrition, and a general equilibrium of the system, all of which means that the machine is going smoothly, and that the life processes are not hampered by excess or by shortage. These conditions apart, it is probable that the bronzing produced by exposure to the sun is to some extent an indication of vigour and a satisfactory state of the blood, since the hæmoglobin of the blood supplies the pigment to a sun-burnt skin and in this way serves to protect the tissues. If this protection is not afforded blistering or sun eczema may result. In a word, sun-burn is merely a protective effort of the body. The active light rays of the sun, again, undoubtedly give a healthy stimulus to the respiratory process, since under their influence it has been proved that the quantity of oxygen absorbed is greater, while an increasing output of carbonic acid follows. It is interesting to recall in this connexion the experiment which showed the apparent anomaly that animals deprived of nourishment die sooner in the chemically active rays of the sun than when they are exposed to the inactive rays. The activity of the vital processes in these cases being augmented, the store of energy was soon used up. Exposure to sunlight, again, increases the number of blood cells, but the absence of light diminishes the number. A face burnt brown by the sun would seem, regarded in this way, to be a sensible object of a holiday, not, however, because the face is so bronzed, but because the circumstances which conspired to produce the brown complexion have other factors favourable to an all-round healthy state.

THE ROYAL COLLEGE OF SURGEONS IN IRELAND AND A CLAIM FOR STATE SUPPORT.

WHEN the scheme for the establishment of the new University of Ireland was drawn up we pointed out the injustice that was being done to the Royal College of Surgeons in Ireland. We showed that the scheme which was then brought forward, and which has since been sanctioned by Parliament, made a very invidious distinction between the

medical school connected with the Royal College of Surgeons in Ireland and all other medical schools in Ireland; for this was the only medical school to receive no Government grant. Such a course could not be justified, for the school had reached and maintained a high degree of efficiency. The competition with other medical schools in Ireland, especially in Dublin, has now become more acute, for the funds placed by the Government at the disposal of other schools has enabled them to compete unfairly by offering prizes and other attractions. Already there has been a falling off in the number of students at the College school, for while the number of class tickets issued for the winter session 1908–09 was 421, the number for the winter session 1909–10 fell to 350. The Council of the College has done its best to increase the efficiency of the school, and last year it expended £1000 on the anatomical department. Should the numbers of students continue to decrease still further, it may well be that the Council will find it impossible to continue to carry on the school, and then its doors will have to close. The President of the College has addressed a letter to Mr. Birrell, Chief Secretary for Ireland, drawing his attention to the grounds upon which the College is applying for a Government grant. The moral claim is great, and we sincerely hope that the Government will see its way to make an ample grant in aid of a school which has done very good work in the past, and is capable of doing very good work in the future. We trust that amid the storm and stress of politics the needs and claims of a valuable institution will not be neglected.

PHARMACOPŒIAL DOSES.

IN stating the doses of medicinal substances it has been customary to give both minimum and maximum doses, a convenient mode of expression which does not appear to have any disadvantages. The compilers of the current (eighth) edition of the United States Pharmacopœia, however, contented themselves with stating the average dose. As both the British and United States Pharmacopœias are now undergoing active revision, it is of interest to consider this question with a view of eliciting the opinions of those for whom a pharmacopœia is written. At the recent annual meeting of the American Pharmaceutical Association Dr. Clement B. Lowe suggested that the greatest benefit would result from stating not only the minimum and maximum individual doses, but also the maximum dose for 24 hours, as is done in a number of European pharmacopœias. This suggestion is worthy of the serious attention of those entrusted with the compilation of the forthcoming British Pharmacopœia, for the reason that it would be of great help in compounding prescriptions. It can hardly be expected that the majority of pharmacists are posted in regard to the rate of the elimination of drugs from the human system, and yet this factor largely governs the amount of a drug that can safely be taken in a given time. For instance, hydrocyanic acid is eliminated so rapidly from the system that there would be but little danger in taking a maximum dose every hour. Belladonna rarely produces fatal results owing to the rapidity with which it is eliminated. On the other hand, potassium bromide is eliminated from the body very slowly, and when administered day after day it tends to accumulate in the body, producing untoward results. The same is true of strychnine and many other powerful drugs, including digitalis, which is so slowly excreted that it is a question whether more than two maximum doses should be given during 24 hours. It is obvious, therefore, that the inclusion of maximum daily doses of powerful drugs in a pharmacopœia affords an additional safeguard against administering an overdose, by placing within the reach of the dispenser an authoritative expression as to the limits of safety. Dr. Lowe mentions the case of acetanilide, the average dose of which is given in the United States Pharmacopœia as 4 grains, although the frequent repetition of this dose would be distinctly dangerous. When this drug first came into use as an antipyretic two 5-grain doses, given at an interval of some hours, produced cyanosis. The only possible objection against a more careful and explicit statement of doses in a pharmacopœia would be that it would unduly inflate a volume already grown to somewhat unwieldy proportions. Such an objection, however, should not be allowed for a moment in a case like this, where the innovation is so obviously useful. A pharmacopœia, unfortunately, has to serve several purposes, some of which would seem to be far removed from its original purpose. At first pharmacopœias were compiled in order to establish uniformity in the strength and composition of medicines. Methods of preparing medicines were inserted in order to assure, as far as possible, that the products of different pharmacists should not differ in strength and composition. As time went on precise analytical methods were devised for standardising medicines, and these were included in order that there should be uniformity in the methods of different analysts. During the past decade or two the recognition of the British Pharmacopœia, as containing the official standards for medicines, has tended more and more to make the chemical portions of the book encroach upon the medical portions. In other words, there has been a tendency to consider the Pharmacopœia from the analyst's point of view rather than from the physician's. It is, of course, desirable that drugs intended for other than medical purposes should reach the requisite standard of purity, but this could be achieved by other means than by defining them in a pharmacopœia. In short, we arrive at the conclusion that in compiling a pharmacopœia all considerations should be subordinated to the needs of the medical profession and pharmacists, keeping in mind the original idea that such a work is intended as a guide to the pharmacist as to the composition and strength of medicines in common use. And in dispensing such medicines the question of dosage is one of commanding importance.

A POOR-LAW MEDICAL OFFICER AND HIS AUTHORITY.

TO the Steyning board of guardians one of its district medical officers in an application for an increased salary wrote thus: "The most peculiar feature of my district is the large number of paupers (technically known as 'foreigners') who have drifted into it as 'paying guests' from other unions round about. There are more of these 'foreigners' in my district than in all the other districts of the union put together. And I would ask you to make a note of this point: These people are no expense to the ratepayers of this parish or union, but they immediately become a heavy expense to me personally by drawing on my surgery for drugs and dressings. They come in as if it were a chemist's shop. Having diagnosed their own complaints they prescribe their own remedies, and if I offer to deny them they cry out that they are being 'done out of their rights.' A district medical officer should, of course, look after the genuine paupers of his own parish, but it was never contemplated that he should have thrust upon him a whole host from neighbouring unions. ..... I might be almost said to run a charity bureau, so little do I get out of the appointment now." Now, how did the guardians meet this medical officer's request? By a ready acquiescence, one would suppose. Not so. There was a discussion, both in committee and in the board room, on the question of non-settled relief, very little on the actual subject before them—the heavy work and the numerous calls

upon the medical officer—and finally the board adopted the recommendation of the committee that the application be not granted. The guardians think probably that ere long the whole question of the Poor-law will be the subject of legislation, and so the medical officer must continue his work on the miserable pittance of £80 per annum, which sum was granted him in 1902 after 13 years' service at £60 per annum, when the population of his district was between 5000 and 6000, as compared with 30,000 and over to-day. The Steyning board of guardians seems hardly to realise the far-reaching importance of the work of the district medical officer, or it would have met his application in a more generous manner. And those of the medical profession who lean towards a reform of the Poor-law which will leave a State medical service still in the control of the guardians will feel that the Steyning board, and authorities of like views, furnish unfortunate arguments.

THE PREVENTION OF BILHARZIOSIS.

IN THE LANCET of August 6th we published an important article on Bilharziosis and How to Prevent It, by Dr. James F. Allen of Pietermaritzburg, who has for many years given much attention to the subject. The comparatively small incidence of the disease and the mildness of its manifestations in South Africa are in marked contrast with the widespread diffusion and acknowledged severity of the malady in Egypt. We have it on the authority of Dr. F. C. Madden, professor of surgery in the Government School of Medicine, Cairo, that bilharzial infection appears to attain the highest level of pathological activity in Egypt. In a paper by Professor Madden published in THE LANCET of Oct. 23rd, 1909, description was given of some of the very serious lesions caused by the disease, which in many cases proves fatal; and in the Section of Tropical Medicine at the recent annual meeting of the British Medical Association in London Professor Madden showed a series of lantern slides depicting in a very graphic manner the ravages of bilharziosis on the genito-urinary tract and lower end of the bowel. No one who was present at that demonstration will deny the very formidable character of the disease as observed in Egypt at the present time. One authority has estimated that from one-third to one-half of the fellaheen population now suffer from bilharzial infection. On the other hand, Dr. Allen points out that in South Africa the natives suffer very little from the malady, and that no one now contracts it unless it be either a stranger who has not learnt the secrets of the land in which he has come to live, or else some wayward boy who, in defiance of the advice and warnings of his parents or friends, has indulged in prolonged bathing in forbidden waters. The natives wash their bodies by a process of laving with the hands, and though they both bathe and swim they are careful not to remain long in the water, and to this moderation Dr. Allen attributes much of their immunity from the disease. It is now held by many that the chief way in which bilharziosis is contracted is by protracted immersion in a contaminated river or lake, when the parasite enters the urethra or anus of the victims. Dr. Allen states that the disease mainly attacks boys below the age of puberty, who after prolonged bathing do not dry themselves thoroughly on leaving the water. Those with a long prepuce are particularly predisposed to the disease, and persons with a retracted prepuce are less liable to infection than those with an unretracted prepuce. The South African natives appear generally to recognise the risks associated with bathing, and with a view of guarding against infection while in the water some of them tie a string round the penis. Circumcision is regarded by Dr. Allen as a valuable preventive measure. In a former paper which he contributed to THE LANCET of May 8th, 1909, on Bilharziosis and Circumcision, he set out fully all the considerations involved. The malady has a wide distribution in Africa, especially in the basin of the Nile; it is even met with on the shores of Victoria Nyanza, from which the river takes its rise; but it is especially in Egypt that it has prevailed for many ages. We understand that during some investigations which were made by Dr. Armand Ruffer, director of the Egyptian Quarantine Board, he found evidence that the disease had existed in the bodies of certain mummies belonging to a very remote period. The practice of circumcision is said to have originated in Egypt, and from the records on ancient sculptures it is proved that the operation was practised some 2000 years before the Jews were led into bondage under the Pharaohs. Dr. Allen suggests that as the ravages of bilharziosis date back to remote ages, circumcision was originally performed as a preventive measure against bilharzial infection, but that later it came to be regarded as a religious rite. The difference in the incidence and severity of the disease respectively in Egypt and in South Africa warrants close attention being given to the suggestions put forward by Dr. Allen for preventing the malady by a diminution of the facilities for acquiring the infection. Prolonged bathing or immersion in contaminated waters must be avoided; the body must be carefully dried after leaving the water to detach any parasites which may be adhering to the prepuce or about the anus of the bather. Anyone attacked by the malady should be placed at once under medical observation, and his urine should not be allowed to enter any stream or pond so as to infect it. The patient should avoid all opportunity for a recurrence of the infection, since there is evidence that the parasite is unable to reproduce itself fully within the human body; so that if further invasion can be avoided the disease may tend to die out in the individual, as is said to be the case in South Africa. It is obvious that in Egypt education, especially of boys, as to the manner in which the disease is spread and how this can be avoided should be carried out. And even the practice of infant circumcision might be encouraged. It would indeed be a great achievement if by the adoption of the comparatively simple measures indicated by Dr. Allen, bilharziosis, which has inflicted such sufferings on the inhabitants of Egypt for thousands of years, could be entirely prevented or at all events materially reduced.

QUININE AND UREA HYDROCHLORIDE AS A LOCAL ANÆSTHETIC IN ANO-RECTAL SURGERY.

AMONG the many interesting papers read at the recent annual meeting of the American Proctologic Society, held at St. Louis, Missouri, there is one which deserves special mention. Dr. L. J. Hirschman of Detroit, Michigan, reported his work with quinine and urea hydrochloride as a local anæsthetic in ano-rectal surgery. The cases operated upon were 102 in all, and of these 49 were cases of hæmorrhoids and 14 were cases of fistula in ano. In 2 cases Ball's operation for pruritus ani was performed, and the remainder were operations of less importance. The anæsthesia in every case was perfect during the operation, and in only 7 cases was there any post-operative pain. The technique employed is the same as that used with a weak solution of cocaine, and Dr. Hirschman considers it perfectly satisfactory in all cases where suturing of the skin is not required. A 1 per cent. solution of quinine and urea hydrochloride was employed. He claimed that its advantages are: It is soluble in water; it can be sterilised; it is equal to cocaine in anæsthetic power; it is absolutely non-toxic; it has a pronounced hæmostatic action; post-operative anæsthesia generally lasts from four

hours to several days; and lastly, it is inexpensive and nearly always available. We notice that at the same meeting Dr. Arthur Hebb of Baltimore reported a case in which this anæsthetic was used for an operation for fissure and hæmorrhoids. An erythema developed over the ischio-rectal region, followed by a profuse serous discharge which lasted four or five weeks, while the wound showed little tendency to heal. From the brief account we have received of this case it appears to us to be one of septic infection, and it need not prevent a full trial of the form of anæsthesia adopted.

THE DIPHTHERIA OUTBREAK IN HATFIELD.

BETWEEN March, 1909, and May, 1910, 35 cases of diphtheria came under the notice of the sanitary authority at Hatfield. There were 10 deaths, constituting a mortality of 28 per cent. The incidence was chiefly upon children from 3 to 12 years of age living under conditions of bad housing and feeding. In November, 1909, when the epidemic began to assume serious proportions, steps were taken for the closure of the schools and the bacteriological examination of the throats of the school children, both those who had had slight affections during the previous two months and all other children who had been in contact with diphtheria patients during the same period. After the closure of the schools there was some increase in the number of notifications, and the medical officer of health advised the reopening of the schools and the employment of health visitors who should daily examine the throats of the scholars and use an antiseptic spray for all suspicious throats. Later in the same week, i.e., in the early part of January, 1910, the district medical officer of health met Sir William Church, Dr. H. T. Bulstrode of the Local Government Board, and Mr. E. F. Fremantle, the county medical officer of health, in conference. Closure of the schools was agreed upon, arrangements were made for beds at the Hatfield and Ware Joint Isolation Hospital, and it was further agreed that a skilled bacteriologist should be employed to investigate the causes of the epidemic. On Feb. 1st it was decided to reopen the schools except the infant school, which reopened on March 1st, and on April 11th the health visitor's engagement terminated. Dr. Lovell Drage, from whom we have these facts, came to the following conclusions: The mere isolation of school children suffering from diphtheria is insufficient to stay the spread of the disease, and as the bacillus is only found in the deeper parts of the diphtheritic membrane the bacteriology of the throat does not possess so great a practical value as has been thought. The bacillus may be found in a suppurating sore in any part of the body, or in the mucous membrane of the nose, or in a discharge coming from the ear, when none can be found in the throat itself. He considers that during times of epidemics or seasonal prevalence (September to February) great importance should be given to supervision of the children of a susceptible age, and therefore closure of the schools is not advisable, but examination of the children and their supervision in school are of the utmost importance. In development of this view he considers that the use of isolation hospitals should be limited, the beds being reserved for those cases which cannot be satisfactorily treated at home, either because of the severity of the attack or because of want of sufficient attendance or for any other definite reason. "A large proportion of cases are not severe cases in many instances of seasonal prevalence, and can be safely nursed at home, the more safely in these days when an efficient remedy in the shape of antitoxin is in use. The disease is not one which spreads from one patient to another very readily in the absence of contact, and this statement leads to another, that infection is not always conveyed during these seasonal prevalencies from one person to another. I have already tried to show that there are many conditions present which account for the difficulty in proving that one case is the result of infection from a pre-existing one. To my mind the great argument against the routine use of isolation hospitals is, that when a large number of persons are herded together suffering from diphtheria in different stages, a process of reinfection is constantly taking place. Those who are reinfected do not suffer from the symptoms of the disease, but they are in a condition in which they communicate it to others. Bacteriological investigation does not apparently provide a complete means of certainty of freedom from the disease. It is for this reason that it is not uncommon to hear of epidemics which are materially lengthened in this way; return cases are very far from unknown." During the time under review it appears that great importance was attached by laymen to various means of disinfection, and the purification of bedding, carpets, and perambulators was practised, but Dr. Lovell Drage is of opinion that these extreme measures were unnecessary in view of his belief that the disease-producing bacillus is unable to carry on existence in the absence of suitable conditions, such as are not found in the articles suspected by the public.

MR. WILLIAM ALEXANDER, F.R.C.S.

AT a meeting of the Liverpool select vestry held on August 9th the resignation by Mr. William Alexander of his post of visiting surgeon to the Liverpool Workhouse Hospital was announced. Mr. Alexander, who recently resigned his office as honorary surgeon to the Royal Southern Hospital, is one of the best-known surgeons in Liverpool. He was appointed visiting surgeon in the early part of 1875, during which long period he has performed literally thousands of surgical operations, the workhouse usually containing about 3000 inmates. In accepting Mr. Alexander's resignation with much regret, eulogistic references were made by members of the select vestry expressing the high estimation in which his services were held, not only by the select vestry, but also by the large number of patients who had passed through his hands, and with whom he was so deservedly popular. Mr. Edward Horrigan, a former chairman of the board, who spoke in support of the motion acknowledging Mr. Alexander's services and expressing regret at his resignation, said that few outside the sphere of Poor-law work had any conception of the nature, extent, and complexity of the work which Mr. Alexander had been called upon to perform. When he (Mr. Horrigan) mentioned that for many years on the surgical side of the hospital Mr. Alexander had to treat many thousands of cases a year, some idea of the magnitude and responsibility of his duties might be realised; and the total mortality and death-rate was the low figure of 51 per 1000—a powerful testimony to the skill and care with which the treatment was carried out. The hospital had during recent years been subjected to much searching criticism with regard to its structure and appointments, the most flattering terms employed being "old," "obsolete," and "antiquated," but, notwithstanding these material defects, under the supervision of Mr. Alexander the results obtained would not only compare favourably with other institutions, but in many instances far excelled anything accomplished in many modern and well-equipped hospitals. He remembered reading some time ago a description of the surgical work done at the hospital by Mr. Alexander, which contained what he might describe as a plaintive note of unrequital. It had reference to the visits to the hospital of Government inspectors, Poor law guardians, philanthropists, and public-spirited individuals of every description, the main part of whose duty was to find out mistakes. Where none could be found nothing was said,

except that the hospital had been "visited." Mr. Alexander's experience had been that in the bracing atmosphere of the Poor-law there was a good deal of east wind always blowing. However, he was pleased to note that the wind had at last, on the eve of Mr. Alexander's retirement, changed, and that a warm western zephyr of caress and appreciation was now blowing. Mr. Alexander's many friends will endorse Mr. Horrigan's wise and witty words.

THE POLLUTION OF SWIMMING-BATH WATER.

A QUESTION of considerable importance from the point of view of public health is the pollution of swimming-bath water, and the best way of dealing with this pollution is a problem which is exercising the minds of several public health administrators. Unfortunately, the swimming-bath is regarded in so many crowded localities as the proper place in which occasionally to cleanse the person. It is this abuse of the swimming-bath which gives rise to the difficulty, and if only those persons who misuse the swimming-bath in this way could be induced to keep their bodies clean the pollution of the swimming-bath would be a comparatively trivial matter. Only cleanly persons, it seems to us, should qualify for the swimming-bath, and the question is whether some steps should not be taken to ensure that the swimming bathers should be compelled to wash themselves before they enter the swimming bath. It would, however, obviously be difficult to insist upon this salutary measure in cases where, as in the summer season, hundreds of bathers daily use the swimming-bath. Even if it were possible without undue expenditure of ratepayers' money (which does not appear to be the case) to provide fresh water daily for these baths, pollution would soon happen after the use of the water by dirty persons who regard the swimming-bath as a convenient way of removing gross dirt from their bodies, utterly unmindful of the fact that the swimming-bath affords a pastime, a sport, and healthful recreation which is entirely distinct from a process of lavation. So long as the mere washing view of the swimming-bath is held, so long will disgusting pictures of the condition of the water be possible. The paper, for example, contributed to our columns this week on this subject by Mr. G. H. Pearce, the medical officer of health of the borough of Batley and the urban district of Heckmondwike, is not pleasant reading, and we have little doubt that a similar story is true in regard to other places. Mr. Pearce shows plainly enough, from the abundant colonies of organisms which developed on gelatin, how rapid is the bacteriological contamination of the water of the swimming-bath. "At present," he says, "we are faced with the fact that this analysis tells us that the water examined was nothing more or less than dilute sewage." It is true that many of the organisms were harmless, but such was not entirely the case, and it can readily be understood how disease could be spread from person to person using the baths. "Diphtheria germs can be found in the throats of persons who have had the disease, although they themselves present no signs of diphtheria, and all persons using a swimmiug-bath get more or less an amount of water into their mouths and nostrils whilst in the bath. Again, the germs of consumption could get into the water in a similar manner, and the prospect to swimmers who swallow mouthfuls of water containing the bacillus enteritidis sporogenes is anything but pleasant. Cases of sore eyes in children I have personally known to be caused through swimming in infected bath water, and it is an easy matter to speculate on the number of diseases which might be conveyed from person to person through the medium of polluted swimming-bath water." Mr. Pearce further relates that the baths manager told him that numbers of pediculi capitis are found on the towels after use, and they are also found sometimes in the dressing boxes. He suggests that the authorities should take steps to keep verminous persons from going into the bath and a useful regulation would be, he adds, the compulsory wearing of bathing caps by girls with long hair. All this is revolting enough, but what is the remedy? Best of all, of course, would be, as we have already indicated, the exclusion of all persons who are not in a state of bodily cleanliness. It is a pity that such a regulation cannot apparently be made practicable. Cost, again, excludes the emptying and filling of the baths daily. Finally, there are the schemes which aim at purifying and sterilising the water by chemical methods, but against such proposals is the strong sentiment that in spite of the proved efficiency of such methods the same water in which hundreds have bathed is being used over and over again, and "that feeling is not a nice one." Nevertheless, if, as Mr. Pearce's valuable work has shown, the bath water reaches a condition akin to that of dilute sewage, the water ought to be treated as such before it can be regarded as in any way fit to come into contact with the human body.

SIXTH NERVE PARALYSIS FOLLOWING SPINAL ANÆSTHESIA.

Dr. Wendell Reber of Philadelphia has done good service in collecting cases of the ocular palsies associated with the induction of spinal anæsthesia by various solutions. He communicated his paper to the section of ophthalmology of the American Medical Association. Of the 36 cases brought together 33 showed involvement of the external recti alone, two exhibited incomplete ophthalmoplegia externa, and one presented fourth nerve palsy. Stovaine was the analgesic employed in 21 cases, novocaine in six, tropacocaine in three, and alypin in one. In the 27 cases in which the time of onset of the palsy is noted the average was ten days after the spinal analgesia was induced. In 26 cases five seem to have been transitory, lasting only five or six days. In one case eight days elapsed before single vision was restored, in another 12, and in three others 21, 22, and 23 days respectively. In one case recovery is noted after six months and in another after eight months, but in five at least the palsy persisted at the time of the report of the case. The pathogenesis of the complication offers a fertile field for conjecture. Nuclear hæmorrhages (Oppenheim) or other forms of hæmorrhage (Kalt) occurring at the time of injection fail to account for the latent period preceding the onset of the paralysis. Inflammation due to sudden outflow of cerebro-spinal fluid (Müller) and infectious meningitis (Blanluet and Caron) are causes which have been invoked, but are likely to attract little support. Schmidt-Rimpler draws attention to the resemblance to post-diphtheritic paralyses, an analogy suggestive of some form of toxæmia. Babcock of Philadelphia, who has personally induced nearly 1500 spinal analgesias, lays great stress on the purity of the fluid injected. The drugs commonly employed are somewhat unstable, especially in the presence of heat, so that boiling for purposes of sterilisation may set free undesirable or even toxic substances.

THE Local Government Board, to facilitate the prompt use of diphtheria antitoxin in the case of persons who may be attacked by diphtheria or exposed to the infection of the disease, have made an Order, under Section 77 of the Public Health (London) Act, 1891, sanctioning the provision by the councils of metropolitan boroughs of a temporary supply of diphtheria antitoxin and of medical attendance in connexion therewith.

PUBLIC HEALTH ADMINISTRATION IN HAMBURG.

BY W. E. HOME, M.D., B.Sc. EDIN., M.R.C.P. EDIN., D.P.H. R.C.P.S. EDIN.,
FLEET-SURGEON, ROYAL NAVY.

(*Continued from p. 505.*)

The Management of Infectious Diseases.

LAWS about health in Hamburg, as everywhere in Germany, may be either imperial or enacted by the local authority.

Imperial laws have declared seven of the notifiable diseases to be national dangers; these are cholera, plague, typhus fever, small-pox, yellow fever, leprosy, and anthrax. Every case, every suspicion even of a case of one of these diseases, must be *immediately* notified to the police. Local ordinances have defined the next class, which are to be notified within 24 hours of diagnosis. They are diphtheria, scarlet fever, typhoid, relapsing, and puerperal fevers, and, in addition, epidemic cerebro-spinal meningitis, infantile paralysis, whooping-cough, trachoma, measles, mumps, food poisoning, pemphigus neonatorum, farcy, dysentery, hydrophobia, and trichinosis. These notifications are compulsory; they are not paid for, but the notice forms are carried free through the post. Infectious cases, just like ordinary cases of illness, are removed, if necessary, to the general hospitals, where they are treated in isolation blocks. There is an ambulance service, which at all hours is ready to remove patients to the hospitals in rubber-tyred carriages appropriate to the particular injury or disease. I have particular pleasure in acknowledging my indebtedness to Dr. Hermann Sieveking, of the Medical Board of Hamburg, for the courteous and valuable help he gave me in my endeavours to learn how they deal with infectious disease and manage their public health problems in Hamburg.

Tuberculosis must be notified if it attacks people engaged in occupations which have relation to provisions. Further, all cases of tuberculosis are to be notified where the doctor thinks disinfection is required, e.g., if the patient has changed his address. The fresh cases of tuberculosis received into the hospitals are reported weekly to the police. Suspected sputum is examined free at the Hygienic Institute if the patient's name and address are given. If a positive result is obtained it is at once communicated to the doctor and at the end of the week all such cases are reported to the police. As the medical officer of health is a police official, these notifications are really made to him. The prevalence of tuberculosis has been diminishing ever since 1840, but they are not satisfied with the rate of decrease and hope shortly to establish a dispensary system on the lines which Dr. R. W. Philip has made well known in Edinburgh. Depôts for distributing sterilised, pasteurised milk have been established—each under the care of a lady health visitor who visits parents and advises them concerning the care of their infants. These depôts are making a little money as they also supply "humanised" milk and milk with infant foods according to the physician's prescriptions for each case. It is noted with interest that the fight for pure milk, initiated to reduce tuberculosis, has not resulted in any coincident reduction of infantile summer diarrhœa. If a district veterinary surgeon finds a cow with a tuberculous udder he must at once inform the district physician in order that the people getting its milk may be known, and a possible later development of tuberculosis be explained.

Small-pox and Vaccination.

Small-pox does not exist in Germany, except where brought in by immigrants. Every child must be vaccinated before Dec. 31st of the year following its birth. Parents not bringing their children to be vaccinated are fined or imprisoned. Vaccination is generally done in the early summer when life for both child and mother is easier, and she can more easily take the infant into the open air. I saw a vaccination station, a large imposing building. The most important entrance is reached by a slope made easy for perambulators; this led into a large hall with solid furniture and fittings capable of seating about a hundred mothers. The doctors sit on a dais in full view, with scores of asepticised lancets by them. They are instructed to have their hands sterilised as if for an operation, and afterwards they must report that they have complied. As the mother brings in her child she is given a leaflet containing advice such as: wash the child every day, take the child out for a walk daily, let no one come near it who has an ulcer, skin disease, or erysipelas. Only touch the vaccination spots with hands washed clean for the purpose or with new cotton or linen, and burn everything that has any discharge on it. Never put on wet or ointment dressings unless the doctor specially says so.

There are offices, conveniently fitted, for the doctors, and a stable outside for the calves which yield the vaccine. Vaccination has to be repeated in the twelfth year.

The St. Georg Hospital.

Near the vaccination station is the St. Georg Hospital (1380 beds) built in 1856 and entirely remodelled in 1905. It is in no sense a charity, but is maintained by the Krankenkasse, an insurance fund, to which all persons with less than £100 a year must subscribe weekly while in health. Its buildings are two storeyed cottages taking some 60 patients each. I saw one ward. It had an attractive appearance. The beds were closer together than we put them, but special attention is given to ventilation. For example, all the air entering the aseptic operation theatre is filtered, washed, and warmed. The operation rooms were in use, so I could not see them, but I was taken to the bath-house and found there mud, brine, and peat baths, douches, and sprays. The physician in charge, an enthusiast, was charmed to find someone glad to see his charges, and was most kind to me. He had a new electric-light bath with straight filament lamps, hot-air and steam baths. A patient was in a hot bath; his rectal temperature, taken by an electrical resistance thermometer, was being written down on a chart. Apparently his temperature rose at first and when it began to fall he was taken out. I was shown a steam and air jet which is used in treating rheumatic arthritis of joints. Next came the greatest novelty. A patient appeared with a secondary circinate rash all over his back. From a reservoir of air at three atmospheres came a jet carrying with it small seeds, like little beads but lighter, and they were played through a hose on the lesion, which was minutely bombarded with these little things. The machine was called a grandinator (Horace; Odes, 1, 2, 2,) and is the invention of this hospital. It acts by exciting hyperæmia. "Just like the steam spray," said the doctor; and I quite think he was right. Upstairs were the "water-beds," tanks 7 feet by 4 feet by 3 feet, in glazed bricks, full of water about 99° F., the temperature regulated automatically. They are for bad burns or bedsores—seven in all. In them, on indiarubber hammocks, lie the patients, who appear quite comfortable. Over each is a large wooden bed-table, with flowers, books, &c. I do not remember having seen a similar installation since I was in Vienna in 1887. The difference in 20 years was very marked. Those were of wood in a dark and not very agreeable room; these were on the first-floor with plenty of light, nickel plating, enamel paint, and glazed bricks.

I was taken next to the Pathological Institute. It was brilliant; tiled floors and glazed bricks everywhere; chemical, bacteriological, and histological laboratories, and a small lecture room for, say, 50 auditors. There is no university here with students, but I believe the director of the hospital and all the staff turn up about 1 P.M. daily. The triumph was the post-mortem room on the first-floor; eight or ten tables of enamelled fireclay, nickelled head-rests, and nickelled post-mortem instruments on each table, and those comfortable little tables for the display of organs they have at Brompton. And, above all, everything scrupulously, meticulously clean.

The Port of Hamburg.

The medical officer of the Port of Hamburg, Dr. Sannemann, most politely permitted his untiring assistants, Dr. Wolter Pechsen and Dr. Rudolphy, to take me round and show me everything I wished and had time to see. Personally I can never see enough of ships, they are all so interesting and each so different; but there is a limit to time, and these two officers most kindly—indeed, I think, eagerly—helped me to see in three days all that was possible of the port sanitary administration, and gave me as full an idea as they could of their work outside the office.

First, of forecastles. In ships built since 1905 each sailor must have 120 cubic feet on a deck 6 feet 5 inches high,

unless he is lodged in a crew space specially well ventilated, when only 105 cubic feet need be given him. He must also have 16 superficial feet allotted to him in his crew space, unless a messroom is provided for him elsewhere, in which case he need only have 13 5 square feet. I saw the forecastles at an unfortunate time, with everybody busy, as the ships were preparing for sea. They struck me as well-lighted and tidy. In one sailing ship there were three rows of bunks; this is allowed if the berth fittings are of iron and can be taken down. In a newer ship the bed places, in pairs, projected free into the forecastle like the teeth of a comb, so there was air all round the sleeper. This, I think, is a great improvement. There were lockers in all crew spaces, but no food is kept in them. Separate wash places are common but not universal.

The existing regulations for emigrants date from 1898. Ships that have carried evil-smelling cargoes have to be cleaned and inspected before they are allowed to carry passengers. I was taken to such a ship which had last carried petroleum. Another inspector was present, obviously the equivalent of our emigration officer, and between them it was settled what procedure was necessary.

Before going to sea every ship has its medical equipment inspected. There must be a place for a hospital in every ship going abroad. An unoccupied cabin is good enough in a sailing ship for example, but it *must* be unoccupied. All medicines, hospital equipment, &c., must be provided for in accordance with the size of the ship. Drugs are looked over —e g , the date of the antidiphtheritic serum noted, and the instruments are examined (generally a very full equipment and supplied, I should imagine, by the company). A microscope and a bacteriological outfit must be carried by large passenger ships for the diagnosis of malaria, plague, typhoid fever, &c. Each emigrant must have 100 cubic feet of space on his sleeping deck, and for every hundred persons there must be 350 cubic feet of hospital accommodation, with two water-closets and a bathroom appurtenant. In one ship I saw a third cabin some 18 feet by 12 for use as an operating theatre or as a spare ward.

The Hamburg-American line takes thousands of emigrants abroad yearly. While in Hamburg the emigrants are lodged in a little village on an island where they are cleaned and kept under discipline for a time before they embark. The disinfecting station is quite complete. Emigrants come in and surrender their clothes at one end to the disinfectors (two current steam, one formalin at 80° C.), and wash themselves for an hour, after which they receive back their now disinfected clothing. The people looked clean, also they seemed quite satisfied. They are boarded either at 2*s.* or 3*s.* 6*d* daily. There is a post-office for them, also shops and churches. Each nationality is for convenience lodged in a different street. All the waste water from this inspection establishment is disinfected with chloride of lime before discharge into the Elbe.

Plague Prevention.

In this, as in every other port, the great question is, What are we to do about plague? How are we to kill the rats infected with the fleas which communicate the disease? Most authorities attack the rats with sulphurous acid, but Hamburg and the Hamburg-American line prefer carbonic oxide. Bremen, only 60 miles away, and the great North German Lloyd Steamship Company pin their faith to sulphurous acid, and so the discussion between the cities waxes warm. Bremen holds that sulphurous acid at a strength of 2½ to 4 per cent. destroys rats, insects, and plague bacilli, but does not damage cargoes. Besides there is no risk of poisoning men with it, and results show that it is effective against plague, for there have been no plague cases or plague rats found in N.D L. ships in recent years. Hamburg rather neglects this last argument but asks: "Supposing this gas at 4 per cent. does not damage cargoes, will it at that strength certainly kill all the rats?" There was the Algerian case in which as the rats lived after a 4 per cent. fumigation an 8 per cent. concentration had to be used, the cargo was damaged, the flour would not bake (sulphurous acid remaining in the flour inhibiting the growth of yeast). Even if carbonic oxide kills only the rats, at any rate it does kill them all, and the insects and plague germs may be attacked later after discharge of the undamaged cargo. The Hamburg regulations prevent risk to men, though about four people were killed in the early days. This method is just as cheap as the sulphurous method. It is claimed to be thorough, while the other is alleged to be a "symholische Handlung," a merely ritual observance and "Scheinmanöver"—i.e., "eyewash."[1]

I was taken to the small tug which has been fitted as a disinfecting ship on the method of Nocht and Giemsa. Here coke is burned with restricted air-supply in order to produce smoke containing a maximum of carbonic oxide. Steam is raised incidentally as a by-product. There is a very neat arrangement for analysing the smoke; when I saw it 79 per cent. was nitrogen of course, and 10 per cent. carbonic acid, and 11 per cent. carbonic oxide. The steam drives a fan, which forced the cooled and washed carbonic oxide into the ship through a junction box, from which four great hoses take it into each of the holds. It takes four hours to fill the ship; for four hours the holds are closed, and during this period they blow air through the ship; afterwards they leave the hatches off for 12 hours, when discharge of cargo is commenced. Thereafter disinfection with sulphur or formalin is done if necessary. Meanwhile, the ship's company are disinfected in the tug, where there are a current steam disinfector and six bath compartments. The waste water is collected in a tank and boiled before it is discharged into the Elbe. This disinfection is only compulsory for ships in which rats, certified by the Hygienic Institute to be plague-infected, have been found. If, when this occurs, any cargo has been already discharged it must now be disinfected, as must also any ship which has received portions of this cargo. Methods here are remorselessly thorough.

The Hospital for Tropical Diseases and the Attached School.

Dr. H. Werner was good enough to show me this hospital and the school. The wards were bright and comfortable, rather hot I thought them, but they are kept so because the patients have just come from the tropics. The beds had wire mattresses, and, like the chairs, had galvanised iron frames. The clinical sheets give about an inch to a day, and the night hours are distinguished by a faint yellow wash. Temperature (curve in black) is taken by routine four times daily and oftener in important cases. Pulse curves are marked in red. Urine, its amount and specific gravity, is always logged once at least. Albumin, if present, is marked by a blue chalk pencil ring, bile pigment by green, and sugar by red rings. The character of the parasites found microscopically in the blood is diagrammatically represented on the occasion of each examination, and the percentage of hæmoglobin is noted once at least. The characters of the blood cells, the percentages of polymorphs, &c., are noted. In cases taking quinine a statement is made as to whether or no the urine gives the quinine reaction to the biniodide of potassium and mercury which proves absorption. (I did not see this reaction, as unfortunately there was no clinical material available at the moment.) The charts are large, about twice foolscap size, and in this manner are made descriptive and very interesting. For malaria they give 3 grains of quinine hydrochloride five times every day for eight days, then intermit for two days and give another eight days' course, repeating this with successive intervals of 3, 4, 5, 6 days, until, at the end of two months the patient is cured—that is, unless he comes from the borderland of Bolivia and Brazil, where the infection seems particularly resistant, and not defeated even by double doses of quinine. Some 60 of these cases, tertian or double tertian, had been seen. Dr. Werner is to read a paper on these cases at the German Colonial Congress in Berlin in October. Quinine is given in the prettiest oval capsules, made by Zimmer of Leipzig. They are in two halves pleated together along their equator. When they are put in water the capsule dehisces, and so when swallowed the hydrochloride is quickly exposed to the action of the gastric juice. The adjacent tropical medicine school is too small and is shortly to be rebuilt. The expense is to be borne mainly by Imperial authorities, but the local funds will furnish £650,000.[2] I may specially mention one thing which struck my attention—a particularly striking set of parasites, tænia, distoma, arranged on 45 microscopic slides, placed side by side in three rows, and displayed by an electric light, which, to prevent damage to the exhibits, went out in 15 minutes, or earlier if the case became too hot.

[1] Archiv für Schiffs- und Tropen-Hygiene, pp. 205-6, April, 1910.
[2] Ibid., May, p. 322.

While I was over in Hamburg on leave everyone I met was politely eager to ensure my seeing everything that was possible. If I may single out any one act as specially striking in its hospitality, it was the offer made to let me take, even back to England, any book I wanted from the library of the Hygienic Institute if I would return it in a fortnight. This seemed to argue a very high devotion to the advancement of science.

MOTORING NOTES.

By C. T. W. HIRSCH, M.R.C.S. Eng., L.R.C.P. Lond.

The Darracq Two-seated Doctor's Model.

THE Darracq two-seated doctor's model deserves attention. It is not a large car, though quite large enough for a medical man, and has ample power; and yet the tax for the profession is but £2 2*s*. It has, what so many would-be motorists fancy, a four-cylinder motor of the monobloc type, thus ensuring smooth running and silence. To all this is added the important feature, at any rate to most medical practitioners, that, though a good, it is also a cheap car. With the leading constructional features and principles of the chassis probably most of my readers are familiar, for when the first model was put on the market, being impressed with the description that was sent to me, I obtained one for a three days' test, and gave the results of my experience with the car in THE LANCET of Oct. 30th, 1909. The main points are simplicity, accessibility, and a reasonable cheapness, and these have been obtained without in any way sacrificing the quality. The frame is stamped from a single sheet of steel, and a flange on the outside serves to receive the carriage work, which is thereby enabled to be hung some four inches lower—an important point in these days when low bodies are so popular. On the inside the steel is pressed to form an underframe, which is continued to the rear of the vehicle, so providing a complete and perfect undershield, and protecting the mechanism from mud and dust. The bore of the new model is now 80 mm. and the stroke 120 mm., thus bringing the car into the (to doctors) £2 2*s*. tax class. The dashboard is free from the usual unsightly oil-box, lubrication being by a pump in the crank-case operated by the cam shaft which lifts the oil from a sump beneath and maintains a constant level of oil in the crank chamber. Cooling is by a centrifugal pump driven off the half-time shaft. The carburettor was fully described in my previous account, but now the petrol enters from below, thus ensuring a constant head of petrol in the tank, even when nearly empty. The accessibility of the gear-box has been carefully studied, and neither levers nor rods cross the box. The gears are controlled by a side lever working in a gate quadrant, and the whole of the selector mechanism is enclosed in the gearbox, and therefore works in oil, enabling a particularly easy and silent change of speed to be made. A great improvement is that the old dog clutch form of direct drive is now replaced by the efficient method of an internal toothed wheel. The control is by means of a foot accelerator. Ignition is by a Bosch magneto.

Recently a Cornish medical friend bought one of these cars, and as I was anxious to put one through its paces I was delighted when he kindly invited me to take delivery of the car and drive him as far as Exeter. The arrangement was that the owner should come up by the night train arriving at Paddington at 6.30 A.M., and that I should meet him in the car, the makers sending the car down to pick me up at Woolwich so that I should get there in time. They certainly did that, for it was hardly 5 A.M. when I was aroused by the car at my gate. I have not as a rule found manufacturers so punctual. The roads were clear and the Darracq chauffeur certainly gave me a demonstration of what this undoubtedly easy riding, comfortable machine could do. In fact, though I have on many occasions and in all sorts of cars done the journey to town, I must say that I have never performed it in anything approaching the time, and, what is more, I do not think that I should like to do it again at the rate which we did it in. As a result, I had over an hour to wait, during which time I had ample opportunity to inspect the machinery and body. The latter struck me as ideal for the medical motorist. The screen is of the Cromwell pattern, and the high side doors are certainly a complete protection. The victoria hood, which could be easily lowered, came well over the front glass and gave complete cover to the occupants, and with it up there was a marked absence of draught—an important point for a doctor, who may have to spend hours in the car in all sorts of weather, and, as already mentioned, this hood could be put up and down almost like an umbrella, without disturbing the occupants. The only factor I rather objected to was that both the brake lever and change speed were outside the door. This, of course, gives a neater look, but it is not as convenient for the driver, especially if it is raining. Messrs. Darracq seemingly have discovered this, and I understand that in future the door will be between the two levers, the change speed being on the inside, as is the case with their standard side-entrance four-seater bodies. The seats are well upholstered, are tilted slightly up in front, which certainly tends to the comfort of the occupants, and also fit properly. Those who have spent hours hitching about with cushions constantly sliding forward will appreciate this. There is room, too, for the driver to get out without his neighbour having to descend, which is the next best arrangement to making the door on the driver's side available for exit. Personally, I trust that some day this will be possible, though with side gate change and hand brakes the removal of the blocking these parts cause presents a problem difficult of solution. Perhaps, in the near future, the gate change will be on the driver's left. I suppose a little practice would enable one to work with that lever there: it is the position adopted on Lanchester cars. And while dreaming of the motoring doctor's ideal, the question of starting from the driver's seat should be considered; for a very little extra the Bosch self-starting magneto could be fitted in lieu of the one supplied with the car, or instead one of the foot pedal methods of cranking the engine.

Messrs. Darracq had only received the car on the previous afternoon from the coachbuilders, and as various extras had to be fitted it was sent to fetch me without any previous trial run. Of this I had a good proof, as prior to reaching Newbury, though the engine was pulling well, the progress was not as rapid as we anticipated. Feeling the fly-wheel revealed the cause; it was burning hot, which demonstrated that the clutch was slipping. This slight functional disorder, which is rather prone to occur with new cars when the leather on the male clutch member may be dry, is easily rectified, the clutch spring being contained in a casing which has a left-handed thread, so by rotating it to the left the tension of the spring is increased, and a bolt, which has to be slackened to do this, when tightened up again catches in a notch, and so keeps the casing from slipping. When making this adjustment, it is also essential to see that the withdrawing fork has a little play, otherwise, though the spring may be sufficiently strong, the fork may prevent the male member from going right home. As soon as this very slight adjustment had been made the car was quite as rapid as we desired, and with the accelerator pedal right down, even too rapid to conform to the legal regulations of the road. Frequently with engines of this size there is some little faltering if a hill is attempted on the direct drive, but with this car, though it would have been excusable, it did not take place: it was like a much higher horse-powered vehicle and always rose to the occasion. In fact, it took the incline out of Maidenhead easily on the top, and as we had to slow down for traffic as we approached the hill this was a good proof of its power and the nicety with which it could be controlled. At Newbury we left the good surfaced main road and took the Highclere and Dyley Hill route to Andover. This included some ascents of 1 in 14, which were mounted on the top gear, and three of 1 in 10 were easily negotiated on the second speed. I attribute this to the fact that the carburettor suits the engine it feeds, thus permitting immediate response to the control. These hills, as well as some we encountered near Mere and Wincanton, also showed how smooth the clutch was when properly adjusted, and yet in spite of that how positive was its grip. From Andover to Salisbury the road was excellent. In the town I had a few occasions to use the brakes, and found those on the driving wheels and the one on the propeller shaft immensely powerful and yet soft in action. While filling up with petrol here, as we had done over 100 miles, we felt the back axle bearings, which on all new cars with the plain type need watching during the first few days so as to make sure

that they are lubricated, and though they were quite cool, we took the precaution to inject a little thick oil, and then to refill and screw up tightly the grease lubricators. I know that a good many advocate ball bearings, but white metal ones seem just as good if only they are watched and kept well oiled, until the shafts have well bedded themselves, which usually occurs after a few hundred miles' running. After Salisbury, I did what I have, I must confess, done before, and what so many motorists do—I lost my way, and instead of making for Shaftesbury we found ourselves on the hills near Hindon, and that, too, with almost tropical rain, which accompanied us to nearly as far as Exeter. In spite of the heavy roads the car took many of the hills on the top speed, and on reaching our destination we felt more than pleased with the running, which for a maiden trip was very good.

What an ordinary owner wants to know is whether the cheapness of the car makes its presence felt in rapid depreciation or in actual breakdowns. From my actual experience with this make of car, and from the testing I gave it on the 200-mile run to Exeter, I am of opinion that it is in every way a sound piece of engineering, well designed and well built, and worthy of the consideration of a doctor in search of a mount.

The Darracq Doctor's Coupé.

In addition to the doctor's model just described, Messrs. Darracq supply their 14-16 h.p. motor with a new type of body, "the Coupé." This is a two-seater, with a leather hood that comes forward and can be fixed to the frame that supports the front glass. This glass is hinged to the top of the frame and opens forwards, and thus in wet weather a clear view can be obtained and still the rain can be kept out. The high side doors contain windows which can be drawn up and which then fill in the space between the hood and the screen frame. Thus the driver can be absolutely shut in and obtain complete protection, while in fine weather the car can be opened in a few seconds. A good point is that the second seat is farther back than the driver, and so the driver can get out on the off side without any need of disturbing the other occupant. The change-speed lever and hand-brake are both inside the door, and are so arranged that anyway an averaged-sized driver can get out on his own side. I used one of these cars and came to the conclusion that they are most comfortable and also serviceable for both town and country use for the doctor who drives his own machine. In fact, as some of my patients expressed it, it is a typical and ideal "pill box." The body, too, is light, and does not in any way interfere with the car's liveliness, or its ability to mount average gradients on the top gear. While in town I was able easily to creep slowly in traffic on the direct drive, and when an opportunity presented itself to get away rapidly. I must say, too, that the windows sliding into the interior of the door, though slightly adding to the weight, appeared to me much better than the type in which, to obtain a few pounds less weight, they are detachable and carried in a box at the back of the car.

The Motor Stethoscope.

The stethoscope can be employed with advantage in locating abnormal motor sounds. This fact has already been alluded to in these columns. Many a motor, which otherwise seems to be perfect, may have a disagreeable tap. Taking the engine apart, though interesting, is laborious, and if given out to be done may be costly, and this can frequently be saved if the trouble can be located and diagnosed before disturbing the parts. To do this the motor stethoscope has been introduced by Messrs. Brown Brothers, Limited. It is much like the special one used in my student days at the hospital, made with extension rods, so that the hearer was beyond the longest jump of even an East-end active flea, only here it is made long so that it may reach any part of the mechanism. Over a motor valve every scrape in the action of the valve can be heard; over a ball-bearing the normal roar is typical, while if a ball be cracked the adventitious noise is beyond mistake. Those who do not like to employ their professional instrument for motor diagnosis will find the one sold by Messrs. Brown Brothers most useful and accurate.

Repairs and Hands.

The one great objection to doing motor repair jobs is that it is not good for the appearance of one's hands, which is, of course, a serious matter for professional men. So I am sure that all motor enthusiastic colleagues will welcome the "Flash Antiseptic Hand Cleaner" which is sold by Messrs Brown Brothers, Limited, and which is certainly very good for cleansing the hands from the grease and dirt that are so unpleasantly adherent after attending to a motor.

THE MEDICAL LIBRARY ASSOCIATION.

THE annual meeting of the Medical Library Association was held in the Library of the Royal College of Surgeons on July 26th, under the presidency of Professor W. Osler F.R.S. After the transaction of some formal business the future work of the association was discussed, and amongst other things it was decided to set in hand at once the preparation of a list of periodicals in the British medical libraries, offers of assistance having been received from all parts of the kingdom.

On July 27th an opening meeting was held in the Old College of Science, South Kensington.

Professor OSLER in a brief speech made reference to the different types of medical libraries in the British Isles, and pointed out what valuable work the association might render in the way of bringing about greater coöperation amongst them. He appealed to those present to do what they could to increase the number of members of the association.

Mr. VICTOR G. PLARR (Librarian, Royal College of Surgeons of England) read a paper on the Catalogue of the College. He began by stating various reasons why it was not easy for the librarian to write on library work. Librarianship was the quintessence of obscure and faithful routine, and the good librarian was not conscious of himself or prone to analyse an almost instinctive set of practices. The last printed supplement to the Author Catalogue of the Library of the Royal College of Surgeons was issued in 1860, and then for many years, as the library rapidly increased, a rough card catalogue was kept by old Dr. Chatto, until the present librarian's immediate predecessor, Mr. James Blake Bailey, determined to catalogue the whole library (which now numbers more than 60,000 volumes). He entered light-heartedly on what has proved an enormous task, extending over some 20 years, but now practically completed, at least from the point of view of the modern medical profession and modern research. During the last 10 years, more than 47,000 catalogue cards, some of which are necessarily voluminous, have been written out. These are in most of the European languages. The ideal cataloguer must be a logician, a linguist, especially a Latinist and German scholar, and much else besides, as no scrap of knowledge comes amiss when dealing with scientific bibliography. His work admits of no sensational triumphs, but he has the satisfaction of building a small part in the great fabric of civilisation. He makes few inventions. One of the few recently introduced in the College library is a Catalogue of Literatures or Bibliographies, which now numbers some 15,000 entries, and has proved of use to researchers. Mr. Plarr illustrated his paper with anecdotes bearing on literary etiquette and routine, and at the close of it quoted passages from Bishop Hall and a modern medical poet, Dr. John Todhunter, both of whom have eloquently recorded their impressions of a great collection of the works of dead authors.

A second session of the association was held on July 28th, under the chairmanship of Mr. PLARR.

Mr. C. R. HEWITT (Librarian, Royal Society of Medicine), in a paper on the Organisation of a Medical Library, emphasised the necessity of having in London a library with accommodation for all the medical literature published, both present and past. He also dealt, in a very practical way, with such important subjects as staff and readers, principal works of reference, author and subject catalogues, arrangement of books, &c.

Mr. H. M. BARLOW (Assistant Librarian, Royal College of Physicians of London) showed how medical bibliography in Great Britain had been sadly neglected, and it was with the laudable intention of increasing the utility of medical libraries in this country that the Medical Library Association had been formed. The inception of a movement of such far-reaching importance would perhaps not meet with the sympathy and support it deserved. Two questions might be raised—namely, Of what use to our library can such an organisation be? and, Considering the limitations of its

scope, medical libraries being few, with what success is it likely to be attended? The answers to these questions would be found in a short account of the rise and progress of the Association of Medical Librarians of the United States, and of the results accomplished by its exchange. The relative positions of Great Britain and the United States in regard to the number of medical libraries already in active existence were also considered. Details cannot be given in this abstract, but Mr. Barlow's deductions were as follows. Taking as criteria (1) the rise and progress of the medical library movement in the United States, and (2) the comparatively extensive resources of medical literature in Great Britain, Mr. Barlow considered that we had a clear and conclusive answer to the question, With what success is it likely to be attended? The Exchange Bureau in the United States was a successful working organisation. Material benefits were derived from it. The adoption of a similar exchange by the Medical Library Association was a sound and useful object, and should the merits of the association rest merely on the strength of the material benefits it was likely to offer, rather than on the more worthy principle of stimulating the medical library movement generally, there was a satisfactory answer to the former question, Of what use to our library can such an organisation be? Mr. Barlow also dealt with another of the important objects of the association, the increasing of facilities for reference work.

Mr. A. L. CLARKE (Assistant Editor and Cataloguer, Royal Society of Medicine) presented a valuable paper on Abstracts and Extracts in General and Scientific Literature. He dealt in turn with general, educational, scientific, and legal literature. Brief abstracts, giving just enough information, should contain (1) the author's opinion in a few words; (2) an outline of statistics (if given); and (3) a concise description of the method detailed, whether of a laboratory process, of a technical or manufacturing process, or that of a particular medical treatment or a surgical operation. Anything less than that was valueless. More than once he had seen the following annotation in a review of current literature, "The title of the paper sufficiently indicates its contents," or something to that effect, and no more. That was the *reductio ad absurdum* of abstracting.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8678 births and 3603 deaths were registered during the week ending August 13th. The annual rate of mortality in these towns, which had been equal to 11·3 and 10·7 per 1000 in the two preceding weeks, rose again to 11·1 in the week under notice. During the first six weeks of the current quarter the annual death-rate in these towns averaged only 11·1 per 1000, and in London during the same period the death-rate, calculated on the probably over-estimated population, did not exceed 10·5 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 3·5 in Leyton, 5·1 in Walthamstow, 5·3 in Hornsey, and 5·5 in Devonport; the rates in the rest of the 77 towns ranged upwards to 17·8 in Sunderland, 18·8 in Barrow-in-Furness, 20·3 in Tynemouth, and 20·7 in Bootle. In London the reported death-rate last week was again so low as 10·3 per 1000. The 3603 deaths registered last week in the 77 towns showed an increase of but 127 upon the exceptionally low number in the previous week, and included 434 which were referred to the principal epidemic diseases, against 353 and 347 in the two preceding weeks; of these 434 deaths, 192 resulted from diarrhœa, 95 from measles, 79 from whooping-cough, 30 from diphtheria, 26 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·3 per 1000, against 1·1 in each of the three preceding weeks. No death from any of these epidemic diseases was registered last week in Walthamstow, Southampton, Plymouth, Norwich, Northampton, Hornsey, or in ten other smaller towns; the annual death-rates therefrom ranged upwards, however, to 4·4 in Bootle, 4·5 in Wigan, 4·6 in Tynemouth, and 4·9 in Barrow-in-Furness. The deaths attributed to diarrhœa in the 77 towns, which had been 102, 120, and 115 in the three preceding weeks, rose last week to 192; the highest annual rates from this cause during the week were 2·4 in Burnley and in Middlesbrough, 2·6 in Rhondda, 3·4 in Wigan, and 4·4 in Bootle. The 95 fatal cases of measles showed a further slight increase upon the numbers in the two preceding weeks, and caused the highest annual rates of 1·3 in Sunderland, 1·8 in Tynemouth, and 4·1 in Barrow-in-Furness. The 79 deaths from whooping-cough exceeded by but 1 the number in the previous week; this disease caused a rate equal to 2·8 in Tynemouth. The 30 deaths from diphtheria showed a decline of 3 from the number in the previous week, and included 6 in London, 4 in Manchester, 3 in Hull, and 2 both in Birmingham and in Leeds. The 26 fatal cases of scarlet fever, showing a slight increase upon the low numbers in recent weeks, included 2 each in Portsmouth, Stoke-on-Trent, Manchester, and Sheffield, and 3 in Rhondda. The 12 deaths referred to enteric fever were fewer by 3 than those in the previous week, and included 4 in London and 2 in Nottingham. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been 1563 and 1523 in the two preceding weeks, had further declined to 1490 on Saturday last; 163 new cases of this disease were admitted to these hospitals during last week, against 173, 179, and 165 in the three preceding weeks. No case of small-pox was under treatment in the Metropolitan Asylums at the end of the week. The 962 deaths registered in London during last week included 113 which were referred to pneumonia and other diseases of the respiratory system, showing a decline of 11 from the number in the previous week, and were 14 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 23, or 0 6 per cent., of the deaths registered during the week in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, and in 55 other smaller towns; the 23 uncertified causes of death in the 77 towns included 3 in Liverpool, and 2 each in St. Helens, Bury, Huddersfield, Sheffield, Hull, and South Shields.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 836 births and 460 deaths were registered during the week ending August 13th. The annual rate of mortality in these towns, which had been equal to 12·7 and 12·3 per 1000 in the two preceding weeks, rose again to 12·7 in the week under notice. During the first six weeks of the current quarter the death-rate in these towns averaged 12·4 per 1000, and exceeded by 1·3 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 7·8 and 9·5 in Leith and Paisley, to 19·8 in Greenock and 21·0 in Perth. The 460 deaths from all causes in the eight towns last week showed an increase of 15 upon the number in the previous week, and included 58 which were referred to the principal epidemic diseases, against 58, 46, and 44 in the three preceding weeks; of these 58 deaths, 35 resulted from diarrhœa, 9 from whooping-cough, 4 from measles, 4 from diphtheria, 3 from scarlet fever, and 3 from "fever," but not one from small pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·6 per 1000, against 1·3 from the same diseases in the 77 English towns. The deaths in the eight towns attributed to diarrhœa, which had been 20 and 26 in the two preceding weeks, further rose to 35 last week, of which 21 occurred in Glasgow, 5 in Dundee, and 3 both in Edinburgh and in Aberdeen. Six of the 9 fatal cases of whooping-cough, and 2 each of measles, scarlet fever, and diphtheria, were returned in Glasgow. The 3 deaths referred to "fever" in the eight towns corresponded with the number in the previous week, and included 2 in Glasgow and 1 in Dundee; 2 were certified as enteric fever and 1 as cerebro-spinal meningitis. The deaths referred to diseases of the respiratory system in the eight towns, which had been 61 and 59 in the two preceding weeks, further declined to 47 in the week under notice, and were 1 below the number in the corresponding week of last year. The causes of 16, or 3·5 per cent., of the deaths in the eight towns last week

were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 604 births and 346 deaths were registered during the week ending August 13th. The mean annual rate of mortality in these towns, which had been equal to 16·2 and 15·3 per 1000 in the two preceding weeks, rose again to 15·7 in the week under notice. During the first six weeks of the current quarter the annual death-rate in these Irish towns averaged 16·0 per 1000; the mean rate during the same period did not exceed 11·1 in the 77 largest English towns and 12·4 in the eight principal Scotch towns. The annual death-rate during last week was equal to 17·9 in Dublin, 13·6 in Belfast, 15·1 in Cork, 14·4 in Londonderry, 10·9 in Limerick, and 27·3 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 15·5 per 1000. The 346 deaths from all causes in the 22 town districts last week showed an increase of but 9 upon the low number returned in the previous week, and included 46 which were referred to the principal epidemic diseases, against 32 and 35 in the two previous weeks; these 46 deaths were equal to an annual rate of 2·1 per 1000; the rate last week from the same diseases did not exceed 1·3 per 1000 in the 77 English towns and 1·6 in the eight Scotch towns. The 46 deaths from these epidemic diseases in the Irish towns last week included 34 from diarrhœa, 6 from measles, 4 from whooping-cough, and 1 each from scarlet fever and simple fever; but not one either from small-pox, or diphtheria, or enteric fever. The deaths attributed to diarrhœa in the 22 towns, which had been 9 and 16 in the two previous weeks, further rose to 34 last week, of which 14 occurred both in Dublin and in Belfast. Four of the 6 fatal cases of measles were returned in Belfast, and 3 of the 4 deaths from whooping-cough in Dublin. The death from scarlet fever occurred in Dublin. The deaths in the 22 towns last week included 39 which were referred to pneumonia and other diseases of the respiratory system, against 59 and 44 in the two preceding weeks. The causes of 10, or 2·9 per cent., of the deaths registered last week in the Irish towns were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent., while it was equal to 3·5 per cent. in the eight Scotch towns.

VITAL STATISTICS OF LONDON DURING JULY, 1910.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 4·1 per 1000 of the population, estimated at 4,872,702 persons in the middle of the year. In the three preceding months the rates were 4·2, 3·9, and 4·0 per 1000 respectively. The lowest rates last month were recorded in Fulham, Chelsea, the City of Westminster, Hampstead, Hackney, Holborn, and Greenwich; and the highest rates in Hammersmith, St. Pancras, Finsbury, Bethnal Green, Poplar, Bermondsey, Lewisham, and Woolwich. Two cases of small-pox were notified during the month, one belonging to Shoreditch and one to Woolwich. The prevalence of scarlet fever slightly exceeded that recorded in either of the two preceding months; this disease was proportionally most prevalent in St. Pancras, Poplar, Bermondsey, Lambeth, Deptford, and Lewisham. The Metropolitan Asylums Hospitals contained 1530 scarlet fever patients at the end of last month, against 1489, 1422, and 1358 at the end of the three preceding months; the weekly admissions averaged 190, against 183, 177, and 180 in the three preceding months. Diphtheria also was more prevalent in July than it was in May or June; among the several boroughs this disease showed the greatest proportional prevalence in Hammersmith, Stoke Newington, the City of London, Bethnal Green, Bermondsey, Greenwich, Lewisham, and Woolwich. There were 613 diphtheria patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 794, 734, and 673 at the end of the three preceding months; the weekly admissions averaged 85, against 75, 73, and 80 in the three preceding months. Enteric fever was slightly more prevalent than it had been in other recent months; the greatest proportional prevalence of this disease last month was recorded in Hammersmith, the City of Westminster, St. Marylebone, Hackney, Stepney, Southwark, and Camberwell. The number of enteric fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 66, 60, and 46 at the end of the three preceding months, had further declined to 45 at the end of last month; the weekly admissions averaged 6, against 8 in each of the two preceding months. Erysipelas was proportionally most prevalent last month in Kensington, Finsbury, Bethnal Green, Poplar, Bermondsey, and Camberwell. The 23 cases of puerperal fever notified during the month included 4 in Bethnal Green, 3 in Islington, and 2 each in St. Pancras and Wandsworth. Of the 9 cases notified as cerebro-spinal meningitis, 2 belonged to Stepney.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates are further corrected for variations in the sex and age constitution of the population of the several boroughs. During the four weeks ending July 30th the deaths of 3693 London residents were registered, equal to a corrected annual death-rate of 10·4 per 1000; in the three preceding months the rates were 14·0, 12·4, and 10·6 per 1000. The death-rates last month ranged from 6·6 in Greenwich, 8·0 in Hampstead, 8·4 in Lewisham, 8·6 in Wandsworth, and 8·9 in Chelsea and in Hackney, to 12·8 in Finsbury, 13·4 in Southwark, 13·6 in Shoreditch, 13·7 in Bermondsey, 14·0 in Holborn, and 14·3 in Poplar. The 3693 deaths from all causes included 314 which were referred to the principal infectious diseases; of these, 126 resulted from measles, 19 from scarlet fever, 22 from diphtheria, 81 from whooping-cough, 8 from enteric fever, and 58 from diarrhœa, but not any from small-pox, from typhus, or from ill-defined pyrexia. The lowest death-rates from these infectious diseases last month were recorded in Kensington, the City of Westminster, Hackney, Holborn, Wandsworth, and Greenwich; and the highest rates in Paddington, St. Pancras, Stoke Newington, Shoreditch, Southwark, Bermondsey, and Camberwell. The 126 fatal cases of measles slightly exceeded the corrected average number for the corresponding period of the five preceding years; this disease was proportionally most fatal in Chelsea, St. Pancras, Shoreditch, Southwark, Bermondsey, and Camberwell. The 19 deaths from scarlet fever were equal to only one-half of the corrected average number; of these 19 deaths, 3 belonged to Camberwell, and 2 each to Paddington, St. Pancras, Poplar, Lambeth, and Lewisham. The 22 fatal cases of diphtheria were 13 fewer than the corrected average number, and included 5 in Lewisham, and 2 each in Hampstead, Islington, Southwark, Battersea, and Camberwell. The 81 deaths from whooping-cough were equal to the corrected average number for the corresponding period of the five preceding years; the greatest proportional mortality from this disease was recorded in Paddington, Hampstead, Stoke Newington, Holborn, Shoreditch, and Stepney. The 8 deaths from enteric fever were 5 below the corrected average, and included 2 in Islington. The 58 fatal cases of diarrhœa were only about one-third of the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in Paddington, Hammersmith, Fulham, Shoreditch, and Poplar. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was nearly 31 per cent. below the average.

UNIVERSITY INTELLIGENCE.—In succession to Mr. E. C. C. Baly, who has been appointed professor of chemistry in the University of Liverpool, Dr. R. H. Aders Plimmer and Dr. W. B. Tuck have been appointed teachers of chemistry to medical students at University College, London. Mr. H. J. Page has been appointed demonstrator in chemistry and physiological chemistry to medical students. Vacation courses in chemistry, physics, biology, anatomy, and physiology for medical students begin on Sept. 1st.

(*Specially compiled for* THE LANCET.)

Cities and Boroughs.	Estimated population in the middle of 1910.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.										Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.		
LONDON	4,872,702	2	817	385	—	69	2	23	241	9	1548	4·1	—	126	19	22	81	—	8	—	58	314	0·8	3693	10·4
West Districts.																									
Paddington	153,004	—	25	8	—	—	—	1	3	1	38	3·2	—	5	2	—	4	—	—	—	5	16	1·4	105	9·5
Kensington	184,635	—	27	9	—	2	—	1	14	—	53	3·7	—	3	—	1	—	—	—	—	2	6	0·4	122	9·3
Hammersmith	127,413	—	26	15	—	4	1	1	8	—	55	5·6	—	—	—	—	3	—	—	—	4	7	0·7	99	10·5
Fulham	181,282	—	19	17	—	—	—	1	4	—	41	2·9	—	3	—	—	2	—	—	—	4	9	0·6	134	10·0
Chelsea	75,457	—	9	7	—	—	—	—	1	—	17	2·9	—	3	—	1	1	—	—	—	—	5	0·9	50	8·9
City of Westminster	167,233	—	18	10	—	3	—	1	4		36	2·8	—	2	—	1	1	—	—	—	—	4	0·3	123	10·8
North Districts.																									
St. Marylebone	125,195	—	22	4	—	3	—	—	8	—	37	3·9	—	3	—	1	3	—	1	—	—	8	0·8	101	11·2
Hampstead	95,729	—	9	3	—	1	—	—	3	—	16	2·2	—	—	—	2	3	—	1	—	—	6	0·8	52	8·0
St. Pancras	237,792	—	65	24	—	3	—	2	10	—	104	5·7	—	14	2	—	5	—	—	—	1	22	1·2	192	11·0
Islington	353,356	—	55	28	—	5	—	3	7	—	98	3·6	—	9	—	2	3	—	2	—	3	19	0·7	252	9·7
Stoke Newington	54,838	—	10	7	—	1	—	—	2	—	20	4·8	—	2	1	—	2	—	—	—	—	5	1·2	42	10·4
Hackney	239,979	—	23	12	—	5	—	1	8	1	50	2·7	—	3	—	—	1	—	—	—	4	8	0·4	156	8·9
Central Districts.																									
Holborn	53,142	—	2	1	—	1	—	—	1	—	5	1·2	—	—	—	—	2	—	—	—	—	2	0·5	53	14·0
Finsbury	94,578	—	19	9	—	1	—	1	9	—	39	5·4	—	2	—	—	1	—	—	—	1	4	0·6	90	12·8
City of London	17,132	—	2	3	—	—	—	—	1	—	6	4·6	—	—	—	—	—	—	1	—	—	1	0·8	14	11·8
East Districts.																									
Shoreditch	114,387	1	17	4	—	—	—	—	5	—	27	3·1	—	7	—	—	3	—	—	—	4	14	1·6	114	13·6
Bethnal Green	131,579	—	21	18	—	2	—	4	13	1	59	5·8	—	4	—	—	2	—	1	—	1	8	0·8	93	9·3
Stepney	314,379	—	42	31	—	7	—	1	17	2	100	4·1	—	8	1	1	9	—	1	—	6	26	1·1	255	11·1
Poplar	172,432	—	45	8	—	3	—	1	18	1	76	5·7	—	5	2	—	3	—	—	—	4	14	1·1	184	14·3
South Districts.																									
Southwark	211,832	—	27	22	—	5	—	—	15	1	70	4·3	—	10	—	2	5	—	—	—	3	20	1·2	208	13·4
Bermondsey	127,238	—	44	16	—	2	—	1	10	—	73	7·5	—	9	1	—	3	—	—	—	2	15	1·5	131	13·7
Lambeth	327,074	—	76	19	—	2	1	—	11	1	110	4·4	—	6	2	1	3	—	—	—	5	17	0·7	237	9·7
Battersea	188,222	—	34	11	—	3	—	—	8	—	56	3·9	—	2	1	2	4	—	—	—	3	12	0·8	121	9·0
Wandsworth	305,838	—	45	11	—	4	—	2	10	—	72	3·1	—	2	1	—	5	—	—	—	—	8	0·3	193	8·6
Camberwell	286,058	—	26	27	—	6	—	1	21	1	82	3·7	—	14	3	2	6	—	1	—	3	29	1·3	236	11·2
Deptford	119,642	—	27	9	—	2	—	—	7	—	45	4·9	—	3	—	1	2	—	—	—	2	8	0·9	89	10·2
Greenwich	112,935	—	4	14	—	1	—	—	6	—	25	2·9	—	2	—	—	—	—	—	—	—	2	0·2	56	6·6
Lewisham	164,899	—	50	19	—	2	—	—	11	—	82	6·5	—	—	2	5	4	—	—	—	1	12	0·9	103	8·4
Woolwich	135,422	1	28	19	—	1	—	1	6	—	56	5·4	—	5	1	—	1	—	—	—	—	7	0·7	88	9·1
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

† The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified: Staff-Surgeon J. W. Craig and Surgeon C. D. Bell to the *Liverpool*, on commissioning (undated).

ROYAL ARMY MEDICAL CORPS.

Captain Wilfred M. McLoughlin retires, receiving a gratuity (dated August 13th, 1910).

The undermentioned Lieutenants to be Captains (dated March 7th, 1910): Owen C. P. Cooke and Clarence H. Denyer.

Lieutenant-Colonel W. G. Birrell has arrived home on leave from Mauritius. Major E. S. Clark, from Belfast, has been appointed to the medical charge of the troops at Ballykinler Camp. Major G. B. Carter, on return from service in India, has been posted to the Irish Command and appointed for duty at Dublin. Major G. J. Stoney-Archer, specialist in advanced operative surgery, has been granted six months' leave home from India. Major H. N. Dunn, from Multan, has been appointed for duty to the Station Hospital at Dagshai, Simla District. Captain F. C. Lambert, from Cosham, has been posted in medical charge of effective troops at Wool Camp. Captain J. Fairburn, from Edinburgh, has taken up duty at Buddon Camp. Captain J. H. Douglass, on return from foreign service at Secunderabad, has been appointed to the Dublin District. Captain E. H. M. Moore, from Potchefstroom, has been posted to Ross Camp. Captain L. V. Thurston has been transferred from Peshawar District to Khanspur. Captain F. J. Garland, on arrival from Aden, has been detailed for duty at Chester. Captain W. Davis has been posted to the Station Hospital at Bareilly. Captain H. G. Sherren has been granted six months' leave from India. Captain J. H. Spencer has arrived home on leave from Gibraltar, and Captain G. R. Painton has arrived home on leave from West Africa. Lieutenant T. H. Scott, from Lahore, has joined at Ferozopore. Lieutenant F. J. Stuart, from Meerut, has been posted to the station hospital at Kailana. Lieutenant H. Gibson has been transferred from Poona to Jhansi. Lieutenant B. A. Odlum, from Tidworth, has been posted in charge of effective troops at Perham Down Camp, Salisbury Plain. Lieutenant A. Hendry, from Neemuch, has taken up duty at Mhow.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotion: Lieutenant-Colonel Charles James Bamber to be Colonel (dated July 12th, 1910).

The promotion of Major Godfrey Tate to that rank is antedated from Jan. 28th, 1910, to July 28th, 1909.

The King has also approved of the following retirements: Colonel Thomas Elwood Lindesay, C.I.E. (dated July 12th, 1910); Lieutenant-Colonel Rustam Hormasji Cama (dated July 13th, 1910).

Colonel W. G. King, Inspector-General of Civil Hospitals in Burma, has been granted three months' leave. Lieutenant-Colonel F. C. Reeves, Madras Presidency, has been reverted from civil to military employment. Lieutenant-Colonel C. M. Thompson has been appointed to officiate as Principal of the Medical College at Madras. Lieutenant-Colonel J. G. Jordon, officiating civil surgeon of Darbhanga, has been allowed six months' combined leave home from India. Lieutenant-Colonel R. H. Dukes, civil surgeon of Mandalay, has been granted six months' leave on account of ill-health. Lieutenant-Colonels J. A. Burton and R. H. Castor, Bombay Presidency, have arrived home on leave. Major S. A. Harris, Deputy Sanitary Commissioner of the United Provinces, has been appointed to officiate as Sanitary Commissioner of Burma during the absence on leave of Major C. E. Williams. Major S. Browning-Smith, Chief of the Plague Department of the Punjab, has been transferred to Eastern Bengal and appointed to officiate as Sanitary Commissioner during the absence on leave of Lieutenant-Colonel E. C. Hare. Major E. M. Illington has been granted 18 months' combined leave and furlough home from India. Majors J. Penny and H. A. J. Gidney, Bombay Presidency, have arrived home on leave. Captain H. E. Stanger-Leathes has been appointed Staff-Surgeon at Poona. Captain J. A. Cunningham, of the Bacteriological Laboratory at Bombay, has been granted one year's furlough from India. Captain P. K. Tarapore has been appointed Officiating Superintendent of the Mandalay Central Jail, vice Captain A. W. Greig who has proceeded on leave. The services of Captain C. A. Sprawson have been placed at the disposal of the Government of the United Provinces. Captain H. C. Buckley has had his leave extended by four months. Captain H. C. Keates and Captain W. M. Anderson, Bombay Presidency, have arrived home on leave from India.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Henry Robins Borcherds to be Lieutenant (on probation) (dated July 25th, 1910).

TERRITORIAL FORCE.

Yeomanry.

Buckinghamshire (Royal Bucks Hussars): Surgeon-Captain Leonard A. Bidwell to be Surgeon-Major (dated Sept. 20th, 1909).

Royal Army Medical Corps.

North Midland Mounted Brigade Field Ambulance: Major Thomas Thompson to be Lieutenant-Colonel (dated April 1st, 1910).

2nd South Midland Mounted Brigade Field Ambulance: Captain Charles J. Deyns to be Major (dated Feb. 23rd, 1910).

5th Northern General Hospital: Captain Leonard E. Ellis resigns his commission (dated August 17th, 1910).

Attached to Units other than Medical Units.—Lieutenant-Colonel Philip P. Whitcombe resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated August 17th, 1910).

FLORENCE NIGHTINGALE.

Miss Florence Nightingale, O.M., died at her residence, South-street, Park-lane, on August 13th, in her ninety-first year. Her name is revered throughout the world. It is not necessary to remind anyone of her work during the Crimean war, and though what she has done for nursing would require a large volume if it were fully told, the tale is tersely summed up in the telegram which the King has sent to the relatives of the deceased lady:—

> The Queen and I have received with deep regret the sad news of the death of Miss Florence Nightingale, whose untiring and devoted services to the British soldiers in the Crimea will never be forgotten, and to whose striking example we practically owe our present splendid organisation of trained nurses. Please accept the expression of our sincere sympathy. GEORGE, R. & I.

The King has approved the appointment of Mr. A. E. Barker, F.R.C.S. Eng., F.R.C.S. Irel., L.R.C.P. Irel., to the Consulting Staff of the Convalescent Home for Officers of His Majesty's Navy and Army, Osborne, Isle of Wight, as from July 28th, 1910.

Correspondence.

"Audi alteram partem."

"SUBJECTS OF SURGICAL INTEREST."

To the Editor of THE LANCET.

SIR,—I had just read Mr. H. F. Waterhouse's address in the *British Medical Journal* with this title when a patient, a girl 14 years of age, called on me with reference to a condition of her eyelids (ophthalmia tarsi) which disfigured what was otherwise a very pleasing countenance. She informed me that for months past she had been using lotions and ointments recommended by chemists and others without any relief. I prescribed 5 grains of aluminium acetate in 1 ounce of distilled water as a lotion to be used three times daily. On the 6th of this month she presented herself to report progress and I was very gratified to find the lids perfectly healthy. I had prescribed no medicine as the girl was in excellent health.

With reference to heated air in shock, when in collier practice I had frequently to use active measures to remedy this condition. Hot bricks, hot bottles and blankets out of hot ovens were never omitted, but when shock was accompanied by pain I feel convinced that morphia given hypodermically is also necessary. In lieu of brandy I have seen quite excellent results from Hoffman's anodyne

)-minim doses repeated every half hour until its influence as perceptible in the pulse. This is a diffusible stimulant the first order and relieves the contraction of arterioles ıd capillaries, thus freeing the action of the struggling eart. A single dose will sometimes do all that is required that direction.

Operative treatment of simple fractures I have never seen ıe need of. I feel convinced if proper attention be given to ıe relaxing of those muscles and tendons that bring about ıe deformity there will be no need for operative measures. well remember being sent for in a case of fracture of both ones of the leg about the middle. That of the tibia was ɔlique and the deformity was very pronounced. A medical iend who had also been sent for was present and was doing is very utmost to reduce the deformity by traction from the ıkle, the thigh and leg being in full extension. His efforts ere altogether useless. We then flexed the thigh on ıe abdomen and the leg on the thigh; the bones immeiately unlocked and not the least difficulty was found ı putting them into correct position. With the thigh and g still flexed we turned him on to his side, applied splints, ıd with sandbags kept the leg in flexion. In about eight eeks he was able to resume duties without the least ıortening of the limb. This is simply the history of many actures of a similar nature treated in the same manner with ıe same results. Fractures of the clavicle seldom unite ithout some deformity, but I cannot conceive how incon-enience (short of injury to the sub-clavian) so great as to alance the risk of cutting and screwing or plating could be perienced by any deformity following fracture of that ne. If the patient could be induced to lie on a hair other hard mattress on his back and without a pillow, a very low one, for from 10 to 14 days, the deormity, if any, would be inconsiderable. Complicated or mminuted fractures or displacements of bones of the tarsus ay need operative treatment, but I have never seen a case the kind that I can now look back on and think that perative treatment would have benefited materially. I may e wrong, but I fear I am too chronic in my views to alter em on this subject.

General practitioners will thank Mr. Waterhouse for mplifying the disinfecting of operation surfaces. Solution f iodine I have noticed has for long been a favourite disfectant with Dr. Lloyd Roberts. I have seen him swab a ptic endometrium with the strong liniment of iodine with ıe happy results that so constantly follow his practice in ostetrics and gynæcology.

I am, Sir, yours faithfully,

Manchester, August 12th, 1910. WM. BENNETT, M.D. Durh.

THE STATUS LYMPHATICUS IN ITS RELATIONS TO THE USE OF ANÆSTHETICS IN SURGERY.

To the Editor of THE LANCET.

SIR,—I read with deep interest Dr. Dudley Buxton's aluable lecture on the above subject, which appears in THE LANCET of August 6th. Its appearance was most opporıne and its teaching of permanent value to anæsthetists. lis 39 lines on diagnosis are admirable, as are the succeeding 4 lines which are devoted to clinical symptoms. I need not ollow the distinguished writer through all the divisions of he lecture, which it is a pleasure to read, and, I believe, oices the opinion of all medical practitioners who have ad experience in the administration of anæsthetics. Dr. Buxton throughout is fully in accord with the principle aid down by Dr. Frederic Hewitt in Dublin, at the eeting of the British Association, and reported in the ecently published volume of its Transactions—namely, that he anæsthetic be chosen for the patient. The same views vere expressed at the Australasian Medical Congress in 1908 nd are now almost universal. Dr. Buxton clearly shows hat in a state of lymphatism the risk of life under an anæsthetic is terrible; we learn from him that the danger under næsthetisation is almost altogether due to the condition of the patient, and that the recognition of the conditions that so greatly increase the risk of anæsthetisation is difficult and an be made only by a highly educated physician, one amiliar with the normal standard of health and all the known leviations from it. With this conclusion I think all physicians will agree. Why then does Dr. Buxton advocate that gentlemen who are not medical practitioners should be legally empowered to give potent medicines to patients of whom they can know no more than the man on the street? The safety of the public demands that the anæsthetist should be able to form an opinion on the condition of health of the person about to undergo an operation, and his opinion should be based on a careful physical examination—this a man without medical training cannot do.

I am, Sir, yours faithfully,

Dublin, August 12th, 1910. GEORGE FOY.

GRAIN ITCH.

To the Editor of THE LANCET.

SIR,—In connexion with the correspondence on the above subject in the columns of your journal the following facts may be of interest. A few months ago in carrying on some experiments in the making of cereal decoctions I discovered in one sample, prepared from a proprietary food, a vast number of Acari farinæ. If this acarus is to be found in farinaceous foods of this kind it is highly probable that it also occasionally occurs in dusting powders of which starch is the basis, but so far I have not discovered any parasites in the powders I have examined. Dr. G. L. Eastes tells me that he has found acari in specimens of urine sent to his laboratories for examination, and to the best of his belief that such urines were from female patients. Under such circumstances it is quite possible that the acari found their way into the urethra or into the urine from the use of a dusting-powder containing the parasites. On one occasion Dr. Eastes found blood in the urine as well as the parasites. This blood may have been due to irritation of the urethra by the acarus. It is not easy to detect the presence of these parasites in meals or flours; there may be nothing in the appearance of the latter to arouse suspicion although they may be teeming with mites. The simplest way to find them is to make a thin decoction and then to examine it under the microscope with a lower power objective. In view of these facts, in cases of unexplained urticaria occurring in infants, it might be worth while to examine the dusting-powder for the presence of Acarus farinæ.

I am, Sir, yours faithfully,

London, W., August 13th, 1910. ERIC PRITCHARD.

THE SUPPRESSION OF QUACKERY.

To the Editor of THE LANCET.

SIR,—Would it not be as well to consider this question from the point of view of the public we are so anxious to benefit? To the average layman the allurements of quackery must be wellnigh irresistible.

"Mr. Jones" feels ill, consults his morning paper, and selects his remedy. It does not matter which of the patented miracles he purchases because they all cure everything. They can cure him if he is suffering from an incurable disease. They *say* so. If he has been given up by several eminent specialists, and has undergone not less than three painful operations in a well-known hospital, and has just refused to part with his leg he will have a specially good chance of being completely restored to health. The testimonials presented with each bottle or box point to this conclusion. The literature supplied with the remedy will tell him what he suffers from, where it grows, and how to get at the roots. The root of the evil depends on the remedy he selects. It may be the liver, or the kidneys, or the lungs, or the stomach, or the blood. It may even be something else, but this is not usual. He will not know which organ is the *only* one it is any use to ply with plaster of Paris or other rare herb until he has studied the pamphlet, but after doing so there is no doubt about it. If he choses "Piebald Pebblets" he will find that the liver is the seat of the mischief and must be cleansed, but if he tries "Lilac Linctus" he will discover that the lungs are the life, &c.

Again, the length of his illness will be stated. This is a great advantage, because he can make his arrangements accordingly. The whole thing is mapped out for him. He will begin to feel better after the first dose. After the sixth bottle he will be a different man, and after the fifteenth he will be himself again. Then all he has to do is to always

keep a bottle by him and recommend it to all his acquaintances. I have only cited a few of the more modest advantages that quackery presents to the layman. No doubt before long some king among quacks will advertise a panacea the regular consumption of which will not only cure every known disease and keep the body in sound health afterwards, but also mend socks, brush the dog, turn the cat out at night, and keep the canary supplied with groundsel. I feel sure there would be a run on it.

Now, Sir, what can the qualified offer in place of such attractions? If we are to snatch these frauds from the people we must provide them with some harmless substitute, and until we have settled what that substitute shall be, it is useless to proceed. I am, Sir, yours faithfully,

August 13th, 1910. F. H. PICKIN.

ON THE NOTIFICATION OF CONSUMPTION.

To the Editor of THE LANCET.

SIR,—With reference to Dr. R. Farquharson's article in THE LANCET of July 23rd and the reply by "Forensicus" to it in your issue of August 6th, I should feel obliged, with your permission, if "Forensicus" would reply to the following questions.

Before stating them I should like to say that it is not my intention to defend Dr. Farquharson against "Forensicus," believing that the former is eminently capable of performing that task for himself.

"Forensicus" has not disproved a single fact or controverted a single statement in Dr. Farquharson's article. He evades the issue by bestowing doubtful compliments and by appealing to authority, setting up one against another in order that he may gain that further knowledge he so earnestly desires. He displays a knowledge of the subject somewhat above that of the ordinary layman, nevertheless one perceives the hand of an Esau with the voice of a Jacob behind his letter. He believes that compulsory notification is an essential factor if a successful campaign against consumption is to be waged, and thinks the putting into force of a resolution such as that drafted by the public health authorities of the Rochdale union, and cited by him, would be the best means to that end.

These are my questions: 1. If compulsory notification of consumption implies the subsequent control and supervision of the subject, how is this to be carried out, and what are the special regulations the consumptive must comply with and observe in public and private life? 2. What action would the authorities take in the case of a consumptive who was under the care of a private medical practitioner and who at the same time was able and desirous to follow his business or supervise same; or in the case of a person in private life? 3. When would the authorities cease to control and supervise the consumptive?

Granting in each case that the hygienic condition of the consumptive's home was such that he could be treated there, or such as would enable him to carry out a mode of life essential to him after he had undergone treatment.

I am, Sir, yours faithfully,

J. CUNNINGHAM BOWIE, M.B. Glasg., D.P.H.

Cardiff, August 8th, 1910.

HEART PUNCTURE.

To the Editor of THE LANCET.

SIR,—I am honoured by the interest shown by Dr. Alexander Morison in my paper on "Heart Puncture," which was published in THE LANCET of August 6th, and have much pleasure in meeting his request for additional details as far as I am able. Of course, the very nature of the case precluded elaborate observations with scientific precision, but I am completely satisfied that there was no pericardial flooding with blood from the puncture. The fact of this not being recorded is unfortunate, as it was kept in mind and looked for and dreaded. The heart, from an inch to the left of the nipple in its maximum distension, retracted almost immediately to the nipple line and never went further to the left again either before or after death. I state this with conviction, because I carefully mapped out the area of præcordial dulness before puncture with hammer and pleximeter, and marked the limits in blue pencil, and I did the same after death and found complete similarity. The only explanation I can offer for the blood not getting down between pericardium and heart is the likelihood of there having been adhesions and no cavity existing, and this is in harmony with attacks of recurring præcordial pain the girl often had, though I never heard friction sounds nor diagnosed presence of fluid. With regard to the pulse, it will be remembered that I could not feel it either at wrist or zygomata just before puncture. After the relief it was perfectly regular and full but easily compressed, but I did not think it dicrotic till well on towards the end. The nails were easy to blanch by pressure at the tips, but a crescentic area at the nail-roots remained pink under considerable pressure, and so did the capillaries of the lip under the edge of a tumbler pressed against them. There was no capillary pulse, no water-hammer pulse, and no *tache cérébrale*. These are all the additional items I can add which I can vouch for. There was no post-mortem examination.

I am, Sir, yours faithfully,

Aberdeen, August 15th, 1910. J. WALLACE MILNE.

*** The quotation of Dr. Wallace Milne's paper in certain lay journals has made him apprehensive of the accusation of being privy to such publication. He asks us to state that he had no hand in the matter.—ED. L.

BLIND MASSEURS FOR BERI-BERI PATIENTS.

To the Editor of THE LANCET.

SIR,—My attention has been drawn to a paragraph, headed as above, in to-day's *Times* concerning the treatment of beri-beri at the Seamen's Hospital, Albert Docks, London, E. with which my name is connected. I wish to state that I have nothing to do with the treatment of cases of beri-beri at the hospital, nor have I heard of Swedish movements and massage being employed in the treatment of beri-beri.

I am, Sir, yours faithfully,

Harley-street, W., August 17th, 1910. JAMES CANTLIE.

THE NATION AND THE NAVY.

To the Editor of THE LANCET.

SIR,—My connexion with the Royal Navy commenced many years ago, and I have continued in close touch with it ever since. I have such a confirmed conviction of the vital importance of the perfect efficiency of the executive officers of all ranks, that I beg to submit for discussion in your columns the problem how the greatest natural talent and the highest fighting abilities of the nation may be obtained for staffing His Majesty's ships of war.

Certainly the responsibilities of admirals and captains in a great naval war are far greater than those of judges, bishops, legislators, or the heads of other departments of Government. Even if it be allowed that only very high physical, mental, and moral qualifications be necessary for the executive officers, of and above the rank of lieutenant, the great practical question arises: At what age should the raw material—the naval cadets—be selected for training as executive naval officers?

I have the highest opinion of the method of training the boys at Osborne College; and most sincerely do I wish that all our public schools and grammar schools gave similar training to all the boys who are physically and mentally fit for it. But I venture to suggest that the age of entry as naval cadet is far too low to permit of the fittest material being selected to fulfil the most onerous duties that any human beings can be called upon to perform—the naval defence of this Empire. We certainly do not select boys of 13 to train them specially to be our judges, bishops, doctors, poets, musicians, painters, and sculptors. Nor does any other naval power select boys for naval training at so low an age as we select our cadets. At least 90 per cent. of the medical and military men, heads of factories, railways, and mercantile firms would, I believe, agree that it is almost impossible to ascertain by physical and educational examinations of boys of 13 years of age what they will turn out to be at 16 to 18 years of age, still less what will be their moral qualifications between 20 and 30 years of age.

The influences of heredity, whether good or bad, are often undeveloped before the age of 13 to 15, but nearly always

become markedly developed by 16 years of age. Thus it not infrequently occurs that there are cases of slow but sure growth and development, so that boys of 13 may be small, delicate looking, and backward in knowledge, but become stalwart, quick, manly, capable fellows at 16, and continue to develop and improve for several years after, far outstripping the precocious boys. Unfortunately, on the other hand, it is not at all unusual for the well-developed, clever, smart boy of 13 to fall off mentally, morally, and physically before attaining the age of 16, although living in the same institution and under the same conditions as the boys who have developed most satisfactorily.

No navy has had such extensive and successful battle experience with all modern appliances in use as the Japanese navy has had since the commencement of the Japo-Chinese war, and never have the officers of any navy acquitted themselves with more patriotism, bravery, and fighting skill than the Japanese naval officers of all ranks. All Japanese between the ages of 16 and 20, under certain rigid conditions, may become candidates for entry as naval cadets, and thus the very cream of the young manhood of Japan is drawn upon to supply the brain and heart and soul of the Japanese navy.

All other foreign nations enter their naval cadets at a much later age than those entered for the British navy. The question for serious discussion by our patriotic medical profession men is this: Should not candidates for training for service as executive officers in the Royal Navy be selected from youths over 16 years of age who have passed through or escaped the diseases of childhood and of early adolescence, and who have fairly developed the indications of their hereditary virtues or defects?

I trust, Sir, that you will be able to find room in your columns to call attention to this most important matter.

I am, Sir, yours faithfully,

August 8th, 1910. Z.

THE BRUSSELS UNIVERSAL EXHIBITION.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

IF large crowds and exorbitant charges are evidences of success, then it may at once be recognised that the Brussels Exhibition is a decided success. But this also should serve as a warning to visitors, who will have to pay two and three times the usual price for their rooms, if, indeed, they are able to get rooms at all. It is a usual and daily sight to see cabs loaded with luggage, and anxious, weary-looking travellers wandering from street to street and house to house in search of rooms. As these hunts sometimes last for hours, the cabs do not get back to the station in time to take up the next lot of arrivals, thus the first experience often consists of a long wait for a public conveyance. However, having finally settled down, perhaps in a fifth-rate hotel when the visitor intended to stay at a first- or second-class hotel, it will be found that, in spite of the crowd, there is no great difficulty in reaching the exhibition. Certainly, it is well-nigh impossible to board one of the trams that start from the centre of the town for the exhibition, but it is quite easy to get into a tram going to the Porte de Namur. Here there is a line of special trams starting almost every minute for the exhibition, and a seat can be obtained with comparative ease; the cost of the journey from the centre of the town is only 3*d*., so this is an easy way of avoiding the extortionate charges of cabmen and some compensation for the very high rent paid for a very inferior room. There is also this further consolation—namely, that however humble the room it is likely to be clean. Further south, in Europe, pretentious palaces are often not nearly as clean as the poorest dwelling or hotel placed under the care of a Flemish housewife. Having thus briefly mentioned the inconveniences accompanying a visit to Brussels at this moment, the question arises whether it is worth the trouble from the general and from the technical point of view. During the few days I have been here I have not had time to visit the popular parts of the exhibition, not even the Brussels Kermesse, where the side shows and reproductions of old Brussels attract countless crowds. But I have seen enough to say that the technical sections will well repay a visit, not only in regard to medicine itself but also in respect to the allied sciences. Of course, there cannot be exhibitions of the medical arts, but there are very elaborate pharmaceutical exhibits, a great deal of bacteriology, of epidemiology, climatology, and of sanitation and sociology. It did not seem to me that there were many surgical instruments exhibited, though in the British section Messrs. Down Bros., Limited, of London, make a brave show of instruments, operating tables, and furniture or fittings for operating theatres.

Triumph of the British Section.

Whatever may be said about the exhibition as a whole, visitors from England will be agreeably surprised by the very creditable display made in the British section. The fact is that the British Government has at last realised that it can no longer afford to fold its arms and trust to private initiative. Formerly, when a nation announced its intention of holding a universal exhibition the British Government appointed a Royal Commission. By the time influential and prominent persons had been persuaded to sit on this Commission all the best places had been secured by different governments, and Great Britain had to be content with what other nations left. Then after the exhibition was over the British Royal Commission was dissolved, and the experience it had acquired was lost, so there was no continuity. In such circumstances Great Britain could not rival the German exhibitors who were organised by their government, a government which had stored up all the experience acquired by former governments at the previous exhibitions. The French section also was organised partly by the government and partly by some of the more important municipalities. In regard to the latter, I may, however, as well and at once state that this time the exhibits of the Paris municipality are disappointing. At the great World's Fair of St. Louis the Paris pavilion was a model of what a great national section should aim to be. At Liége, a few years ago, the story of the growth and improvement of the great capital and all its sanitary and technical services was told with a scientific completeness that was only surpassed by the ingenuity of the designs or objects shown and their artistic execution. Not so this year at Brussels. We learn less and see less than formerly in the pavilion of *La Ville de Paris*. But to return to the British section, under the disorganising *régime* of disconnected Royal Commissions, the exhibitors found that they were so badly organised and exposed to so many annoyances that some three or four years ago many of them refused to participate in any more exhibitions. In any case, they said it was not worth while exhibiting on the old lines. Yet, on the other hand, exhibitions are an established form of world advertisement from which no nation can afford to abstain. It would be like dropping out of the race. Indeed, a rumour was already gaining ground that England was falling out. This exhibition has triumphantly proved the contrary. Two main causes explain this success. Instead of trusting merely to a temporary Royal Commission of eminent but sometimes inexperienced persons, the Board of Trade has created a department whose mission it is to deal with exhibitions. Secondly, large industries have renounced altogether the idea of individual advertisement, and, following the example of many continental nations and of our own colonies, have gone in for collective exhibits. This is especially the case with the textile trades. Formerly, individual manufacturers hung up lengths of cloth, which were very uninteresting and uninstructive to the general public, while rivals in the trade came and copied the designs. Now the members of the Chambers of Commerce of Bradford and Huddersfield exhibit panoramas of their business. First we have mountains, shepherds and sheep. Then we have wool-sorters at work and can see exactly the kind of task which sometimes results in causing sad cases of anthrax. After that a wool-spinning and a wool-weaving mill is presented to us. Now comes a garden party, where ladies, gentlemen, and children all appear in the woollen clothes which are the final result of this industry. In another instance the cloth made is exhibited as worn by wax figures of our leading statesmen, chatting together in a full-sized reproduction of the inner lobby of the House of Commons. It will be readily understood how very attractive such interesting waxworks and panoramic views have proved to the general public. No names of firms are mentioned, but it has been most obviously demonstrated that Bradford and

Huddersfield, and Scotland for its tweeds, are great centres of the textile industries. No immediate orders are expected, but there are patriotic motives at work and indirect effects may be anticipated. It is by such action that we have recaptured the place we should never have lost in these international exhibitions.

The Exhibit of the British Home Office.

Though not so attractive as a show, still of even greater importance is the magnificent and extensive exhibit of the British Home Office. This brings us to questions directly concerning this journal. In the main the exhibits deal with life- and health-saving processes, and it is very gratifying to see that in this respect there is much to show. Further, and so that the lesson shall not be lost, the Home Office has had the excellent idea of printing and posting on each exhibit a fairly lengthy and explicit explanation of its purpose, and this not merely in English but also in French and in German.

As Belgium is a great coal-mining country the Home Office has very appropriately devoted a large proportion of its space to making a "mine section." Thus there is a model of the first gallery erected in Europe to train miners in rescue work. This was built at the Altofts Collieries, Yorkshire, in 1901. It is 150 feet long, can be closed hermetically and filled with poisonous gases. Inside are stones, timber, all sorts of obstructions to imitate a mine, so that miners find there the dangerous conditions that prevail in a mine when an accident has occurred. They can then within easy reach of rescue practise working with the heavy life-saving apparatus and masks for breathing the compressed air they carry with them. The "Weg," the "Aerolith," and "Salvator" breathing apparatus are shown. With the latter, for instance, there are two steel cylinders containing 5 cubic feet of oxygen gas compressed to 120 atmospheres, and the breathing-bag can be so supplied that the wearer can work in a poisonous atmosphere for two hours. At the Aberaman rescue station in South Wales, serving 15,905 colliers, 60 men have now been fully trained, and here they are made to walk long distances over broken ground while wearing the heavy breathing apparatus. Then they are taught to go on their hands and knees, to push or pull heavy loads. Thus, when an accident does occur they will be quite accustomed to the sort of physical efforts needed. They will also be familiar with the breathing apparatus they wear and the telephone which they carry suspended round their necks. Thus they will be better able to rescue the victims of accidents, and be less likely themselves to become the victim of an accident. There are also such training rescue stations at Wath in Yorkshire and Howe Bridge in Lancashire. Besides models and breathing apparatus, there are numerous photographs showing the work that has been done. What is now needed is the spread of this good example so that there should not be a single colliery that is not within easy reach of such a rescue station.

After coal-mining come such dangerous industries as steel-grinding and the manufacture of earthen or china ware. In both cases it is a question of exhaust ventilation so as to remove deleterious dust. The difficulty, especially in regard to steel-grinding, is that the preventive measures, in whatever form they are adopted, invariably increase the cost. Many workmen hire a bench, but, if there is a hood over the revolving grind-stone and a fan working in connexion with this hood to draw away the steel dust produced by the grinding, the hire for such a grinder's bench will be higher because the cost is greater. The grinder who works by the piece will earn less in proportion to the higher rent he has to pay for the use of the bench. Therefore it is easier to devise good methods than to persuade the independent piece-workers and the smaller employers to use them. There are on exhibition excellent working models of dust and fumes exhausts applicable to work in the Potteries, together with apparatus for ascertaining the amount of dust that is present in the air of workrooms. By means of one such apparatus it was found that in 10 cubic metres of air there were 1114 milligrammes of dust in dry rough glazing of metals after grinding, but 5862 milligrammes were the maximum in leadless processes. A number of other models, drawings, and photographs illustrate what, in carrying out the Factory Acts and similar legislation, the Home Office does to prevent accidents and to preserve the health of the workers. Never before has the beneficent action of the British Government been so well set forth and placed within the easy understanding of the crowds that visit exhibitions, and it goes without saying that such a national effort will have its effect on our continental neighbours.

By the side of these collective exhibits there are, of course, many private exhibits, but it is the action of the Government and of the chambers of commerce that has done most to raise the position of Great Britain, and therefore I mention these pieces of collective organisation first.

POSTSCRIPT.—Just as our Special Correspondent had sent us this account of the new and promising departure made by the British Government to ensure an adequate representation of British science, art, and industry at international exhibitions, the news came that the British Section, among other parts of the Brussels Exhibition, has been swept away by fire. The whole of the British Section, except the machinery hall, and the whole of the Belgian National Exhibit have perished. The loss to many exhibitors, however far they may be recouped in money through insurance policies, is very heavy, as some of the things which have perished can never be replaced.

(To be continued.)

CONGRESS OF ALIENIST PHYSICIANS AND NEUROLOGISTS OF FRANCE AND THE FRENCH-SPEAKING COUNTRIES.

(FROM A CORRESPONDENT.)

THE Twentieth Congress of Alienist Physicians and Neurologists of France and the French-speaking Countries was held in Belgium—namely, in the cities of Brussels and Liége, from August 1st to 8th. The present was the second occasion on which this Congress has met in the Belgian capital, and this time it coincided with the Brussels Exhibition. Although French was the only language of the Congress, many nations have contributed to the membership, for Swedes, Spaniards, Roumanians, North Americans, Czechs, Germans, Russians, Australians, and English have not only been present but have taken no inconsiderable part in the business of the meetings. King Albert and the Belgian Government have favoured the Congress with their patronage, and at the inaugural meeting the King was represented by Count d'Arschot, with whom were also M. Velghe, director-general of the Ministry of the Interior; and M. de Latour, director-general of the Ministry of Justice. The delegates of the French Government were M. Granier, representing the Ministry of the Interior; Professor Simonin of Val de Grâce and Dr. Binet Sanglé, representing the Ministry of War; M. Bertrand, Inspector-General of the Naval Medical Service; and M. Beau, French Minister in Brussels. There were two presidents, one of whom was a Frenchman, Dr. Klippel, physician to the Hôpital Tenon in Paris, well known for his investigations into the histology of the nervous system. The other president was a Belgian, Dr. Jean Crocq, the accomplished organiser and general secretary of the last congress and celebrated for his neurological and psychiatric work.

Proceedings at Brussels.

The opening meeting was held on August 1st in a room on the ground floor of the Hôtel de Ville, Brussels, when an outline of the subjects to be dealt with was given by the presidents and the delegates of the Governments, some of them being questions of national importance, such as sleeping sickness and diseases of which drowsiness was a feature, the systematisation of trophic lesions in mental and nervous diseases, and the connexion between alcoholism and crime.

In the afternoon Professor VAN CAMPENHOUT (Brussels) read a paper on Sleeping Sickness, a disease caused by trypanosomata, parasites living in the patient's blood.

On the following day the learned professor of diseases of hot climates showed kinematograph pictures illustrating the evolution, propagation, and development of blood parasites as well as the behaviour of the blood corpuscles towards them; the red corpuscles were repelled and moved away, whereas the white corpuscles absorbed the parasites by the process of phagocytosis. These pictures, obtained from films which M. Comandon had prepared by means of the ultra-microscope, illustrated very clearly the phenomena of trypanosomiasis and of some other diseased conditions caused by intestinal parasites.

Dr. LHERMITTE (Paris) read a paper on the Symptomatology of Sleep, and on various diseases of nervous or organic origin in which it was observed, examples of this kind being supplied by hysteria, epilepsy, diabetes, and albuminuria. Trypanosomiasis, which has been imported into Europe from the colonies, is difficult to diagnose in the early stage when the patient is excited or demented. If he has committed a crime the question of his responsibility for his actions remained for consideration and was of importance in a medico-legal point of view.

Professor BLANCHARD, Professor RÉGIS, Dr. GASTON MARTIN, and Dr. LINGENBOSCH discussed some points in the parasitology of the trypanosoma.

M. SANO (Antwerp), well known for his researches on the anatomy and pathology of the nervous system, read a paper on Trophic Lesions found in the Living Subject and at Necropsies.

M. HENRI MEIGE described a case of tremophobia, his remarks giving rise to a discussion on the pathology and treatment of this condition.

Dr. FOVEAU DE COURMELLES mentioned the case of a printer who suffered from tremors and neuritis soon after his little finger had been crushed, and who derived no benefit from treatment. On the other hand, patients who believed that they suffered from lesions of the bones recovered from their sensations when radiography proved that the supposed lesions did not exist. This form of suggestion was often useful.

Dr. WILLIAMS (Washington) showed a New Thermo-æsthesiometer.

Professor MEDEA (Milan) mentioned some clinical details relative to Cerebral Tumours and their Surgical Treatment.

A visit was made to the old colony at Gheel where the principle of "the open door" has been followed for centuries and where the insane patients who are not dangerous live in families; they work as agricultural labourers and have reclaimed much land which was formerly unproductive. There is an infirmary for the reception of dangerous, impulsive, and restless patients.

Dr. CHAUMIER, Dr. JOURDAN, Dr. PARHON, Dr. LALLEMANT, and Dr. HAMEL here read papers on delirium, psychoses, and other subjects. It was said that some insane persons who belonged to various nationalities and had come to the end of their resources in the United States of America had been deported from that country to Havre, where the local authorities were in some doubt as to the propriety of sending them on to their native countries. If that were done all the European nations would become interested in the solution of the question.

Proceedings at Liége.

On the following day, Thursday, August 4th, the Congress met at Liége.

Dr. LEY (Brussels) and Dr. RÉNÉ CHARPENTIER (Paris) each read a paper on the social problem of the connexion between alcoholism and crime. This problem was one of urgent importance for the whole world. How many acts of violence, how many crimes of all kinds, offences against both person and property, were traceable to alcohol? In acute alcoholic intoxication, the intoxication with hallucinations of Garnier, the delirium (described by Laségue and Régis) might continue for several days, after which the individual might return to his normal condition. Dr. Charpentier discussed the management of an attack of dipsomania and the question of secluding the individual if he was disposed to escape from his home. In cases of chronic alcoholism criminal acts were frequent, because the mental powers were weakened and no longer had a restraining influence on the inebriate, who was, moreover, liable to attacks of fear and to hallucinations of sight and hearing, and might become dangerous to others. Dr. Ley and Dr. Charpentier quoted statistics for Belgium, France, and other nations, clearly demonstrating the simultaneous increase of alcoholism and crime. They also described the measures employed in various countries for restricting the sale of alcohol, including total prohibition as adopted in Iceland. It often happened that an inebriate committed a crime under the influence of fear due to hallucination. Experts were sometimes at a loss to determine whether responsibility was diminished or not.

Various motions and recommendations for future legislation were now proposed and subsequently adopted by the Congress.

Various medico-legal questions were discussed by M. GRANJUX, M. JUDE, M. JUQUELIER, M. FILASSIER, M. BINET, Professor SIMONIN (Paris), and others. Professor RÉGIS said that among inebriates the birth-rate was high, although alcohol caused sterility in the lower animals.

Miscellaneous subjects connected with anatomy, physiology, therapeutics, and psychology were in the next place discussed by M. PARHON, M. DIMITRESCO, M. HALIPRÉ, M. HERCOUËT, M. RAOULT-DESLONGCHAMPS, and others. The question was raised whether neurasthenic patients ought to be isolated for the purpose of treatment or whether they could be treated while living at home and following their occupations. Some divergence of opinion was evident, but many facts proved that it was not always necessary to isolate such patients for this purpose. Another subject of interest was the treatment of cases of facial and sciatic neuralgia in which all remedial measures had failed; with regard to the last-mentioned disease Dr. FOVEAU DE COURMELLES said that continuous electric currents, light, X rays, and radium were sometimes beneficial and ought to be tried successively. He said that chronic neuralgia, whether facial, intercostal, or sciatic, which are the most frequent forms, often resists all kinds of treatment, both medicinal and operative, and recourse is had in the last resort to physiotherapy, which has to vary its methods. The galvanic current, which is within reach of all practitioners, if applied in its continuous form with the positive pole over the painful region, gives good results and is well tolerated if it is quite constant and if the electrodes are good. The faradic current and vibratory massage are less useful. Blue light, whether solar or electric, with blue glasses is helpful; ultra-violet rays are more powerful; the Roentgen rays are still more so; radium has an extremely well-marked sedative action, as he showed at the meetings of that Congress in 1903 and 1904.

Excursions and Entertainments.

Dr. CROCQ, the Belgian President of the Congress and the principal organiser of it, had arranged a number of excursions and amusements. The visit to the colony at Gheel on Wednesday was followed on Friday and Saturday by a two-day excursion into the Province of Liége, the means of conveyance being either railway train or motor vehicle, according to individual preferences. At the numerous banquets which took place during the Congress wine was drunk but not spirituous liquors; many of the speakers, while acknowledging the usefulness of wine, recommended moderation, but there were very few who argued in favour of total abstinence. Visits were made to Spa, to the cascade of Loo, to the celebrated caves of Rochefort and Han, to Dinant, to Namur, to the banks of the Meuse, to the Ardennes, and to several other places. On Thursday and Sunday entertainments were given by the municipalities in the Hôtels de Ville in Liége and Brussels. Finally, for those who were fond of travelling there was, from August 9th to 18th, a well-organised excursion on a large scale into Flanders and Holland.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Medical Inspection of School Children.

THE medical inspection of school children for the Lancashire county council has been going on for more than 12 months. This, the first complete survey, was begun early in January, 1909, and was completed at the end of April, 1910. The number of children of all ages examined was 61,883, of whom 31,162 were boys and 30,721 were girls. In speaking on the report from the medical superintendent at the meeting of the council on August 4th, Sir Henry Hibbert said there were 158,000 children on the books in their elementary schools, 61,883 of whom had been examined. In various ways 39,042 were more or less ailing, but "only 10,788 were affected with diseases likely to interfere seriously with their progress in life." But even this number, and when the examination of the remainder is completed it may be increased, is sufficiently serious. If similar health conditions obtain in other counties the total number of those more or less incapacitated, and therefore a burden on the country, will be sufficiently formidable.

Feeble-Minded Inebriates.

A good deal of criticism has been expended on the Langho Reformatory because some of the women on leaving at once fall back into their drinking habits. At a meeting of the Lancashire Inebriates Board on July 28th Mr. Travis-Clegg said it was futile to condemn the institution because a few of the unfortunate irresponsible women relapsed immediately upon their discharge and took the first opportunity to slake a thirst for alcohol which had been accumulating for three years. As he said, 60 per cent. of these women were "feeble-minded" and almost certain to relapse. They cannot justly be sent to prison, and the asylums are already too full. But it is necessary in the interests of the race that they should not contaminate others, and, above all, that they should not bear children. Mr. Travis-Clegg therefore cannot understand why those in authority do not take advantage of the reformatory. The cost of maintenance (5*s.* 3*d.* per week) is less than the cost of maintenance in prison and the results are quite as good.

River Cleansing.

To cleanse our rivers and keep them clean is a never-ending task, as the Mersey and Irwell joint committee has long since discovered. But during the last two years considerable improvement has taken place in the treatment of sewage in the large area under supervision, so that, taking all the various authorities together, there are 82 sets of efficient works to 41 non-efficient. In some of the latter improvements and extensions are in progress. Ten of the authorities, however, are not making extensions or improvements, and the committee therefore has to employ pressure. The local authorities are slow to spend money on what seems to them unremunerative enterprises, and the tendency is to do no more than supply the needs of the moment. After a few years, therefore, the works gradually become insufficient to deal with the sewage, owing to the growth of population and the increasing consumption of water. Unfortunately, the committee can do nothing to prevent "an anticipated inefficiency," but must wait until the actual inefficiency is manifest. Some works, therefore, are always more or less inefficient, and one of the duties of the committee is to see that improvements and extensions are put in hand at the earliest moment and with sufficient energy. That this is done is shown by the fact that of the 41 non-efficient works "31 schemes for extension are either in progress or nearing the point of actual construction." Last year (1909) was marked by exceptional rainfalls and floods, which cleansed the river-beds and washed away a large amount of accumulated rubbish, throwing a heavy burden on the Ship Canal in the way of additional dredging. The chairman (Dr. Hewitt) at the meeting on August 2nd, said he was sorry to see that the works of the majority of the county boroughs were non-efficient. It might have been expected that they would have been ambitious of setting a good example to the smaller authorities.

August 16th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Operation of the Notification of Births Act (1907) in Glasgow.

IN a report on the operation of this Act in Glasgow the medical officer of health of the city indicates several interesting details which come into view on summarising the statistics. The births during the past year numbered 23,503, of which 877, or 3·7 per cent., were still-births. In 97·8 per cent. of the live births occurring the requirements of the Notification of Births Act were complied with. This ratio is considerably greater than that obtained in the previous year, which was 83·9 per cent. Of the 23,503 births notified, 11,012, or 46·9 per cent., were attended medically either at home or in institutions, whilst 12,491, or 53·1 per cent., had no medical attention. The corresponding ratios for the previous year were 45 and 55 per cent. respectively. The number of births attended medically varied greatly in the different wards of the city, the maximum being 90·4 per cent. in one ward, while the minimum of 22·2 per cent. was reached in another. Until the advantages of a Midwives Act have been extended to Scotland and an official register of midwives prepared, it will not be possible to distinguish accurately between the births attended by certified and uncertified women, although it would appear that the number of trained women practising midwifery is on the increase. Excluding institutions throughout the city, the percentage of still to live births medically attended was 3·5 per cent., while in the case of births non-medically attended it was only 3·1 per cent. Dr. A. K. Chalmers points out, however, in connexion with this, that while there is every reason to believe that medical men are notifying the still-births occurring under their care, many midwives are still in ignorance of the fact that such births should be notified. This is not likely to be rectified until registration of still-births is insisted on and some restriction is placed upon interment without certification. As regards the incidence of puerperal fever, of the 108 cases registered last year 37 had been under medical care from the beginning, while 71 were attended by midwives at the onset of labour, although in 1 of these medical assistance was subsequently obtained. Dr. Chalmers again points out that before accepting the greater relative incidence of puerperal fever in cases attended by midwives as resulting from defective technique, it is necessary to remember that the midwives' practice is more frequently among the poorer classes and in the smaller houses, and that these are factors which, while incapable of express statement, must be taken into account when considering the difference in the incidence.

Medical Inspection of Schools in Kincardineshire.

The assistant school medical officer of Kincardine, Dr. Robert King, has issued his first report from March last, in which only children under 7 years are dealt with. 545 boys and 554 girls were examined, and of these 902 were defective in some particular, but only a comparatively small number of the defects were serious. Statistics are given as to the height and the weight of the children, and it is noted that these do not show any great difference between school children in the poor parts and those in more prosperous parts. The average for the county is up to, or over, the standard except in the case of girls of 5 years, where the height is 0·3 below the corresponding standard figure. Dr. King remarks that it would be well for children under 5 years to be excluded from school, both on the score of their own health and for the sake of the teacher. Of stuffy class-rooms he notes "that casual observation of many of the schools showed lighting and ventilation seriously defective and one would gladly see open-air classes more frequently held."

The Medical Officer of Health of Aberdeen: Increase of Salary.

At a meeting of the public health committee held last week it was agreed by a majority of 7 to 2 to increase the salary of Dr. Matthew Hay, the medical officer of health, from £450 to £550 per annum. An amendment to increase by only £50 was defeated. The subcommittee, in its report anent the increase of salary, stated that since Dr. Hay's salary was fixed in 1892 his duties had largely increased. For instance, more attention was now being given to questions connected with infant mortality and the control of tuberculosis. Greater supervision was also required with respect to workshops, bakehouses, dairies, and the inspection of meat. The work of the city hospital had also increased. The subcommittee at the conclusion of its report states that having regard to the nature, extent, and responsibility of the duties performed, it was of opinion that the salary should be increased by £100 per annum.

Ross-shire Medical Officers.

At a meeting of the Ross-shire county education committee in Dyl on August 2nd Dr. W. Bruce, medical officer of health of the county, was appointed senior medical inspector of schools for the county, with an honorarium of £50 per annum. Dr. Middleton has been appointed medical officer for the mainland, and Dr. D. Murray, Stornoway, for the Lewis.

Death of the Matron of Dundee Royal Infirmary.

The death occurred in the Dundee Royal Infirmary on Thursday, August 4th, of Miss J. M. Duff, matron of that institution. Miss Duff, who was a native of Aberdeenshire, received her nursing experience at the Charing Cross Hospital, London. In 1896 she was appointed matron of Dundee Royal Infirmary. Since that time the nursing and domestic staff has been largely increased by numerous important additions made during her term of office, particularly as affecting the Maternity Hospital and the Caird Cancer Pavilion. The high place which Dundee Royal Infirmary now occupies in the

nursing world is largely due to Miss Duff's energy and ability. Her death will be deeply regretted not only by the directorate and citizens of Dundee, but more especially by the large number of nurses trained under her supervision, who regarded her with the warmest affection and esteem.

August 16th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Report of the Local Government Board.

OF special interest to medical men is the statement in the report of the Local Government Board (Ireland) for the year ending March 31st last, that in the year under review 13 boards of guardians adopted graded scales of salaries for their medical officers. Scales are now in force in 77 unions, or a little less than half the unions of the country. The salaries usually start at figures higher than were previously paid and progress by regular periodic increments to fixed maxima. Curiously enough, it is in the poorer parts of the country—Leinster and Munster—that the guardians have been most ready to agree to graded scales, whereas in Ulster only a few boards have considered the question. The general death-rate for towns has fallen for the first time on record below 20 per 1000—19·2. This still compares unfavourably with the death-rates in the 76 great towns of England and Wales—14·7 per 1000, and in the 8 principal towns in Scotland—16 5 per 1000 (in 1908). The death-rate in the city of Dublin was very high—22·3 per 1000. The ratio of pauperism in Ireland has been practically unchanged for a number of years past. The average of pauperism for the year under review was equivalent to 1 in every 44 of the estimated population, or 22 per 1000—those relieved indoor being about 10, and those outdoor about 12 per 1000. An encouraging feature is the increase by 309 of the number of children boarded out from unions. During the year steps were taken to enforce the Dairies and Cowsheds Order of the Board in 216 out of 308 sanitary districts. There are still, however, several districts where dairying is an important industry in which no steps have been taken to supervise the production of milk.

Crime in Ireland.

The criminal statistics of the Registrar-General for Ireland show that the indictable offences reported to the police in 1909 were 9873, being 383 less than in the previous year. The number of cases of drunkenness decreased by 5519. Offences against the person decreased from 627 in 1908 to 523. There were 29 charges of murder, 9 being of infants under 1 year of age. Of the total number of offences 30·6 per cent. were committed in the towns, though the total population of the towns is only 20·7 per cent. of the total population.

Spitting in the Streets.

At the last meeting of the Dublin corporation an attempt was made to deal with the spitting nuisance, which is so prevalent in Dublin, but the corporation appears not to have considered the question seriously and the resolutions were defeated.

The Epidemic of Measles in Belfast.

At a meeting of the city council of Belfast held on August 2nd it was reported that the death-rate from all causes was 19·1 in the period between June 19th and July 16th, that from zymotic diseases being 4 1, and that from chest diseases 5·1 per 1000 of the population, while in the corresponding period of last year the death-rate from all causes was 13 6, that from zymotic diseases 1·2, and that from chest affections 4·1. The excess in the death-rate is, it is said, "mainly due to the epidemic of measles." The chairman of the health committee said 77 deaths had occurred within the last fortnight. The council decided not to make measles notifiable because it thought that the removal of measles cases to hospital did not materially prevent the spread of the disease, and because the cost would be prohibitive. A table published in the "Registrar-General's Quarterly Summaries and Weekly Returns" shows that 451 deaths occurred from measles in Belfast up to July 30th, a figure in excess of that representing the deaths in the same period from all the other principal epidemic diseases—viz., 332.

The Belfast District Lunatic Asylum.

The eighteenth annual report of the Belfast district lunatic asylum for the year ending Dec. 31st, 1909, has just been submitted to the committee of management by Dr. William Graham, resident medical superintendent. The admissions were 278, or 12 more than in the preceding year. Of these 132 were males and 146 were females. 62 males and 79 females were discharged, and 63 males and 48 females died; at the close of the year there were 1218 in the asylum, 563 males and 655 females. Dr. Graham points out that half a century ago the total insane population of Great Britain and Ireland was about 25,000, while to-day it is about 160,000. During the same period insanity has increased in Ireland from 6820 cases to 23,931, the ratio of the insane to the general population in 1861 being 1 in 850, in 1881 1 in 400, and in 1891 1 in 280, while to-day it is about 1 in 180. Turning to the financial side, the gross expenditure for the financial year ended March 31st, 1909, amounted to £27,131 1*s.* 9*d.*, which, after deducting receipts from paying patients and miscellaneous sources, gives the low net capitation of £20 15*s.* 1*d.* per annum. Of the entire expenditure £11,967 12*s.* 3*d.* have been defrayed out of the Local Taxation (Ireland) Account at the capitation rate of 4*s.* a week; £314 7*s.* 4*d.* have been received from the General Prisons Board for maintenance of criminal lunatics, and £696 6*s.* 3*d.* received on behalf of paying patients. The net balance payable out of the General Purposes Fund of the city is £12,727 15*s.* 4*d.*, or £10 11*s.* 7*d.* as the average net cost to the ratepayers of each patient chargeable to the city. Dr. Graham discusses the causes of the increased amount of insanity, and shows that in the future educational methods will play a larger part than in the past in the prevention of mental diseases.

Down District Asylum.

The report of the resident medical superintendent (Mr. M. J. Nolan) for the year 1909, which has just been issued, shows that 147 patients (76 men and 71 women) were admitted into the Down Asylum during the 12 months, being 4 in excess of the previous year. The total number of cases under care amounted to 482 men and 417 women, 47 men and 43 women were discharged, and 26 men and 31 women died. The population remaining at the end of the year was 752—that is, 409 men and 343 women. The average cost of each patient for the year was £22 17*s.* 5*d.*, as against £23 9*s.* 7*d.* for the previous year, a decrease of 12*s.* 2*d.* per head, while the net average cost (deducting repayments of loans, receipts from paying patients, and other miscellaneous receipts from the gross expenditure) was only £21 1*s.* 7*d.*, as against £21 19*s.* 2*d.*, a reduction of 17*s.* 7*d.* per head.

County Antrim Infirmary.

At a recent meeting of the management committee of this hospital fears were expressed that unless the annual income was increased the number of beds would have to be reduced. The Antrim County Council contributes only £600 annually, a sum much less than that contributed by other county councils for their principal medical institutions. It has been decided to make a further appeal to the county council of Antrim for support.

August 16th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Professor Ehrlich's New Remedy for Syphilis.

THE success which has attended the use of Professor Ehrlich's preparation "606" in the treatment of syphilis has attracted much attention in this city, and the new remedy has been frequently prescribed in the hospitals. Some of the daily newspapers have even published articles on the subject, an ill-advised proceeding which a recent report issued by the dermatological clinic in Vienna denounced in severe terms, but without producing any effect on the individuals concerned. Medical reports of the results produced by injections of the new remedy show that the experiences of the various observers have not been uniform. In a series of cases described by Dr. Kreibich in Prague unpleasant after-effects, such as pain, general malaise, and disorders of the eyes comparable to those produced by atoxyl, were observed,

and the report from this clinic cautions the profession against too sanguine an attitude with regard to the new treatment; the suggestion, however, is made that the results achieved have been influenced by the unstable nature of the preparation. In another report, by Dr. von Zeissl, the results obtained in 22 cases are described as excellent, but it is added that he took the precaution of examining the eyes and the state of the kidneys of each patient before treatment; he considers that the new remedy is contra-indicated whenever these organs are impaired in even the slightest degree. In all cases there was a rapid subsidence of all the symptoms of recent syphilis, and inveterate manifestations, which proved refractory to all other treatment, showed an improvement within ten days after the injection.

Mosquitoes in Austria-Hungary.

The unusual weather conditions which have prevailed since April in Central Europe have had some consequences not without interest from a medical point of view. From the beginning of spring to the end of July the rainfall has been 28 per cent. in excess of the average for the corresponding season. Large areas have thereby been converted into swamps, and pools have appeared in many places hitherto dry. The low mean temperature of the spring (2·5° C. under the average) has aided the formation of such pools by lessening evaporation. Hence many places, especially those frequented as health resorts, have become infested by swarms of gnats, mosquitoes, and house flies. Last year a similar, though not so extensive, invasion by the genus culex was reported. This year the officers of health were cautioned to be on the look-out for any effects on the public health produced by the mosquitoes, but up to the present time no definite epidemic of any mosquito-borne disease has been observed except in the marshes below Vienna where a focus of malaria was discovered a few years ago. In the swamps of Galicia, however, as well as in the southern districts of the Austrian Empire, a distinct increase of malaria has coincided with the appearance of the gnats and mosquitoes. The health resorts are free from malaria, but the winged visitors are naturally a fruitful source of discomfort. The Ministry of the Interior has issued instructions to the municipalities and other local authorities to prevent the formation of any more pools and ponds, and to take measures for the destruction of insects.

Surgical Treatment of Gangrene of the Lung.

Surgical treatment of gangrene of the lung has been sufficiently rare to justify the report of the following case, which Professor Lotheissen showed recently at a meeting of the Gesellschaft der Aerzte in Vienna. The patient, a woman aged 45 years, after a severe attack of pneumonia presented symptoms of cachexia; her sputum also smelt very offensively and was very copious. Examination revealed over the right lower lung, near the vertebral column, amphoric breathing and all the other symptoms of a cavity; there was also an empyema on the same side. X ray examination showed that the right half of the thorax was comparatively opaque to the rays, but between the fifth and sixth rib at the level of the scapula the shadow was much lighter and there was also a clear spot above it. This was the gangrenous focus with air in it. Under local anæsthesia the empyema was tapped below the eighth rib and the liquid was removed. No communication with the gangrenous part of the lung was found, but a bridge of solid tissue, about two inches thick, separated the two areas. The sixth rib was then resected for a distance of three inches, beginning laterally from the transverse process; this also was done under local anæsthesia, the patient being to all appearance nearly *in extremis*. A mass of tissue, consisting of pleura and lung fused together, had to be removed, and then a cavity about the size of a man's fist, and containing necrosed lung substance was opened up. The smell was horrible. The open lumen of a bronchus having a diameter of one-third of an inch was seen, through which the pus had been drained out and expectorated. The cavity was packed and healing progressed favourably. The sputum at once lost its smell and fell to about one ounce daily, having amounted before operation to 25 ounces daily. An interesting feature of the case was the fact that the lumen of the bronchus could be made to close simply by repeatedly touching with silver nitrate. In the majority of similar cases a secondary closure of the bronchus by suture had proved necessary.

August 15th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

The Health of the Punjab.

INTERESTING information regarding the health of the Punjab is contained in the resolution published in the current provincial *Gazette*. In 1909 the climatic conditions of the province were favourable to public health. The birth-rate was the lowest since 1904, but healthy conditions of the year so reduced the death-rate that there was an increase in population of 4·2, as compared with a decrease of 8·03 in the previous year. The low birth-rate was the direct and inevitable consequence of the terrible epidemic of malaria which swept over the province in the autumn of 1908. The fall in the death-rate from 50·72 to 30·89, the lowest figure for the decade, was mainly due to diminished virulence of malaria, and cholera claimed considerably fewer victims than in the previous year, and it is hoped that deaths from this disease will decrease as improved sanitary conditions are introduced. It was noticed that no less than 18 out of 26 districts infected owed the presence of the disease to pilgrims returning from Baisaki fair at Hardwar. Investigation showed that infection in all probability came from the sacred Bhimgoda tank, much resorted to by Punjabis, which from its position was specially liable to infection. The Government of the United Provinces has been addressed on the subject and is considering if measures can be adopted to protect this particular tank from the possibility of infection. With regard to plague there was a slight increase in mortality as compared with the previous years and the districts of Mozaffargarh and Multan were infected practically for the first time. The epidemic in Multan city was very severe, the death-rate amounting to 17·82. It is reported that people are increasingly apathetic with regard to preventive measures, and plague staffs have still to fight an uphill battle, active coöperation by the people being conspicuously absent. There is, however, an increasing tendency on the part of the people to evacuate infected villages and neighbourhoods, and it is hoped that the generous medical relief afforded to them by the plague staff will in time gain their confidence and coöperation in antiplague measures. One effect of the severe epidemic of malaria in the previous year was to impress upon Government the need for adequate preparations in case of serious recrudescence. An elaborate system was organised for free distribution of quinine to the poor and for distribution at cost price to those who could pay. It is considered that the precautions contributed materially to the mild form which the disease took in the autumn of 1909.

An Epidemic of Cholera in Kashmir.

In less than a fortnight no less than three officers—namely, Lieutenant C. E. Litchfield, Royal Warwickshires; Captain K. Hawdon, 21st Cavalry; and Colonel Merewether, late of the 7th Hariana Lancers—have died from cholera in Kashmir, and there is, unhappily, too much reason for apprehending that the disease must have by this time assumed very serious proportions. It appears that since June 4th, when the disease first began to be prevalent in Kashmir, up to July 14th, 1040 cases of cholera and 572 deaths occurred among the native population of the State, the Anantnag tehsil being by far the worst affected area. Among Europeans there had up to the same date been only three cases, all of which, however, had ended fatally. The epidemic on July 14th showed no signs of abating, but possibly some improvement may have since taken place. The insanitary condition of Islamabad has always been a source of danger to Srinagar, and it would appear that in the present case it has been largely responsible for the severe incidence of the disease, though Srinagar itself is not exactly a pattern of cleanliness.

Medical Registration.

The recent agitation about private medical practitioners has stirred up the Ayurvedic and Unani Medical Association of Bombay into activity and it has petitioned the Governor of Bombay stating that members of the British Medical Association in Bombay have submitted a petition to His Excellency in which, while defining unqualified medical men, they have also included *hakims* and *vaids*. The members of the association have prayed for a Medical Registration Act

and for certain rights and privileges for qualified medical men, by which they mean those who have graduated in Indian universities or those who have secured diplomas from any of the British, foreign, or colonial medical institutions recognised by the General Medical Council of Great Britain and Ireland. The rights and privileges they pray for are: (1) Death certificates; (2) medical fees and charges; and (3) certificates of lunacy, &c.—i.e., that their certificates should be held valid and their fees and charges allowed by any court. The petitioners are enjoying the said rights and privileges as far as Clauses 2 and 3 are concerned. The British Medical Association of Bombay petitions for sole rights and has not taken into consideration the right of Indian medical practitioners who have been enjoying the rights from the beginning of British rule in India and who have never been the cause of any popular complaint. The petitioners then point out the antiquity of their profession and explain that they do not in any way endanger the rights and privileges of members of the British Medical Association, for they neither use their prescriptions nor follow them unscientifically. The Ayurvedic and Unani Medical Association therefore, petitions against a Medical Registration Act being passed and asks that in the case of such being passed its claim be taken into consideration.

Deaths Caused by Wild Animals.

A review of the returns showing the results of measures adopted in the Punjab for the destruction of wild animals and venomous snakes last year appears in the current issue of the *Punjab Gazette*. Wild animals responsible for the loss of human life included wolves and leopards, a bear, and a hyæna; besides these there was the reported appearance of a tiger at Gurgaon. Cattle suffered to a larger extent from the depredations of wild animals in 1909 than in the previous year, the number reported killed last year being 2268, compared with 1643 in 1908. This increase is said to be due to the ravages of leopards in the Hoshiarpur and Kangra districts. The damage done by wolves during 1909 appears to have been approximately the same as in the previous year, but the districts chiefly visited by them seem to have changed. In Multan, for instance, the destruction of 118 wolves was reported in 1908; in 1909 only 1 was killed. Last year Meanwali lost only one-fourth of the number of cattle killed in 1908; Hoshiarpur four times as many. The total number of wild animals reported as destroyed rose from 1228 in the previous year to 1904 in the year under review, the most important being wolves 1000, leopards 211, and bears 187. The total number of snakes reported as killed fell from 4228 to 4089. The review concludes with a complaint that the returns are not, and never have been, very trustworthy, and their possible abolition is under consideration.

July 16th.

Obituary.

FREDERICK WEATHERLY, M.R.C.S. ENG., L.S.A., J.P.

Mr. Frederick Weatherly died at his residence, Hillside, Portishead, Somerset, on August 11th, in his ninety-first year. The deceased was the son of a country medical practitioner and received his medical education at St. Bartholomew's Hospital, qualifying as M.R.C.S. and L.S.A. in 1841. In 1846 he commenced professional work at Portishead, Somerset, retiring after 40 years of hard work, during which time he had enjoyed an extensive practice. He had a wonderful record during his long life in connexion with the Poor-law administration, and until quite recently attended the meetings of the Long Ashton board of guardians over which he presided for many years. He was a magistrate for the county of Somerset, and at one time held the following appointments: chairman of the Bedminster and Long Ashton board of guardians, member of the Somerset county council, chairman of the Somerset technical education committee, and Commissioner of Taxes. Mr. Weatherly had a large circle of friends. Gladstone being among them.

Mr. Weatherly's family consisted of eight sons and two daughters; one of his sons, Dr. Lionel Weatherly, is well known for his work in connexion with the erection of the Winsley Sanatorium for Consumptives, and another, Mr. F. E. Weatherly, a barrister on the Western Circuit, is the well-known song writer.

ROBERT WILLIAM COË, F.R.C.S. ENG.,

HONORARY CONSULTING SURGEON TO THE BRISTOL GENERAL HOSPITAL.

Mr. R. W. Coë, who died at his residence, 7, Pembroke-road, Clifton, Bristol, on August 11th, in his eighty-ninth year, was the doyen of the medical profession in Bristol. He received his medical education at St. George's Hospital, obtained the M.R.C.S. in 1844, and shortly after qualifying commenced professional work at Bristol, where he soon became extremely popular and obtained an extensive general practice. Eight years later he was admitted a Fellow of the Royal College of Surgeons of England and was appointed surgeon to the Bristol General Hospital, becoming later lecturer on surgery at the Bristol Medical School. Mr. Coë contributed some articles to the medical press and displayed in them a wide range of surgical and anatomical knowledge. He was at the time of his death honorary consulting surgeon to the Bristol General Hospital, the Bristol Children's Hospital, and the Lock Hospital for Women, Bristol.

MARY ADAMSON MARSHALL, M.D. PARIS, L.R.C.P. IREL. & L.M.

Mrs. Mary Adamson Marshall, M.D., of Cannes and Watford, died on August 8th, at 1, Rickmansworth-road, Watford, at the age of 74 years. She was the widow of the late Claude Marshall, solicitor, of Greenock. She received her medical education at the London School of Medicine for Women, in Edinburgh, and in Paris. She obtained her M.D. degree of Paris in 1879, and in 1880 became L.K.Q.C.P. Irel. and L.M. She formerly practised in London in Stanley-gardens, Kensington Park, and at Upper Berkeley-street, and later for some years at Cannes, France. She was late senior physician to the New Hospital for Women, Marylebone, and late medical officer of Portobello-road Provident Dispensary for Women and Children. She had written various articles to the medical press, notably "Sur le Rétrécissement Mitral, sa Fréquence plus grande chez la Femme que chez l'Homme," and "Destruction of Gall-bladder, with Pyæmia." The funeral took place at Woking.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Gustav Fischer, the eminent Jena medical publisher. He held doctor's degrees in both medicine and philosophy.—Dr. H. A. Beach, formerly lecturer on surgery in Harvard University.—Dr. Berestneff, *privat-docent* of bacteriology in the University of Moscow.—Dr. Marc Dufour, professor of ophthalmology in the University of Lausanne.—Dr. Manuel Dominguez, formerly professor of therapeutics in Mexico.—Dr. Magail, formerly professor of clinical midwifery in Marseilles.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Prague* (*German University*): Dr. Hermann Schloffer, Professor of Surgery in Innsbruck, has been appointed Professor of Surgery.—*Tomsk*: Dr. N. V. Vershin has been appointed Professor of Pharmacology.—*Tübingen*: Dr. Reich has been recognised as *privat-docent* of Surgery.—*Vienna*: The duties of the late Professor Zuckerkandl's Chair of Descriptive and Topographic Anatomy have been temporarily carried on by his pupil and assistant, Dr. Julius Tandler, and this gentleman has now been elected by the College of Professors as his successor.—*Zürich*: Dr. W. Silberschmidt has been appointed Ordinary Professor of Hygiene and Bacteriology and Director of the Institute of Hygiene.

LITERARY INTELLIGENCE.—Messrs. J. and A. Churchill have a new edition of Volume III. of "Allen's Commercial Organic Analysis" just ready for publication. This volume has been rewritten under the editorship of Mr. W. A. Davis, B.Sc., and Mr. S. S. Sadtler, S.B. The subjects and authors are as follows: Hydrocarbons, by F. C. Garrett; Naphthalene and its Derivatives, Phthalic Acid and the Phthaleins, by W. A. Davis; Bitumens, Anthracene and its Associates, Phenols, by S. S. Sadtler: Aromatic Acids, by E. Horton; Gallic Acid and its Allies, by W. P.

Dreaper; Modern Explosives, by A. Marshall. It will be seen that each subject is handled by an expert in his department.

THE annual meeting of the International League against Epilepsy will be held in Berlin on Oct. 4th and 7th, at 2 P.M., in the lecture theatre of the psychiatric clinic of Professor Dr. Ziehen. Professor Tamburini (Rome) will act as president. The business before the meeting consists mainly of the reception of the reports from the international committees upon the work of the league in the different countries, with reference to the prevalence of epilepsy, the numbers of existing institutions for epileptics, &c. Communications will be received from Dr. Veith (Berlin) upon epilepsy and crime, and Dr. Muskens (Amsterdam) upon the patho-physiology of epilepsy. A complete programme will be issued later on.

Messrs. Down Bros., Limited, of St. Thomas's-street, have had the whole of their exhibit of surgical instruments and hospital furniture at the Brussels Exhibition destroyed by the calamitous fire. The actual cost of the articles, amounting to nearly £2000, is covered by insurance, but the loss is none the less severe as immense pains had been taken in preparing the exhibit which was in a sense unique, consisting exclusively of their own original designs or those carried out for British surgeons with British hands in their own workshops, all of which were illustrated in a handsome catalogue printed in French and English issued at the exhibition. Fortunately the jury had already paid their visit of inspection and it may be hoped had formed a favourable conclusion.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.
A Synopsis of the British Pharmacopœia and of the Poison Laws of Great Britain and Ireland. By H. Wippell Gadd (of the Middle Temple, Barrister-at-Law; formerly Lecturer on Pharmacy). With Analytical Notes and Suggested Standards by C. G. Moor, M.A., F.I.C. Seventh edition. Price 1s. net.

BERTRAND, ANTIGA CASA (JOSÉ BASTOS & CA), Rua Garrett, Lisbon.
Defeza Sanitaria da Europa contra a Peste. Hygiene e Prophylaxia Internacional. Do Doutor Julio Gonçalves. Price not stated.

CHURCHILL, J. AND A., London.
Allen's Commercial Organic Analysis. Volume III. By the Editors and following Contributors: F. C. Garrett, W. P. Dreaper, Edward Horton, A. Marshall. Fourth edition. Entirely rewritten. Edited by W. A. Davis, B.Sc., A.C.G.I., and Samuel S. Sadtler, S.B. Price 21s. net.

COLLINGRIDGE, W. H. AND L., London.
Profitable Fruit-growing for Cottagers and Small Holders of Land. Gold Medal Essay. By John Wright, V.M.H., F.R.H.S. Written for the Worshipful Company of Fruiterers. Ninth edition, revised and enlarged. Price 1s.

DOESBURGH, VAN, S. C., Leiden.
Tuberkulose und Immunität. Von R. P. Van Calcar, Professor an der Reichsuniversität in Leiden. Price not stated.

FISCHER, GUSTAV, Jena.
Das Virusproblem der pathogenen Bakterien. Epidemiologische und klinische Studien von der Diphtherie ausgehend. Von Edv. Laurent, Stockholm. Price M.30.
Das System der Biologie in Forschung und Lehre. Eine historisch-kritische Studie. Von Dr. Phil. S. Tschulok, Zürich. Price M.9.
Das Problem der Eiweissanaphylaxie, mit besonderer Berücksichtigung der praktischen Antigendiagnose pro foro. Von Dr. Hermann Pfeiffer. Price M.6.
Die übertragbare Genickstarre. Von Professor Dr. Otto Busse. Abdruck aus dem Klinischen Jahrbuch. Price M.12.
Handbuch der Anatomie und Mechanik der Gelenke. Unter Berücksichtigung der bewegenden Muskeln. Von Rudolf Fick. Zweiter Teil: Allgemeine Gelenk- und Muskelmechanik. Price, paper, M.12; bound, M.14.
Handbuch der Gesamten Therapie. In sieben Bänden. Herausgegeben von Dr. F. Penzoldt und Dr. R. Stintzing. Vierte umgearbeitete Anflage. Zwölfte Lieferung. Price M.4.50.
Der Nukleinstoffwechsel und seine Störungen. (Gicht, Uratsteindiathese u.a.) Von Dr. Theodor Brugsch und Dr. Alfred Schittenhelm. Price M.4.50.
Grundriss der Mechanotherapie (Massage und Gymnastik). Für Studierende und Aerzte. Von Dr. med. Fritz Scholz. Mit einem Vorwort von Geheimrat Professor Dr. Brieger. Price M 4.
Das Altern und der physiologische Tod. Ergänzungen zur physikalischen Wachstumslehre. Von M. Mühlmann (M. Millman). Price M.1.20.
Handbuch der Vergleichenden Physiologie. Herausgegeben von Hans Winterstein in Rostock. Siebente Lieferung. Band II. Physiologie des Stoffwechsels. Physiologie der Zeugung. Erste Hälfte. Achte Lieferung. Band III. Physiologie der Energieproduktion. Physiologie der Form. Zweite Hälfte. Price M.5 each part.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
Oxford Medical Publications. Sprains and Allied Injuries of Joints. By R. H. Anglin Whitelocke, M.D., M.C. Edin., F.R.C.S. Eng. Second edition. Price 7s. 6d. net.

GRESHAM PUBLISHING COMPANY, London.
Human Anatomical Model (Female). A Life-size Reproduction of the Dissections of the Various Parts of the Human Body. With a Descriptive Index by Frederick Norman, F.R.C.S. Eng., and W. G. Stone, M.D. Oxon., F.R.C.S. Eng.

HILL, WALTER, London.
The Holidays, 1910. Where to Stay and What to See. Fifteenth edition. Price 1s.

HÖLDER, ALFRED, Wien und Leipzig.
Die durch Gonokokken verursachten Krankheiten des Mannes. Ihre medikamentöse und chirurgische Behandlung. Von Dr. S. Baumgarten. Price 5s.

HOST, ANDR. FRED. & SON, Kobenhavn.
Mikroskopiske Undersogelser over Bugspytkirtelens, Normale og Patologiske Anatomi. Hvorunder forholdene ved en Del Tilfælde af Sukkersyge. Af K. A. Heiberg. Price not stated.

KARGER, S., VERLAG VON, Berlin.
Die Bakteriologische Untersuchung im Dienste der Diagnostik und Prognostik der puerperalen Infektion. Von Professor Dr. W. Zangemeister. Price M.1.50.
Praktische Winke für die chlorarme Ernährung. Von Professor Dr. H. Strauss. Price M.1.
Die Kopulation der Netzhaut mit der Aderhaut durch Kontaktverbindung zwischen Sinnesepithel und Pigmentepithel. Ein bisher in Anatomie, Physiologie, und Pathologie des Auges besonders in der Pathogenese der Netzhautablösung, nicht gewürdigtes mechanisches Moment. Von Dr. R. Halben. Price M.1.
Jahrbuch für Kinderheilkunde und Physische Erziehung. Unter Redaktion von O. Heubner, Th. Escherich, A. Czerny. 72, der dritten Folge 22. Band. Heft I. Ausgegeben am 1 Juli, 1910. Price M.36 per annum.

KLINKHARDT, DR. WERNER, VERLAG VON, Leipzig. BAILLIÈRE TINDALL, AND COX, London. G. E. STECHERT AND CO., New York. SOCIETA EDITRICE LIBRARIA, Milano. "PRAKTICHESKAYA MEDITSINA," St. Petersburg.
Aus den Hamburger Staatskrankenhäusern. Pathologisch-anatomische Tafeln nach frischen Präparaten. Mit erläuterndem anatomisch-klinischem Text. Unter Mitwirkung von weiland Professor Dr. Alfred Kast. Weiterherausgegeben von Professor Dr. Eugen Fraenkel und Dr. Theodor Rumpel. Vollständig in 26 Lieferungen. Lieferungen I.-XII. Im Abonnement 5 Mark p. Lieferung. Einzelne Tafeln, M.1.50.

LAURIE, T. WERNER, London.
The Mummy Moves. By Mary Gaunt. Price 6s.
Life and Sport on the Norfolk Broads in the Golden Days. By Oliver G. Ready, B.A. Price 7s. 6d. net.
Chats on Photography. An Easy Guide for Beginners. By W. Wallington. Price 6d. net.

LEHMANN, J. F., VERLAG VON, München.
Jubiläumsschrift zum 5 Ojährigen Gedenken der Begründung der lokalistischen Lehre Max von Pettenkofers. II. Band. Die Hauptgrundgesetze der epidemiologischen Typhus- und Choleraforschung in Rücksicht auf die Pettenkofersche und die Kochsche Auffassung der Typhus- und Choleragenese. Darlegt von Dr. med. Friedrich Wolter in Hamburg. Price M.24.

LIVINGSTONE COLLEGE, Leyton, London, E.
Livingstone College Year-Book. Price 6d.

MALOINE, A., Paris.
Chirurgie du Praticien. Technique des Opérations Courantes et Chirurgie d'Urgence. Par G. Marion. Price Fr.7.
La Fièvre de Malte en France. Par le Docteur Paul Cantaloube (de Sumène). Étude clinique d'après 200 cas personnels. Price Fr.7.

MARHOLD, CARL, Verlagsbuchhandlung, Halle-a.-S.
Die Erkrankungen der Flexura sigmoidea. Von Professor Dr. Th. Rosenheim, Berlin. Price M.1.80.
Enzyklopädisches Handbuch der Heilpädagogik. Herausgegeben von Professor Dr. med. A. Dannemann, Giessen, Hilfsschul-Leiter H. Schober, Posen, und Hilfsschul-Lehrer E. Schulze, Halle-a.-S. Lieferung 6. Vollständig in 10 Lieferungen à M. 3.
Die Syphilisbehandlung mit dem Ehrlich-Hata'schen Mittel. (Dioxydiamidoarsenobenzol.) Zusammenstellung der bisherigen Erfahrungen. Von Dr. Johannes Bresler. Price M 1.
Klinik für psychische und nervöse Krankheiten. Herausgegeben von Robert Sommer, Dr. med. et phil. V. Band. 2 Heft. Preis pro Band, M 12.

MILLS AND BOON, LIMITED, London.
The Valley of Achor. By Mrs. Philip Champion de Crespigny. Price 6s.

NISBET, JAMES, AND CO., LIMITED, London.
Gall stones and Diseases of the Bile-ducts. By J. Bland-Sutton, F.R.C.S. Eng. New and revised edition. Price 4s. 6d. net.

PONSONBY, EDWARD, 116, Grafton-street, Dublin.
The Public Health Acts Amendment Act, 1907. By Arthur E. Clery, LL.B., Barrister-at-Law, and J. McWalter, M.A., M.D., D.P.H., Barrister-at-Law. Price 2s.

SPRINGER, JULIUS, Berlin.
Ergebnisse der Chirurgie und Orthopädie. Herausgegeben von Erwin Payr, Greifswald und Hermann Küttner, Breslau. Erster Band. Price, paper, M.20; bound, M.22.50.

TIPOGRAFIA G. U CASSONE, Via della Zecca, N. 11, Torino.
Le Nevrosi del Pneumogastrico. Pel Dottor Enrico de Silvestri. Price not stated.

Appointments.

cessful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

KER, A. E. J., F.R.C.S. Eng., F.R.C.S. Irel., L.R.C.P. Irel., has been appointed to the Consulting Staff of the Convalescent Home for Officers at Osborne.

GBURN, C. B., M.D., Ch.M. Syd., has been re-appointed Assistant Physician to the Royal Prince Alfred Hospital, Sydney, Australia.

RD, C. P., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Upton-upon-Severn District of the county of Worcester.

EREUX, W. C., M.B., B.C. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Tewkesbury District of the county of Gloucester.

RFAX, E. W., M.B., Ch.M. Syd., M.R.C.S., L.R.C.P. Lond., has been re-appointed Assistant Physician to the Royal Prince Alfred Hospital, Sydney, Australia.

SHMAN, J. F., B.A., M.B., Ch.M. Syd., has been appointed Assistant Physician to the Royal Prince Alfred Hospital, Sydney, Australia.

EWEN, H. A., M.B., Ch.B. Glasg., D.P.H., has been appointed Medical Officer of Health for the Counties of Fife and Kinross.

LS, A. E., M.B., Ch.M. Syd., has been appointed Physician to the Royal Prince Alfred Hospital, Sydney, Australia.

TH, S. A., M.B., Ch.M. Syd., has been appointed Assistant Physician to the Royal Prince Alfred Hospital, Sydney, Australia.

NG, H. C. TAYLOR, M.D., Ch.M. Glasg., has been re-appointed Assistant Gynæcologist to the Royal Prince Alfred Hospital, Sydney, Australia.

Vacancies.

further information regarding each vacancy reference should be made to the advertisement (see Index).

MINGHAM GENERAL HOSPITAL.—House Surgeon, Resident Pathologist, and House Physician for six months. Salary £50 per annum, with residence, board, and washing. Also Two Assistant House Surgeons for three months. Salary £40 per annum, with residence, board, and washing.

TLE, BOROUGH OF, HOSPITAL FOR INFECTIOUS DISEASES.—Resident Medical Officer. Salary £120 per annum, with board, washing, and apartments.

RNEMOUTH, ROYAL NATIONAL SANATORIUM.—Resident Medical Officer. Salary £10 per month, with board, residence, and washing.

GHTON, SUSSEX COUNTY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and laundry.

STOL ROYAL INFIRMARY.—Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, lodging and washing

DMOOR, CROWTHORNE, BERKS, STATE CRIMINAL LUNATIC ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £200 per annum, with quarters, gas, coal, and attendance.

SLEM, HAYWOOD HOSPITAL.—Resident Medical Officer (female). Salary £100 per annum, with board, residence, and laundry.

RY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

CER HOSPITAL, Fulham-road, London, S.W.—House Surgeon. Salary £70 per annum. Also Director of the Electrical and Radio-Therapeutic Department. Salary £150 per annum.

DIFF UNION WORKHOUSE.—Assistant Medical Officer. Salary £130 per annum, with rations, apartments, washing, &c.

RLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at rate of £80 and £100 per annum respectively, with board, lodging, and washing.

RMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, laundry, &c.

ELTENHAM GENERAL HOSPITAL.—Surgeon-in-Charge, unmarried. Salary £80 per annum, with board and lodging.

TONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 per annum, with board, apartments, and laundry.

ER, ROYAL VICTORIA HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

RBAN, NATAL, CORPORATION PUBLIC HEALTH DEPARTMENT.—Medical Officer for Municipal Tuberculosis Bureau. Salary £600 per annum.

RHAM COUNTY HOSPITAL.—House Surgeon. Salary £120 per annum, with board and lodging.

NCH HOSPITAL, 172, Shaftesbury-avenue, W.C.—Resident Medical Officer, unmarried. Salary £100 per annum, with board and laundry.

OUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

ERNOCK (BURGH) SCHOOL BOARD.—School Medical Inspector. Salary £300 per annum, rising to £350.

LIFAX, ROYAL HALIFAX INFIRMARY.—Senior House Surgeon, unmarried. Salary £120 per annum, with residence, board, and washing.

NCASTER (ROYAL) INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, attendance, and washing.

ICESTER BOROUGH ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £170 per annum, with board, apartments, and washing.

ERPOOL, ROYAL SOUTHERN HOSPITAL. Two House Physicians and Three House Surgeons. Salary at rate of £60 per annum, with board and residence.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—House Surgeon. Salary £100, with board, residence, and washing. Also Assistant House Surgeon. Salary £60, with board and residence, both unmarried.

MANCHESTER AND SALFORD HOSPITAL FOR SKIN DISEASES.—House Surgeon. Salary £75 per annum, with board and residence.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, near Manchester.—Resident Medical Officer, unmarried. Salary first six months £40, and second £50.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £80 per annum, with apartments and board.

MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Second, Third, and Fourth House Surgeons for six months. Salary at rate of £50 per annum, with board and residence.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary at rate of £80 per annum, with board, attendance, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—Assistant House Surgeon. Salary £75 per annum, with board, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

REDHILL, EARLSWOOD ASYLUM.—Assistant Medical Officer, unmarried. Salary £130, rising to £150 per annum, with board, lodging, washing, &c.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.—Medical Officer with X ray experience for Light Department. Salary £50 per annum.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, all found.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SHREWSBURY, SALOP INFIRMARY (COUNTY HOSPITAL). — House Physician. Salary at rate of £70 per annum, with board and apartments.

SOUTH AFRICA, SOUTH AFRICAN COLLEGE, Capetown.—Professors of Human Anatomy and Physiology. Salary in each case at rate of £500 per annum, with free passage to Capetown.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried, for six months. Salary £70 per annum, with residence, board, and washing.

SUNDERLAND INFIRMARY.—House Surgeon. Salary £80 per annum, with board, residence, and washing.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and lodging.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer for six months. Salary £100 per annum, with board, lodging, &c.

WANDSWORTH UNION INFIRMARY.—Senior Assistant Medical Officer and Junior Assistant Medical Officers. Salary Senior Assistant Medical Officer £170. Two Junior Assistant Medical Officers £120 per annum, with apartments, rations, and washing.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c. Also Honorary Dental Surgeon.

WEST LONDON HOSPITAL, Hammersmith-road, W. — Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with apartments and rations.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Physician.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Loughton, in the county of Essex.

Births, Marriages, and Deaths.

BIRTHS.

BURRIDGE.—On August 10th, at Mackenzie-street, Slough, Bucks, the wife of John Harold Burridge, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

EASTERBROOK.—On August 13th, at Crichton House, Dumfries, the wife of C. C. Easterbrook, M.D., F.R.C.P., of a son.

HACKNEY.—On August 11th, at The Mount, High-street, Hythe, Kent, the wife of Clifford Hackney, M.R.C.S., L.R.C.P., of a son.

WALTON.—On August 11th, at Rutland Park Mansions, Willesden Green, the wife of Albert J. Walton, M.S., F.R.C.S., of a daughter.

MARRIAGES.

WATERFIELD—CROWFOOT.—On August 9th, at the parish church, Beccles, Suffolk, Noël Everard Waterfield, F.R.C.S., to Ellen Mabel, younger daughter of W. M. Crowfoot, M.B. Lond., F.R.C.S., of Beccles.

DEATHS.

COË.—On August 11th, at 7, Pembroke-road, Clifton, Bristol, Robert William Coë, F.R.C.S.E., in his 89th year.

MARSHALL.—On August 8th, at Rickmansworth-road, Watford, Mrs. Mary Adamson Marshall, M.D., aged 74 years.

WEATHERLY.—On August 11th, at Hillside, Portishead, Frederick Weatherly, M.R.C.S., C.C. and J.P. for the County of Somerset, aged 90 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE COST OF SERUM.

THERE are always those who are ready to attribute unworthy motives to the supporters of any new movement. Yet it might be thought that the utility of diphtheritic serum was so well known at present to all who had considered the matter that no one would venture to come forward at this stage of our knowledge of its value and suggest that the mere profit on the manufacture of the serum was the motive force for its recommendation and employment. We find, however, in a recent issue of the *Morning Leader* a letter in which the writer calculates from various data that an enormous profit is made in the preparation and sale of serum. It is worth noting that he omits entirely most of the important elements of cost. He tells us how much a horse may be bought for, and he endeavours to calculate the selling price of the serum which he says is obtained from it, but he omits entirely the keep of the horse, the rent of the institution, the cost of instruments, and the salary of the operator. The testing of the strength of the serum is also a difficult task, and the cost of this will need to be included in the total of the expenses. We should not have thought it necessary to allude to such a letter if it were not that some of the public might imagine that it represented the facts of the case.

The concluding paragraph of the letter is: "Here is the secret of sero-therapy! The manufacture of serums is a highly-paying business, and that is why it is fostered." Here we have a direct accusation that medical men favour serum-therapy because of the large profit made by its manufacture, but as they do not in any way share in this profit it is difficult to see how it can influence them in the use of serum. The medical profession does not accord equal support to all forms of serum; it is only in a comparatively small number of diseases that serum-therapy has been shown to be of undoubted and unsurpassed value.

"CHRISTIAN SCIENCE."

To the Editor of THE LANCET.

SIR,—Will you allow me to point out that in her answers to the coroner, at the late inquest in Chelsea, Miss Bovet did not reply to the coroner's remark that the prayers of the Church could be obtained for nothing, whilst those of Christian Science had to be paid for, by saying that the clergy did not undertake to heal? She said quite distinctly that the prayers of the Church could not be obtained for nothing, inasmuch as every clergyman received a regular income for his duties, part of which was to offer these prayers. If Christian Science practitioners received a regular income the case might be similar, but not till then. The answer of hers which you quote was in answer to another question as to the difference between the prayers of the Church and the prayers of Christian Science, to which she replied that the Church did not attempt to heal by its prayers; and except in isolated cases this is the fact. I am, Sir, yours faithfully,

August 13th, 1910. FREDERICK DIXON.

THE COCAINE HABIT.

THE Commissioner of Police of Rangoon, Lower Burma, referring, in his report for the past year, to Excise cases, observes: "The cocaine habit is growing by leaps and bounds, and legislative action is necessary to check the growth of this great evil. Cocaine dens are run quite openly, and no effective action can be taken under the existing law. Owing to the drug being about one-fifth the price of opium, it is within the reach of the most indigent, and the after-effects, I am informed, are many degrees worse than those of opium. An opium den is a palace of light compared to the noisome foulness and wretchedness prevailing in cocaine and morphia dens. The *modus operandi* prevailing in these cocaine dens is very simple, yet very effective. The purveyor of the drugs shuts himself up behind an iron-barred door and passes out the cocaine and morphia in one- or two-grain packets to purchasers through a small opening in the wall. There is always a water-closet within the small barred-off room, and, on a raid being made by the Police or Excise Departments, by the time the iron-barred door can be opened the drugs are thrown into the water-closet, which is immediately flushed. The persons using the drugs may on occasion be caught, but, as a rule, the few grains they have in their possession are thrown on the floor, and these persons will not give evidence against the seller for fear of being boycotted in the future. Moreover, they are not the persons we want to get at. The only remedy that I can see is to visit the landlord of the house in which injecting is discovered with rigorous imprisonment. This remedy is not a bit too drastic when one considers the large number of persons being daily ruined, body and soul. I understand that this matter has been brought to the notice of the Government by the Excise Department." Indian papers report that at the Bombay police on July 23rd two men, named Silvo Cilento and Joseph Law Kegas, were convicted of selling 36 ounces of cocaine with licence to an informer. The latter paid 540 rupees for the goods, the money having been supplied by the police. The acc who admitted their guilt, were sentenced to two months' rig imprisonment, and to pay a fine of 100 rupees each; or, in defa undergo 14 days' further imprisonment.

THE FEAR OF PREMATURE BURIAL.

To the Editor of THE LANCET.

SIR,—I should be much obliged if any of your readers would in me what is the general routine to follow when asked by patie promise to see that after death they do not run the risk of prem burial. Of course, one naturally promises, and when the time a satisfies oneself that death has really occurred. But the patie extracting the promise, often speaks of cutting blood-vessels, puncti the heart, &c., and I should be glad to know what is generally under the circumstances. I am, Sir, yours faithfully,

August 13th, 1910. A.

*** It is certainly advisable that the medical man before pract such operations upon a dead patient should receive from the pa testamentary or written directions as to the course to be pursued do not consider that a general request to see that premature b does not occur entails upon the medical man the performance o operation. It is sufficient that the medical man should satisfy hi in the usual way that the patient is dead.—ED. L.

THE HUMOUR OF 606.

ALL Germany seems to be talking of Ehrlich's new treatmen syphilis. *Simplicissimus*, the well-known Munich comic we has a cartoon showing Ehrlich, with his characteristic cigar, i viewed by a party of civic dignitaries who are begging him to removing the great ally of the social purity party.

STONE BLIND.

To the Editor of THE LANCET.

SIR,—Mr. W. Ettles's suggestion in THE LANCET of July 23 ingenious, but I think quite unnecessary. "Stone deaf" is simp variant of "deaf as a stone" or "deaf as a post," and I think it is that both with regard to deafness and blindness the words are meant to express the utter and complete idea of insensibility which associates with a stone. I am, Sir, yours faithfully,

Cavendish-square, W., August 10th, 1910. J. Y. W. MACALISTE

COMMUNICATIONS not noticed in our present issue will receive atte in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are annou for the next four weeks:—

August 21st–26th (Brussels).—International Home Education gress.
,, 31st (Sheffield).—British Association for the Advance of Science.
Sept. 5th–10th (Brighton).—Congress of the Royal San Institute.
,, 10th–14th (Brussels).—Second International Congress Occupational Diseases.
,, 13th–15th (Brussels).—International Congress on Radio and Electricity.
,, 18th–24th (Königsberg).—Eighty-second Congress of Ger Scientists and Medical Men.

The following additional Congresses are also notified:—

Oct. 5th–8th (Brussels).—Ninth International Tuberculosis ference.
Nov. 7th–12th (Cape Town).—Twelfth South African Me Congress.

METEOROLOGICAL READINGS

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 17th, 19

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remar
Aug. 11	30·15	N.E.	...	115	72	56	55	57	Clou
,, 12	29 99	S.W.	...	116	77	57	61	63	Raini
,, 13	30 07	S.W.	0·06	76	63	58	58	60	Overc
,, 14	30·06	S.E.	0·04	119	75	56	60	64	Clou
,, 15	29 76	S.	0·02	127	75	57	62	66	Clou
,, 16	30 08	W.	...	125	75	57	59	62	Clou
,, 17	29 99	S.W.	...	115	69	59	60	64	Raini

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, Road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon: Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

TUESDAY.—10 A.M., Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Bidwell: Dilation of the Sigmoid.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture: Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Diseases of Women. 5 P.M., Lecture:—Mr. Addison: Hernia in Infancy.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Gynæcological Operations. Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics X Rays. Operations

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—2 P.M., Clinical Demonstration: Dr. Wall: Diseases of the Lungs.

TUESDAY.—2 P.M., Clinical Demonstration: Dr. Grünbaum: Diseases of the Kidneys.

WEDNESDAY.—2 P.M., Clinical Demonstration: Dr. Hutchison: Diseases of the Digestive System and Children's Diseases

THURSDAY.—2 P.M., Clinical Demonstration: Dr. T. Thompson: Diseases of the Nervous System.

FRIDAY.—2 P.M., Clinical Demonstration: Dr. L. Smith: Diseases of the Heart and Vessels

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (24th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (25th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY 26th.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY 27th.—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

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THE INDEX TO THE LANCET.

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THE LANCET.

LONDON: SATURDAY, AUGUST 27, 1910.

Address to Students.

October the various schools of medicine open their doors ceive the students who have determined to enter upon arduous course of study which they hope will eventually to their becoming qualified as practitioners of medicine. re is, perhaps, no profession in which, for the majority of nembers, the toils are greater, the rewards, as measured ash, less, and the responsibilities more weighty. The gth of time which must be spent in the study of medicine ore the student can obtain a medical diploma or a degree ive years or more. The University of London has ently extended this period from five to five and a half rs, while the Universities of Oxford and Dublin insist n the possession of an Arts degree before the conferring the medical degree, a regulation which practically gthens the curriculum to seven or eight years. And that term of five or five and a half years may be considered t any rate logically—by many experienced teachers to be short is shown by the fact that the average medical dent requires about seven years from the start of his reer to arrive at registration. Nor need we wonder at is when we consider the vast scope of the present ience of medicine and its ancillary subjects. Thirteen ndred years ago the following necessities were laid down r the medical man by ISIDORUS HISPALENSIS, the Bishop Seville and author of one of the great Encyclopædias of e Middle Ages, the "Liber Etymologiarum." In Book 4, hapter XIII., of this work he says: "It is sometimes ked why the art of medicine is not included among the her liberal arts. It is because they deal with single bjects, but medicine with all. For a medical man should now the ars grammatica, that he may be able to under- and and expound that which he reads; and the ars hetorica, that he may be able to support with sound argu- ents the matters with which he deals; and the ars ialectica, so that by the exercise of reason he may investi- ate the causes of sickness for the purposes of cure. So too e must know the ars arithmetica, so as to calculate the times f the accession of fevers and their periods; and the ars geo- metrica on account of the different climates and the lie of different districts. He should know something of music, for many things can be done for the sick by means of this art. ..... Lastly, he must have a knowledge of astronomy, so that he may take into consideration the calculations of the stars and the changes of the seasons. For, as a well-known physician says, our bodies are affected by their state or condition. And so medicine is called a second philosophy, for either art arrogates to itself the whole man, for by the one. the soul, and by the other the body is cured." With the exception of music and astronomy, these requirements for a medical man are practically provided for by the preliminary examinations in general education which every medical student must pass before registration. High though the standard of education for a seventh-century medical man was, and wide the extent of his literary knowledge, more, much more, is required from the medical man of to-day, simply because he must be found now, as then, in the front ranks of learning, and the struggle to attain so prominent a place becomes yearly harder. Although it may be true, for example, that certain forms of disease known to the ancients, and even to our mediæval forefathers, are practically extinct in these times, yet, owing to the spread of intercommunication and to the discovery of new lands, the medical man of to-day has to deal with a vast number of conditions of disease which were unknown in the past. The field of medicine is infinitely wider than it was even a hundred years ago, and the medical art touches the life of the community at every point. As for surgery, it takes the whole body for its province and the very tripod of life, the lungs, the brain, and the heart, come successfully under the knife. The responsibilities which the properly equipped medical man must be prepared to accept are therefore infinite, and though no one is any longer expected to know all domains of medicine and surgery equally, while legitimate specialism is now seen to be as necessary as it is beneficial, the fact remains that to fulfil the demands of the medical curriculum postulates to-day a well-equipped brain and considerable industry.

The General Medical Council lays it down that the final examination in medicine, surgery, and midwifery must not be passed before the close of the fifth year of medical study, and the three subjects of study cover a quantity of learning which by no means appears on the surface. The word medicine has gradually been "advancing backwards" to its primary meaning of knowledge, so many and so various are the subjects with which the art deals. Take the process of diagnosis—and as has been well said, "To know what is the matter with your patient is to half cure him." Auscultation and percussion are clinical procedures which are virtually only a little over a hundred years old. Both had been practised in a tentative way as long ago as the time of HIPPOCRATES, but the points to which they have been refined mark modern developments of medical art, and stand for a commensurate amount of clinical study by any pupil. Examinations of a sort, of both blood and urine, were known to mediæval physicians, but so recently as 30 years ago examination of the blood meant simply the reckoning of the relations of the red to the white corpuscles, and possibly an estimation of the hæmoglobin. A blood examination to-day includes a differential count of the various kinds of leucocytes, together with a bacteriological examination. In the case of the urine the earliest diagnosticians drew many inferences from its appearance, some of them very sound. But not only is the day of such empiricism over, but the great elaboration of the methods of chemical and physical analysis no longer suffices, as in any case a bacteriological test may be necessary. The ascertainment of the various reactions of blood and sera and the taking of opsonic indices form other classes of investigation which can only be undertaken after careful training; while the X rays reveal the conditions of organs until recently h dden from sight, and if their use may in some directions have simplified

diagnosis it has also brought with it new difficulties in treatment. And side by side with medicine is her handmaid physiology, for the knowledge of how a normal organism works is a necessity for the setting right of an abnormality. The more abstruse clinical medicine becomes the more detailed should be the student's knowledge of physiology. We need not give details when we say that throughout the community medicine stretches out her hands to heal disease or to prevent its onset. In a thousand industrial occupations she points the way to safety—in mines, in factories, in the stokeholds of ships, in caissons, in vessels which go beneath the waves, in tunnels under the mountains. In armies on the march or in the field, in crowded tenements, in the tropics and at the Poles, she is ever at hand and ready to meet the "thousand fates of death." How, then, is it possible that any five years' curriculum can possibly fit any particular student for every kind of professional development? It can at most only provide him with foundations upon which he may raise that form of superstructure suitable to his destiny as a physician or the particular bent of his intellect.

By anatomy the student learns to know, after their death, the structures with which he will have to deal during their life, and the local relations which one tissue has with another; by physiology he learns how these structures, when living, react the one to the other, though at present the why of the movements and functions is largely hidden from us; by pathology, the disturbances which disease or abnormality brings about are made more or less clear to him; by the various methods of the art of diagnosis he learns to ascertain whether the body with all its complicated functions is working smoothly, and if not, which part or function is disordered. All this he has to learn, and it is not surprising that he finds five years a scanty time for the purpose. But when he comes to treat disease, or more truly it may be said when he comes to treat his patient, he will find himself face to face with a new factor—namely, the patient's self, his mode of life, his social environment, the climate in which he lives, and possibly the needs of a family for whom he works. No five years' curriculum can really impress upon the student that great truth recognised by the ancient Greeks, "that as you ought not to attempt to cure the eyes without the head, or the head without the eyes, so neither ought you to attempt to cure the body without the soul, and this is the reason why the cure of many diseases is unknown to the physicians of HELLAS, because they are ignorant of the whole, which ought to be studied also; for the part can never be well unless the whole is well. ..... And therefore if the head and body are to be well you must begin by curing the soul; that is the first thing."[1] The medical student cannot be taught either at the beginning or the end of his career to cure the soul, but it has to be borne in on him that the personal factor of the patient also counts, so that while he has more to learn of his art from the material side than he can find time to assimilate, yet he has to learn in addition the game of Life; in other words, he must realise that when his education is nominally finished—i.e., when he is qualified—it is little more than just beginning. Moreover, besides dealing with individua every one of whom has his idiosyncrasy, medicine has to with communities and aggregations not merely of men but nations, and these, each and all, have their comm characteristics and their sharply defined variations wi which the medical man is supposed to be acquainted a to be prepared to deal in a professional manner. The gre pandemics, such as cholera and plague, the diseases whi devastate a continent, such as yellow fever and sleepi sickness, the dangers which lurk in industrial processes, a examples of conditions which the medical man is called up to treat by regarding humanity in the mass and separately the same time, and while his technical methods can only l learnt by arduous toil, mainly after his student days are ove his attitude as a citizen of the world towards his fellow-m has to be arrived at and maintained entirely throug his worldly experiences. Technical skill is absolutely nece sary for the sake of the sick, and worldly wisdom is usuall treated as though it were only valuable to the practition possessing it; but this latter assumption is grossly wrong, an the routine therapeutical treatment which is laid down b an idle, unreflecting man, however up to date it may appea to be, cannot be followed with safety.

All this goes to show that the general practitioner of to-da is not only a very different person from the general prac titioner of 60, or even of 40, years ago, but he is rapidl changing in type before us. The medical man like ol PENDENNIS, who attended gentlemen in their sick room and ladies at the most interesting period of their lives and who would also condescend to sell a brown-pape plaster to a farmer's boy across the counter, has passe away, and delightful as are many of the memorie that cling round him no one doubts that his disappear ance is a mark of progress. But as the advent of railway killed him, so the advent of the motor-car has change the position of his scientifically educated successor. If Master RIBSTONE comes home from Eton to-day, over-eat himself and has a fever, it is not Mr. PENDENNIS who i called in by Lady RIBSTONE. Her ladyship takes her son's temperature, and finding it raised administers an elegant purgative. If the illness end in appendicitis, the patient is placed in a motor-car and swiftly conveyed to a nursing-home. The share which the general practitioner has in the matter varies a good deal, and it is quite frequently a very small one. Yet the general practitioner is expected to be ready to treat any and all conditions as they arise among those who cannot pay any fees at all or who cannot pay remunerative fees, while his knowledge of special diseases and of elaborate therapeutics must be considerable. Unless he is prepared to offer such knowledge to his patients, a sound foundation of general knowledge will profit him little, for he may but rarely get the opportunity of applying it among the patients who can pay him adequately. But, on the other hand, no man can study specialties, or become a specialist in any branch of medicine with credit to himself and profit to his patients, unless he can build the superstructure of his specialty upon the solid foundation of a sound general medical knowledge. This, then, is what the student must aim at acquiring, and with this his teachers and trainers should provide him.

But it is doubtful whether the examining and educational

[1] Plato: Charmides; Jowett's translation.

bodies between them do really provide the necessary training, though no one at all acquainted with the work so anxiously done during the last decade by the General Medical Council will have any doubt as to the pains taken to smoothe out a terribly difficult position. The examination papers set by certain of the examining bodies, especially in the ancillary and preliminary scientific subjects, go far beyond, not a full knowledge of the subjects, but any degree which will be useful in a direct manner to the student for the future exercise of his profession. The student of to-day is taught a vast amount of facts, but this is not necessarily real knowledge, and all our educational bodies, as well as their coördinating authority the General Medical Council, know the position and are aware of the difficulty. This was set forth plainly and simply by the late Dr. WALTER MOXON, who, in an address to the Hunterian Society delivered in 1877, spoke as follows: "The great fallacy of the age is in thinking that education is packing a man's knowing faculty with a heap of facts; and this fallacy is founded in the belief expressed in the vulgar and erroneous proverb, 'Knowledge is power.' Large amounts of knowledge which cannot be brought into present motive and use interfere with training. Such knowledge absorbs the pupil's intelligence uselessly. The pupil rests his attention on what he cannot use instead of fixing it upon what he can use. Such knowledge diverts the pupil from the trainer's aim. ..... The trainer's always slow process is rendered more slow and more difficult. Now, bearing in mind this distinction between teacher and trainer ..... let us note that in medical education, whilst the average pupil is usually for two years or more in the hands of the teacher of more or less aimless scientific knowledge, the average pupil is only nine months in the hands of trainers in skill, the trainer in medicine has him three months, and the trainer in surgery has him six months. The medical trainer has in three months to make a pupil experienced and skilful in using the most complicated system of means of recognition and of operation that are to be found in any art under the sun. And the natural consequence is that he very often does not succeed." These words are as true now, *mutatis mutandis*, as they were when they were spoken; the length of time during which the student is taught has increased, but the number of subjects to be learned has also increased.

The medical student, despite the elaborate means at his disposal for acquiring the sound basis of medical knowledge, and despite the most painstaking and in many cases brilliant instruction of teachers, largely unpaid, will find himself in a difficult position from the beginning, faced as he is by an overloaded course of study, and one in which he will at every turn be met by the spectre of an examination. Examinations are a necessary evil, and although at present there seems to be no better method of testing the results of learning, yet it may be doubted whether examinations are the best index of a student's acquirements. But, for better or worse, the student who reads these words will have already chosen his profession, and on the uses he makes of the opportunities provided for him during the five or six years now to pass will depend in great measure his success or failure in his calling. The object of his work is, unfortunately, a double one, and, although the two bull's eyes should coincide, they only intersect. The first mark which the student must hit is the passing of examinations, and the second the fitting himself to be a sound practitioner. Of these two, although the first is essential to the second, yet the second is by far the more important. The student should therefore ever bear in mind that even in his preliminary studies he must work in reference to their applicability to his future life's occupation, and not merely in reference to their examination value. Pure anatomy, for instance, by itself is one of the driest and most uninteresting subjects imaginable, about as interesting as the study of a great railway system would be if the study were confined to the rails and telegraph posts alone. But anatomy, learned with an eye to its applications in surgery and medicine, may be compared to learning the railway in reference to the towns served, the passengers and goods carried, the engines, the staff, and the political and social influence which intercommunication brings about. Still more must this fact be remembered during the later stages of medical study. Lectures are good, and books are good, and the latter are essential, inasmuch as they embody the observations of a vast number of workers and inform the student with a mass of matter which he can have no opportunity of observing for himself. But neither lectures nor books can take the place of careful clinical study and painstaking observation of cases. Books can always be consulted, but the clinical material offered by a great hospital is, for the mass of practitioners, the prime opportunity of their lives. Only the medical man who has been for some time in practice can fully realise the help which it is to him, when called upon to face some difficulty in practice, to be able to say to himself, "I remember seeing a case similar to this in Dr. A——'s ward," instead of having to say, "I have read something like this in Dr. B——'s book."

The making for the port of qualification is by no means an easy task, and when the port has been made the vessel must at once put out again. The voyage of practice is never ending, and through an ocean to a great extent uncharted, for the variations of disease are infinite and operate upon an infinitely complex organism. We may be thought to make too much of the difficulties of medical study and practice. But to realise these difficulties is a long step towards overcoming them, and the medical student may cheer himself with the thought that he is entering upon a calling which, although full of disappointments and even personal dangers, though the work is generally hard and the rewards scanty, is yet the most enthralling as well as the most beneficent of all. He may take cheer also, we believe, in the thought that the aims of that profession are becoming steadily more intelligible to a better educated public. The public is learning day by day, from the most exalted of our administrative bureaux as well as from the needs of our humblest citizens, that in a competent medical profession a nation possesses one of its greatest safeguards. This recognition of medicine is far as yet from being universal or generous, but the spirit of progress, which it spells, is certainly working, and future generations of medical men will benefit by the issue.

THE STUDENT'S GUIDE.

SESSION 1910–1911.

A PREFATORY STATEMENT.

THE quantity of the subjects which fall necessarily within the scope of our Educational Number has now become very large, and it may be as well, as on previous occasions, to explain the scheme upon which the following guide to a medical career in this country is constructed.

The General Council of Medical Education and Registration, conveniently known as the General Medical Council, is the controlling authority, under the Privy Council, of the medical education of the land. Under the provisions of the Medical Acts various universities and corporations are recognised as being examining bodies whose degrees or diplomas entitle to medical registration, and it is among the duties of the General Medical Council to keep the official register and to ensure by periodical visitations that the tests of the various examining bodies are maintained at a due standard. We begin by describing the powers of the General Medical Council, and go on to give in detail the regulations of the various examining bodies.

But the student must be taught as well as examined, and the systems under which he can obtain instruction do not conform to one pattern. The curriculum of the medical student falls into two parts, the preliminary subjects and the professional subjects, and the two cannot be sharply divided. The extent to which they are allowed to overlap under different schemes of education varies a good deal, while the extent to which they ought to overlap is a perennial subject of debate. The important preliminary subjects are chemistry, pharmacology, physics, biology, anatomy, and physiology, and they are taught in the school proper; the professional subjects, medicine, surgery, and obstetric medicine—under which headings all forms of specialism are included—must be learned in the wards of a hospital. All schemes of medical education require a school and a hospital, but there their uniformity ends.

The first point on which the medical student has to make up his mind is whether he desires a medical degree which will give him the definite title of Doctor or Bachelor of Medicine (coupled in many cases with that of Bachelor of Surgery), or whether he will be content with a diploma certifying him to be a Member or Licentiate of one or other of the great medical corporations and as such entitled to be registered as a medical practitioner. If he desires a degree he must matriculate at a university and go through the course of studies required by the regulations of its medical faculty, and it is well that he should bear this in mind from the outset, for many diplomates, desiring later to becoming medical graduates, have been debarred from doing so through having neglected to pass a university matriculation examination at a time when they were freshly versed in their preliminary "arts" and general studies. It is particularly useful to take the London matriculation examination, which is accessible in several prominent centres, as it opens the door to the medical faculty of any British University. Accordingly we print with some detail the regulations for that standard, if much criticised, test of a good all-round secondary education.

In the Student's Guide to medical education, which follows, we have collected together under their respective headings the chief information concerning the facilities for medical study, both "preliminary" and "professional," and the regulations for examinations at the various teaching centres of the United Kingdom, so, for instance, that a student desiring to pursue his studies and obtain a medical degree at Cambridge, Edinburgh, or Manchester may find under one heading an account of the medical faculty of the University in question, of the hospitals which form its field for clinical instruction, and of the prizes and scholarships which it offers to the student of medicine.

It will be readily seen, however, that it is impossible to adhere rigidly to this plan without a good deal of overlapping and doubling of information, for, as is well known, the medical schools of some universities are served chiefly by hospitals in other centres. Thus the medical students of Oxford and Cambridge almost uniformly pursue their clinical studies in London, whilst any student who has gone through all his training in an improved provincial centre may sit for a degree in Medicine at London University. Again, when we come to consider the corporations which have the power to grant diplomas qualifying the possessors for the practice of medicine we find that they usually have no schools attached to them, but that they examine students who have gone through the curriculum at any recognised metropolitan or provincial school to the satisfaction of their teachers, and in accordance with the regulations of the corporations. The plan we have adopted has been to divide the Guide into the three main headings of England, Scotland, and Ireland, and to deal with medical education in each country as a separate entity, describing first the medical faculties of the universities in each country, and following with an account of the medical corporations having powers to grant diplomas by examination. Under the heading of each university we give a general description of its arrangements for conferring medical degrees, of its facilities for preparing its students for those degrees, particulars of its scholarships and prizes, and of the hospitals affording clinical instruction and situated in the neighbourhood of the university buildings. Following this plan, the metropolitan medical schools and hospitals are grouped in their proper place as schools of the University of London, although they serve other universities, and the diploma-granting bodies. A similar plan is adopted in dealing with the provincial universities, the hospitals in connexion with each being described; for though these are not officially "schools" of the universities they supply an integral section of the teaching required by their candidates for medical graduation, and so for practical purposes may be looked on as constituent parts of the university system. The link is made all the closer by the common presence of many teachers on the medical staff of a hospital and on the staff of lecturers of the university with which that hospital is connected. Following the description of medical education at the universities, an account is given of the regulations of the various corporations granting diplomas for the practice of medicine. The schools serving these examining bodies are identical with those already described, with the addition of the principal colonial medical schools. The Student's Guide contains also an account of certain provincial hospitals which afford facilities for clinical instruction, and at which students may take out some part of their course, but which are not officially connected with any teaching centre.

Detailed information concerning all those medical schools and their hospitals naturally forms the bulk of the Students' Number of THE LANCET; but we follow upon this with an account of medical employment in the Naval, Military, and Indian Medical Services and in the Public Health Service. We add the chief information useful to those desiring a diploma in public health or a special training in tropical medicine, together with an account of the facilities for post-graduate study, a branch of medical education the importance of which is rightly receiving increasing recognition. The Students' Number concludes with a report upon the system of education in dental surgery.

ENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION OF THE UNITED KINGDOM.

POWERS AND DUTIES OF THE GENERAL MEDICAL COUNCIL.

As there is apparently, even among members of the edical profession, a great amount of ignorance as to the)wers and duties of the General Medical Council, we think well to lay clearly before our readers what the General 'edical Council is and also what it is not.

Many of the false ideas on the subject are due to the use the shortened title, "General Medical Council." The ill title is, "General Council of Medical Education and egistration of the United Kingdom." This title is in :cordance with the Medical Act of 1858, by which the eneral Medical Council was established under the Privy ouncil to enable persons requiring medical aid to dis-nguish qualified from unqualified practitioners. The ouncil was thus instituted not primarily for the benefit of ie medical profession but to ensure an efficient medical :rvice to the public. It is obvious that by so doing the rofession itself gained, in that official sanction was given to putable practitioners only, while a proper guarantee was forded to the public that the standard of medical education ıould always keep abreast of the scientific knowledge of the ay. The powers of the Council under which it fulfils these nportant functions fall under four heads. It is first a gistering body: it registers the attainment by students of ie degrees or other qualifications that legally entitle them) practise medicine. This duty forms its chief service to ie State, as a complete list of practitioners of legal anding, which is embodied in the Medical Register, is ius rendered available for the information of the public. or the purposes of medical education it also registers the ntry by students upon their medical studies. Secondly, assures the public that the education of medical men kept up to an efficient standpoint by maintaining t the proper pitch the standard of the various medical xaminations. Thirdly, it is a penal and disciplinary ody, having power to remove from the Register any ractitioner adjudged guilty of conduct "infamous in a rofessional respect." Here again it is the public interest hat is first considered, although these powers are for the ery material advantage of the medical profession. The ast duty of the Council is the codification of pharmaceutical emedies. Reform in the administration of the finances f the Council has of recent years removed acute ecuniary strain from that body, but the day should oon come when the State, recognising the public alue of the work of the Council, should be willing) subsidise its efforts. Registrars are appointed by he General Council and by the Branch Councils to eep registers of qualified persons. They are bound by ection XIV. of the Act to keep their registers correctly, duty which, mainly owing to the apathy of members f the medical profession, can only be performed with ifficulty.

It is as well here to put down the advantages, such s they are, of being duly registered. A duly registered ractitioner may assume a name, title, addition, or descrip-ion implying that he is registered under the Act and ecognised by law. A duly registered practitioner may ue in the courts of law for the recovery of charges or medical attendance or advice, or surgical attend-nce or advice, or for the supply of medicine, or for he performance of any operation—provided that he is ot debarred from suing by being a Fellow or a Member f any corporation which objects to its Fellows or Iembers so suing. He may be exempted, if he so desire, rom serving on juries, from serving sundry corporate and arochial offices, and from serving in the Militia. Only registered practitioner can hold appointments in the navy, rmy, and in sundry Poor-law and other institutions. Only registered practitioner can sign a valid medical certificate. Removal of the name from the Register debars a man from ll the above-mentioned privileges.

The General Medical Council is in no way a medical pro-ection society or a medical defence union. It is not a rofessional union or a guild charged with looking after the nterests of the medical profession after the manner of the ld trades guilds, except in so far as it is concerned with the education of medical students. It has no powers over any member of the medical profession except to remove the name of any offending member from the roll of the profession or Medical Register. Practitioners may be removed from the Medical Register (1) if convicted of felony or misdemeanour in England, or in Ireland, or in Scotland of any crime or offence, and (2) on being adjudged by the General Medical Council to have been guilty of "infamous conduct in a professional respect."

The General Medical Council is, we repeat, primarily a body charged with looking after medical education; it is not concerned with medical politics and, as a matter of fact, the time of the Council is almost entirely taken up with considering educational and registration matters, the latter including the penal cases of removal from the Register. The Council at present consists of 34 members, of whom, as will be seen by the annexed list, all but 10 are official representatives of some corporate body. Five members are chosen by the Crown on the advice of the Privy Council, and five others are elected by the members of the medical profession as Direct Representatives.

President of the General Council.—Sir Donald MacAlister, K.C.B. Members of the General Council.—Dr. Norman Moore, chosen by the Royal College of Physicians of London; Sir Henry Morris, Bart., Royal College of Surgeons of England; Mr. Arthur Trehern Norton, C.B., Apothecaries' Society of London; Mr. Arthur Thomson, M.B., University of Oxford; Sir T. Clifford Allbutt, K.C.B., University of Cambridge; Sir George Hare Philipson, M.D., University of Durham; Dr. Frederick Taylor, University of London; Dr. John Dixon Mann, Victoria University of Manchester; Dr. Robert Saundby, University of Birmingham; Dr. Richard Caton, University of Liverpool; Dr. Alfred George Barrs, University of Leeds; and Dr. William Tusting Cocking, University of Sheffield. Sir John Batty Tuke, M.D., chosen by the Royal College of Physicians of Edinburgh; Mr. James William Beeman Hodsdon, Royal College of Surgeons of Edinburgh; Dr. David Neilson Knox, M.B., Faculty of Physicians and Surgeons of Glasgow; Sir Thomas Richard Fraser, M.D., University of Edinburgh; Sir Donald MacAlister, K.C.B., M.D., University of Glasgow; Dr. David White Finlay, University of Aberdeen; and Dr. John Yule Mackay, University of St. Andrews. Sir John William Moore, chosen by the Royal College of Physicians of Ireland; Sir Thomas Myles, Royal College of Surgeons in Ireland; Dr. Francis George Adye-Curran, Apothecaries' Hall of Ireland; Sir Charles Ball, University of Dublin; Sir Christopher John Nixon, Bart., M.D., National University of Ireland; and Sir William Whitla, M.D, Queen's University of Belfast. Nominated by His Majesty, with the advice of his Privy Council: Mr. Charles Sissmore Tomes, F.R.C.S., Dr. Arthur Newsholme, Sir John Williams, Bart., K.C.V.O., Sir David Caldwell McVail, and Dr. James Little. Elected as Direct Representatives: Dr. Langley Browne, Dr. H. A. Latimer, Dr. L. S. McManus, Dr. Norman Walker, and Dr. Leonard Kidd. Treasurers of the General Council: Mr. Charles Sissmore Tomes and Sir Henry Morris, Bart.

THE EDUCATIONAL CURRICULUM.

Professional Education.—The course of professional study after registration shall occupy at least five years. The Final Examination in Medicine, Surgery, and Midwifery must not be passed before the close of the fifth academic year of medical study.

Registration and Preliminary Examination of Medical Students.—The following are the General Medical Council's Regulations in reference to the registration of students in medicine:—

Every medical student shall be registered in the manner prescribed by the General Medical Council. The registration of medical students shall be placed under the charge of the branch registrars. Every person desirous of being registered as a medical student shall apply to the branch registrar of the division of the United Kingdom in which he is residing; and shall produce or forward to the branch registrar a certificate of his having passed a preliminary examination as required by the General Medical Council, and evidence that he has attained the age of 16 years, and has commenced medical study at an institution approved by the Council. The branch registrar shall enter the applicant's name and other particulars in the Students' Register and shall give him a certificate of such registration. Each of the branch registrars shall supply to the several licensing

bodies, medical schools, and hospitals, in that part of the United Kingdom of which he is registrar, a sufficient number of blank forms of application for the registration of medical students. The commencement of the course of professional study recognised by any of the qualifying bodies shall not be reckoned as dating earlier than 15 days before the date of registration. In addition to the universities and schools of medicine there are many institutions where medical study may be commenced. Applications for special exceptions are dealt with by the Students' Registration Committee, which reports all such cases to the Council.

The Preliminary Examination in General Education, required to be passed previously to registration as a medical student, is as follows:—

1. English language, including grammar and composition. Parasing; questions on English history and geography. 2. Latin, including grammar, translation from unprescribed Latin books, and translation of English passages into Latin. 3. Mathematics, comprising (*a*) arithmetic, (*b*) algebra, including easy quadratic equations, and (*c*) geometry, the subject matter of Euclid, Books I., II., and III., with easy deductions. 4. One of the following subjects: (*a*) Greek, (*b*) a modern language.

In many cases the Council will not accept certificates of pass in Preliminary Examination in General Education unless the whole of the subjects included in the Preliminary Examination required by the Council for Registration of Students of Medicine have been passed at the same time. In some cases also the Council will not accept certificates without endorsement that all the required subjects are included. For a syllabus or for old examination papers application should be made to the Examining Bodies who can give details as to the requirements in regard to their own examinations.

☞ A degree in Arts of any university of the United Kingdom or of the colonies or any other specially recognised university, or a certificate of having passed the final examination for a degree in Arts or Science of any university in the United Kingdom is considered a sufficient testimonial of proficiency.

H. E. Allen, LL.B., Registrar of the General Council and of the Branch Council for England, 299, Oxford-street, London, W.—James Robertson, Registrar of the Branch Council for Scotland, 54, George-square, Edinburgh.—Richard J. E. Roe, Registrar of the Branch Council for Ireland, 35, Dawson-street, Dublin.

THE EXAMINING BODIES.

The following is a list of Examining Bodies whose examinations in general education are recognised by the General Medical Council as qualifying for registration as a medical or dental student.

I.—*Universities in the United Kingdom.*

University of Oxford.—Junior Local Examinations. Senior Local Examinations. Higher Local Examinations. Responsions. Moderations.

University of Cambridge.—Junior Local Examinations. Senior Local Examinations. Higher Local Examinations. Previous Examination. General Examination.

University of Durham.—Matriculation Examination for Science, Letters, and Music.

University of London.—Matriculation Examination.

Victoria University of Manchester.—Matriculation Examination. Senior School Certificate (under certain conditions).

University of Birmingham.—Matriculation Examination. Senior School-leaving Certificate.

University of Liverpool.—Matriculation Examination. Senior School Certificate (under certain conditions).

University of Leeds.—Matriculation Examination. Senior School Certificate (under certain conditions).

University of Sheffield.—Matriculation Examination. Senior School Certificate (under certain conditions).

University of Wales.—Matriculation Examination.

University of Edinburgh.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science or Medicine and Surgery.

University of Aberdeen.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science or Medicine and Surgery.

University of Glasgow.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science or Medicine and Surgery.

University of St. Andrews.—Preliminary Examination of the Joint Board of Examiners for Graduation in Arts or Science or Medicine and Surgery. Final Examination for the diploma of L.L.A.

University of Dublin.—Junior Freshman Term Examination. Special Preliminary Examination. Junior Exhibition Examination. Examinations for the first, second, third, or fourth year in Arts.

The National University of Ireland: The Queen's University, Belfast.—The examinations of these newly constituted bodies will, no doubt, be recognised by the Council.

Oxford and Cambridge Schools Examination Board.—Higher Certificate and School Examinations, Higher Certificate (certificates to include the required subjects).

II.—*Medical Licensing Bodies.*

Royal Colleges of Physicians and Surgeons in Ireland.—Preliminary Examination.

III.—*Educational Bodies other than Universities.*

College of Preceptors.—Examination for a First Class Certificate; Preliminary Examination for Medical Students.

Intermediate Education Board of Ireland.—Middle Grade Examination; Senior Grade Examination.

Educational Institute of Scotland.—Preliminary Medical Examination.

Scottish Education Department.—Leaving Certificates in Higher Grade or in Honours. Intermediate Certificate.

Central Welsh Board.—Senior Certificate Examination.

IV.—*Indian, Colonial, and Foreign Universities and Colleges.*

Every Certificate from Indian, Colonial, and Foreign Universities and Colleges must contain evidence that the Examination has been conducted by or under the authority of the Body granting it, must include all the subjects required by the General Medical Council, and must state that all the subjects of Examination have been passed in at one time; copies of the form of the required Certificate are supplied by the Registrar of the Council for the purpose. In the case of Natives of India or other Oriental countries whose vernacular is other than English an Examination in a Classical Oriental Language may be accepted instead of an Examination in Latin. The German Abiturienten-Examen of the Gymnasia and Real-gymnasia and the examinations entitling to the French diplomas of Bachelier ès Lettres and Bachelier ès Sciences are recognised by the General Medical Council.

The remainder of the curriculum, though all under the supervision of the Council, is in detail in the hands of the various degree- and diploma-granting bodies whose representatives are members of the General Medical Council. In the next pages we give the regulations of the various examining bodies, but it must always be remembered that the examinations are under the supervision of the General Medical Council who visit the various centres in turn and closely inspect the procedure.

THE MEDICAL EXAMINING BODIES AND SCHOOLS OF THE UNITED KINGDOM.

A GUIDE TO THE FACILITIES FOR OBTAINING THE VARIOUS MEDICAL DEGREES AND OTHER QUALIFICATIONS AVAILABLE IN THE BRITISH ISLANDS.

I.—ENGLAND AND WALES.

THE UNIVERSITIES.

UNIVERSITY OF OXFORD.

THERE are two degrees in Medicine, *B.M. and D.M.*, two degrees in Surgery, *B.Ch. and M.Ch.*, and two diplomas, *Public Health* and *Ophthalmology*.

Graduates in Arts (B.A. or M.A.) are alone eligible for the degrees. The most convenient course for the B.A. degree for intending graduates in Medicine is to take Responsions, the Preliminary Science Examinations mentioned below, and the Final Honour School of Physiology. In order to obtain the degrees of B.M. and B.Ch. the following examinations must be passed:—1. Preliminary subjects: Mechanics and Physics, Chemistry, Animal Morphology, and Botany. 2. Professional. (*a*) First Examination: Subjects—Organic Chemistry, unless the candidate has obtained a first or second class in Chemistry in the Natural Science School; Human Physiology, unless he has obtained a first or second class in Animal Physiology in the Natural Science School; Human Anatomy and Materia Medica with Pharmacy. (*b*)

Second Examination: Subjects—Medicine, Surgery, Midwifery, Pathology, Forensic Medicine with Hygiene. The approximate dates of the examinations are as follows:—Preliminaries—Mechanics, Physics, and Chemistry, December and June; Animal Morphology, December and March; Botany, March and June; Professional (First and Second B.M.), June and December.

The First Examination for the degrees of B.M. and B.Ch. may be passed as soon as the Preliminary Scientific Examinations have been completed. The subjects of this examination may be presented separately or in any combination or in any order, provided Anatomy and Physiology be passed together.

The Second Examination may be passed after the completion of the first, but Pathology and Hygiene may be taken before or with the remaining subjects. Before admission to the Second Examination candidates must present certificates of attendance on a course of laboratory instruction in Practical Pathology and Bacteriology and of having acted as post-mortem clerk for three months, surgical dresser for six months, and clinical clerk for six months. Also they must produce certificates of instruction in Infectious and Mental Diseases, and of attendance on Labours, and of proficiency in the practice of Vaccination. Also in respect of the First Examination candidates must present certificates showing that they have dissected the whole body once and have attended courses of laboratory instruction in Practical Histology and Practical Physiology.

The degree of D.M. is granted to Bachelors of Medicine of the University provided they have entered their thirty-ninth term and have composed on some medical subject a dissertation which is approved by the professors in the Faculty of Medicine and examiners for the degree of B.M. whose subject is dealt with. A book published within two years of the candidate's application for the degree may be substituted for a dissertation. The Regius Professor may direct the dissertation to be read in public. The degree of M.Ch. is granted to Bachelors of Surgery of the University who have entered their twenty-seventh term, who are members of the surgical staff of a recognised hospital, or have acted as Dresser or House Surgeon in such a hospital for six months, and who have passed the M.Ch. examination in Surgery, Surgical Anatomy, and Surgical Operations. This examination is held annually, in June, at the end of the Second B.M. Examination.

Diploma in Ophthalmology.—There is an examination once in each year in the Theory and Practice of Ophthalmology for the purpose of granting certificates of proficiency therein, styled Diplomas in Ophthalmology. The examination is under the supervision of the Board of the Faculty of Medicine, which has power to make regulations as to the subjects of the examination, the time at which the examination is held, and the conditions of admission. No candidate is admitted to the examination for the diploma who has not pursued at Oxford a course of study in Ophthalmology approved by the Board of the Faculty of Medicine, and extending over a period of at least three months. The fee for admission to the examination is £15, unless the candidate is a graduate of the University, in which case it is £10 only.

Travelling Fellowship, Scholarships, and Prizes.—The Public Health diploma, being considered post-graduate, will be found in another column. A Radcliffe Travelling Fellowship is awarded annually after an examination held in February. It is tenable for three years and is of the annual value of £200. The stipend is paid by University College. The examination is in Physiology, Pathology, and Hygiene, and is partly "practical." Candidates must be graduates in Medicine of the University. The holder must travel abroad for the purpose of medical study. Application should be made to the Radcliffe Examiners, Radcliffe Library, University Museum. A Rolleston Memorial Prize is awarded once in two years to members of the Universities of Oxford and Cambridge of not more than ten years' standing for an original research in some Biological subject, including Physiology or Pathology. The Radcliffe Prize, founded by University College (1907), is of the value of £50 and is awarded biennally for research in some branch of medical science. The prize will be awarded in 1911. Candidates must send in their memoirs to the University Registry on or before Dec. 1st, 1910. No memoir for which any University prize has already been awarded is admitted to competition for the Radcliffe prize, and the prize will not be awarded more than once to the same candidate. The C. Theodore Williams Scholarships of the value of £50 each are awarded annually in the subjects of Anatomy and Physiology.

More detailed information may be obtained from the University Calendar; from the Examination Statutes, 1902, which contain the official schedules of the several subjects of examination in both Arts and Medicine; from the Student's Handbook to the University (all of which are published by the Clarendon Press); from the Regius Professor of Medicine; and from the Professors in the several departments of medical science.

Professors—Anthropology: E. B. Tylor, M.A. Botany (Sherard): S. H. Vines, M.A. Chemistry (Waynflete): W. Odling, M.A. Comparative Anatomy (Linacre): G. C. Bourne, D.Sc. Human Anatomy: A. Thomson, M.A. Medicine (Regius): W. Osler, D.M. Natural Philosophy (Sedleian): A. E. H. Love, D.Sc. Physics (Wykeham): J. S. E. Townsend, M.A. Physiology (Waynflete): F. Gotch, M.A., D.Sc. Reader: J. S. Haldane, M.A. Zoology: E. B. Poulton, M.A., D.Sc. Pathology: G. Dreyer, M.D. Lecturer: E. W. A. Walker, D.M.

In addition to the University lectures and classes the several Colleges provide their undergraduates with tuition for all examinations up to the B.A. degree.

UNIVERSITY OF OXFORD: RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—Courses of instruction are given in connexion with the Oxford University Medical School. These include (1) a course in Practical Medicine by the Regius Professor of Medicine; (2) Clinical lectures by the Litchfield Lecturers in Medicine and Surgery; and (3) tutorial instruction and demonstrations in special Regional Anatomy (medical and surgical), methods of Medical and Surgical Diagnosis, and Surgical Manipulation. Pathological demonstrations are given in the post-mortem room at the Pathological Laboratory by the Professor of Pathology. Practical Pharmacy is taught in the Radcliffe Dispensary. Opportunities are offered to students who wish to act as surgical dressers and clinical clerks in the out-patient departments and in the wards. The Hospital contains 155 beds. Honorary Physician: Dr. E. B. Gray. Honorary Surgeon: Mr. A. Winkfield. Active Consulting Physician: Professor William Osler. Acting Staff:—Honorary Physicians: Dr. W. Tyrrell Brooks, Dr. W. Collier, and Dr. E. Mallam. Honorary Assistant Physician and Medical Registrar: Dr. A. Waters. Honorary Surgeons: Mr. Horatio P. Symonds, Mr. R. H. A. Whitelocke, and Mr. A. P. Parker. Honorary Assistant Surgeon and Surgical Registrar: Mr. E. C. Bevers. Consulting Ophthalmic Surgeon: Mr. R. W. Doyne. Pathologist: Professor Georges Dreyer. Consulting Dental Surgeon: Mr. E. A. Bevers. Honorary Radiographer: Mr. R. H. Sankey. House Physician: Dr. Wm. Stobie. House Surgeon: Mr. H. J. Rossiter. Junior House Surgeon: Mr. F. C. Tibbs.

UNIVERSITY OF CAMBRIDGE.

The student must enter at one of the Colleges, or as a non-collegiate student, and keep nine terms (three years) by residence in the University. He must pass the Previous Examination in Classics, Mathematics, &c., which may, and should if possible, be done before he comes into residence in October, or he may obtain exemption through the Oxford and Cambridge Schools Examination Board, the Oxford or Cambridge Senior Local Examinations, the London Matriculation Examination, the Scotch Education Department, Responsions at Oxford, and the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield. He may then devote himself to medical study in the University, attending the hospital and the medical lectures, dissecting, &c. Or he may, as nearly all students now do, proceed to take a degree in Arts, either continuing mathematical and classical study and passing the ordinary examinations for B.A. or going out in one of the Honour Triposes. The Natural Sciences Tripos is taken most frequently, as some of the subjects are practically the same as those for the first and second M.B. examinations.

For the degree of *Bachelor of Medicine* (*M.B.*) five years of medical study are required. This time may be spent in Cambridge or at one of the recognised Schools of Medicine

The first three or four years are usually spent in Cambridge, the student remaining in the University till he has passed, say, the examination for the Natural Sciences Tripos and the first and second examinations for M.B. Hospital practice and many of the requisite lectures may be attended in Cambridge, and a certain number of students remain to attend lectures and hospital practice until they have passed the second part of the second examination for M.B. The laboratories for Pathology, Bacteriology, and Pharmacology are well equipped. Addenbrooke's Hospital makes provision for the necessary clinical training.

There are three examinations for M.B. The *first* includes Chemistry and other branches of Physics and Elementary Biology These parts may be taken together or separately. The *second* is divided into two parts—viz., (1) Human Anatomy and Physiology; and (2) Pharmacology and General Pathology. The *third* is also divided into two parts—viz., (1) Principles and Practice of Surgery (including Special Pathology and Midwifery and Diseases Peculiar to Women); and (2) Principles and Practice of Physic (including Diseases of Children, Mental Diseases, Medical Jurisprudence), Pathology (including Hygiene and Preventive Medicine), and Pharmacology (including Therapeutics and Toxicology). The examinations are partly in writing, partly oral, and partly practical, in the hospital, in the dissecting room, and in the laboratories. An Act has then to be kept in the Public Schools, by the candidate reading an original dissertation composed by himself on some subject approved by the Regius Professor of Physic.

As Operative and Clinical Surgery now form parts of the third M.B. examination candidates who have passed both parts of that examination are admitted to the registrable degree of *Bachelor of Surgery* (*B.C.*) without separate examination and without keeping an Act.

The degree of *Doctor of Medicine* (*M.D.*) may be taken three years after that of M.B. or four years after that of M.A. An Act has to be kept, consisting of an original Thesis sustained in the Public Schools with *vivâ voce* examination; and a short extempore essay has to be written on a topic taken from the general subject of his thesis, whether it be Physiology, Pathology, Pharmacology, the Practice of Medicine, State Medicine, or the History of Medicine.

For the degree of *Master of Surgery* (*M.C.*) the candidate must have passed all the examinations for B.C., or, if he is an M.A., have obtained some other registrable qualification in surgery. He is required either (1) to pass an examination in Surgical Anatomy and Surgical Operations, Pathology, and the Principles and Practice of Surgery, and to write an extempore essay on a Surgical Subject; or (2) to submit to the Medical Board original contributions to the advancement of the Science or Art of Surgery. Before he can be admitted to the examination two years, at least, must have elapsed from the time when he completed all required for the degree of B.C. Before submitting original contributions he must have been qualified at least three years.

An abstract of the Regulations and Schedules of the range of the examinations in Chemistry, Physics, Biology, Pharmacology, and General Pathology may be obtained upon sending a stamped directed envelope to the Registrary, Cambridge.

The Professors, Readers, and Lecturers in the various subjects are as follows. Professors—Anatomy: A. Macalister, M.D. Biology (Quick): G. H. F. Nuttall, Sc.D. Botany: A. C. Seward, M.A. Chemistry: W. J. Pope. Natural Philosophy (Jacksonian): Sir James Dewar, M.A. Pathology: G. Sims Woodhead, M.A. Physic (Regius): T. Clifford Allbutt, M.D. Physiology: J. N. Langley, M.A. Surgery: F. H. Marsh, M.A. Therapeutics (Downing Professor of Medicine): J. B. Bradbury, M.D. Zoology, &c.: J. Stanley Gardiner, M.A. Readers—Botany: F. F. Blackman, M.A. Chemical Physiology: F. G. Hopkins, M.A. Zoology: A. E. Shipley, M.A. Lecturers—Bacteriology: G. S. Graham-Smith, M.D., and Louis Cobbett, M.D. Botany: A. G. Tansley, M.A. Chemistry: Dr. Sell and Dr. Fenton. Organic Chemistry: S. Ruhemann, M.A. Chemistry and Physics as Applied to Hygiene: J. E. Purves, M.A. Advanced Morphology of Vertebrates: H. Gadow, M.A. Advanced Morphology of Invertebrates: A. E. Shipley, M.A. Pathology (Huddersfield): T. S. P. Strangeways, M.A. Physics: G. F. C. Searle, M.A., and C. T. R. Wilson, M.A. Pharmacology: W. E. Dixon, M.A. Advanced Physiology: W. H. Gaskell, M.D., and L. E. Shore, M.D. Physiology: H. K. Anderson, M.D. Physiological and Experimental Psychology: W. H. Rivers, M.A. Medical Jurisprudence: B. Anningson, M.D. Medicine: L. Humphry M.D. Surgery: G. E. Wherry, M.A., F.R.C.S. Physiological Anthropology: W. L. H. Duckworth, M.D.

University Prize in Medicine.—There is only one University Prize in Medicine. The Raymond Horton Smith Prize (value £19) is awarded to that candidate for the degree of M.D. who presents the best thesis for the degree during the academical year, provided that he has taken honours in a tripos examination. Medical Studies are endowed by the numerous Natural Science scholarships at the various colleges information about which can be obtained from the respective Deans.

Tropical Medicine and Hygiene.—Information on these subjects is given on p. 679 under the section on Public Health.

ADDENBROOKE'S HOSPITAL.—Clinical Lectures in Medicine and Surgery, in connexion with Cambridge University Medical School, are given at this hospital twice a week during the academical year; and practical instruction in Medicine and Surgery is given in the wards and out-patients' rooms by the physicians and surgeons daily during the term time and vacations. The fee for pupilship is 3 guineas a term. Physicians: Sir Clifford Allbutt, Professor Bradbury and Dr. L. Humphry. Assistant Physicians: Dr. Lloyd Jones and Dr. Aldren Wright. Surgeons: Professor Howard Marsh, Mr. Wherry, Mr. Deighton, and Dr. Griffiths. Assistant Surgeon: Mr. A. Cooke.

UNIVERSITY OF LONDON.

The University of London was established by Royal Charter in 1836 as a purely examining and degree conferring body with several affiliated colleges but no direct teaching functions. In 1900 it was reconstituted under the Act of Parliament 1898 and became a teaching as well as an examining body. Many schools already existing became constituent colleges including all the metropolitan medical schools. It also appoints teachers in special subjects to give lectures at the University, and the question of a further centralisation of preliminary scientific studies has for some years occupied the very serious attention of the University and its constituent schools but is for the present in abeyance. A considerable sum of money was offered for the erection and equipment of an institute of medical sciences as a central school of the University, but unfortunately, as we think, a division of opinion in the Faculty of Medicine forced the University to abandon the project.

The medical degrees awarded by the University are those of M.D., M.S., and M.B., B.S., the two latter being now given together as a graduating degree, whereas formerly the M.B. alone was a qualifying degree and the B.S. was taken optionally as a separate examination. The medical degrees of the University of London are granted to both internal and external students, the former being students of the constituent schools and colleges of the University.

Teaching Staff.—The teaching staff of the University is organised under two heads: 1. Appointed teachers—i.e. such as are appointed by, and are paid out of the funds of, the University. 2. Recognised teachers—i.e., those who have been appointed and are paid by the several schools of the University and other institutions at which instruction is given under the auspices of the University, and who have been recognised by the Senate as conducting work of University standard. Courses by non-recognised teachers may also be approved in schools of the University. Thus in the Faculty of Medicine there are at present two appointed teachers, and there are 415 recognised teachers belonging to the various metropolitan medical schools. There are 23 recognised teachers in the Faculty of Science. The lecturers in the Medical Sciences and the professors in the Faculties of Medicine in University College, London, and King's College, London, will be found enumerated under their respective medical schools.

Internal and External Students.—Matriculated students of the University may be either internal or external. Internal students of the University are students who have matriculated at the University and who are pursuing a course of study approved by the University, either (*a*) under the direct control of the University or a committee appointed

thereby, or in one or more of the schools of the University; or (*b*) under one or more of the appointed or recognised teachers of the University. Centres for preliminary and intermediate medical studies have been established by the University at University and King's Colleges. Internal students must pursue their studies at one of the above centres, or at one of the medical schools connected with the University. These are University College Hospital, King's College Hospital, St. Bartholomew's Hospital, the London Hospital, Guy's Hospital, St. Thomas's Hospital, St. George's Hospital, the Middlesex Hospital, St. Mary's Hospital, Charing Cross Hospital, Westminster Hospital, and the London (Royal Free Hospital) School of Medicine for Women. The London School of Tropical Medicine and the Lister Institute of Preventive Medicine are also recognised as schools of the University in special departments. External students are all other matriculated students.

The Matriculation Examination.—Students before being admitted to the University must either (1) have passed the Matriculation or the School Examination (Matriculation or Higher Standard), or (2) have been exempted therefrom under Statute 116 of the University which recognises certain other examinations in its lieu. Such exemption is granted to graduates of British and certain Colonial Universities, and under certain conditions to matriculated students of Colonial Universities and the Universities of Manchester, Liverpool, Leeds, and Sheffield, to holders of the senior local certificates of the Universities of Oxford and Cambridge, the higher certificate and the school certificate of the Oxford and Cambridge Schools Examination Board, the Scotch school-leaving certificate, the senior grade certificate of the Intermediate Examination Board for Ireland, the matriculation certificate of the Joint Board of the Northern Universities, and to students who have passed their previous examination at Cambridge. The examinations for matriculation take place three times in each year—namely, on Sept. 15th (if that day be a Monday, or if not, on the Monday next preceding the 15th), on the second Monday in January, and on the second Monday in June (or July, as may be hereafter determined). The examinations in January and June (or July), but not that in September, may be held not only at the University of London, but also, under special arrangement, in other parts of the United Kingdom or in the Colonies. (Neither Botany nor Drawing can be chosen for subjects in the Colonies.) It is noteworthy that the September examination affords an opportunity for prospective medical students who may have failed at the midsummer examination to pass the Matriculation in time to enter upon their medical course in October. Students who pass the January Matriculation are able to enter for the First Examination for Medical Degrees in the following July under certain conditions in the case of internal students. Every candidate must, on or before August 20th for the September examination, on or before Nov. 25th for the January examination, and on or before April 25th for the June (or July) examination, apply by postcard to the Principal for a form of entry, of which the first in order must be returned 14 days before the commencement of the September examination, the second on or before Dec. 1st, and the third on or before May 1st, accompanied in the same cover by a certificate showing that the candidate has completed his sixteenth year, and by his fee for the examination. A certificate from the Registrar-General in London or from the superintendent registrar of the district, or a certified copy of the baptismal register, or a declaration of the candidate's age, made before a magistrate by his parent or guardian, or by the candidate if of full age, will be accepted. As candidates cannot be admitted after the list is closed, any candidate who may not have received a form of entry within a week after applying for it should communicate immediately with the Principal, stating the exact date of his application and the place where it was posted. Every candidate must pay a fee of £2. If he withdraws his name before the last day of entry it shall be returned to him. If he fails to present himself he shall be allowed to enter for a subsequent Matriculation within eight months on payment of £1. If he retires after the commencement of the examination or fails to pass it the full fee of £2 shall be payable on every re-entry. Candidates must show a competent knowledge of each of the following five subjects, according to the details specified: 1. English—Composition, Précis-writing, salient facts in English History and Geography. A subject for an essay, to be chosen by candidates, to test power of expression, thought, and arrangement and general knowledge. 2. Elementary Mathematics—Arithmetic, Algebra (including quadratic equations and graphs of simple functions), and the subjects of Euclid (Books I. to IV). 3. Latin, or Elementary Mechanics, or Elementary Physics (Heat, Light, and Sound), or Elementary Chemistry, or Elementary Botany. 4 and 5. Two of the following subjects, neither of which has been taken under Section 3 (if Latin be not taken, one of the other subjects must be another language from the list): Latin, Greek, French, German, Ancient History, Modern History, Logic, Physical and General Geography, Geometrical and Mechanical Drawing, Mathematics (more advanced), Elementary Mechanics, Elementary Chemistry, Elementary Physics (Heat, Light, and Sound), Elementary Physics (Electricity and Magnetism), and Botany. Additional subjects, of which, however, candidates must give notice two months previous to the examination, are: Arabic, Sanskrit, Spanish, Portuguese, Italian, Hebrew, Chinese, Modern Dutch, and Zoology. A pass certificate signed by the Principal is delivered to each successful candidate after the report of the examiners shall have been approved by the Senate.

Provincial Examinations for Matriculation.—These examinations are appointed by the Senate from time to time upon the application of any city, institution, or college desiring to be named as a local centre for one or more examinations, and are carried on simultaneously with the examinations in London under the supervision of sub-examiners also appointed by the Senate. Candidates wishing to be examined at any provincial centre must give notice upon their forms of entry to the Principal of the University, who will then make all necessary arrangements. Besides the University fee, a fee usually varying from £1 to £3 is charged by the local authorities and must be paid *at the local centre* immediately before the commencement of the several examinations.

Faculty of Medicine.—The Faculty of Medicine grants the joint degrees of M.B., B.S. (*Bachelor of Medicine and Surgery*), and the higher separate degrees of M.D. (*Doctor of Medicine*) and M.S. (*Master of Surgery*).

It is noteworthy that the curriculum for the medical degrees has recently been extended from five to five and a half years from the time of matriculation, except in the case of students who have passed the Preliminary Scientific Examination or the First Examination for Medical Degrees before July, 1910, and that the examinations formerly known as the Preliminary Scientific, the Intermediate, and the Final Examination in Medicine are now respectively entitled the First, Second, and Third Examinations for Medical Degrees. Part II. of the former Preliminary Scientific Examination has now been made Part I. of the Second Examination.

A. *Internal Students.*—In order to be admitted to the Bachelor's degrees a student must normally, after registration as an internal student, have: (1) Attended prescribed courses of study for five and a half years in one or more schools of the University. (2) Passed the following examinations, under the conditions mentioned below: (*a*) The First Examination for Medical Degrees in Inorganic Chemistry, Physics, and General Biology; (*b*) the Second Examination for Medical Degrees: Part I., Organic and Applied Chemistry; Part II., Anatomy, Physiology, and Pharmacology, including Pharmacy and Materia Medica; (*c*) the Third Examination for Medical Degrees, or M.B., B.S. Examination in Medicine, including Therapeutics and Mental Diseases, Surgery, Midwifery and Diseases of Women, Pathology, Forensic Medicine and Hygiene.

B. *External Students.*—To be admitted to the Bachelor's degrees an external student must (1) have passed the Matriculation examination or have been exempted therefrom under Statute 116 not less than five and a half years previously (the languages for the Matriculation examination are now confined to Latin, Greek, French, and German, but candidates may offer any other language, subject to the approval of the Matriculation Board, provided that they give notice six months before the beginning of the Matriculation examination for which they enter, and pay an additional fee); (2) have passed subsequent examinations similar to those required of an internal student; and (3) have been engaged in professional studies during the five and a half years subsequently to Matriculation and four and a half years subsequently to passing the First Examination for Professional Degrees at one or more of the medical institutions or schools recognised by this University for the purpose, one

year at least of the four and a half years to have been spent in one or more of the recognised institutions or schools in the United Kingdom.

The First Examination for Medical Degrees (Inorganic Chemistry, Physics, and General Biology) will take place twice in each year, commencing on the Monday following December 10th and on the second Monday in July. It must as a rule be passed by internal students not less than one academic year after matriculation and by external students not less than nine months after matriculation. Candidates, however, who have passed or been admitted under Statute 116 as exempt from matriculation in the preceding January will be admitted to the first examination for medical degrees in July as external students, or as internal students if they have attended the prescribed course of study throughout the session and obtained the consent of the authorities of their school or institution. Every candidate must apply (internal students to the academic registrar and external students to the external registrar) for a Form of Entry on or before Nov. 1st or May 24th, which must be returned, accompanied by the proper fee, not later than Nov. 8th for the December examination or June 1st for the July examination. The fee is £5 for each entry to the whole examination, provided that all the subjects are taken at one time. When less than the whole examination is taken at one time it is £2 for each subject. The examination will include two papers in each of the three subjects, three hours being allowed for each paper. Three hours each will be devoted to practical examinations in Inorganic Chemistry and Physics and six hours to a practical examination in General Biology. *Candidates must, at their first entry, present themselves in all three subjects.* Candidates failing in one subject only may, with permission, present themselves for re-examination in that subject on payment of the proper fee.

The Second Examination for Medical Degrees (Part I.): Organic Chemistry.—This examination will take place twice in each year, commencing in 1911 on the Thursday following the second Monday in March and the second Monday in July. No candidate will be admitted to this examination within six months of having passed the First Examination. Every candidate must apply on or before Feb. 8th or May 24th for a form of entry, which must be returned not later than Feb. 15th for the March examination or June 1st for the July examination. The fee is £2 for the first and every subsequent entry. The examination will consist of a paper and practical work, and may include oral questions in Organic Chemistry, which is "to be treated in an elementary manner, and with special regard to its applications in physiology, pharmacology, and pathology."

The Second Examination for Medical Degrees (Part II.) takes place twice in every year, commencing in 1911 on the second Monday in March and on the first Monday in July. The subjects of the examination are Human Anatomy and Embryology, Physiology, and Pharmacology, including Pharmacy and Materia Medica. No candidate shall be admitted to the examination unless he has passed the First Examination for Medical Degrees at least 18 months previously, and has passed Part I. of the Second Examination for Medical Degrees. Internal students must have completed the courses of study prescribed for them by the University, and external students must produce certificates of having subsequently to having passed the First Examination for Medical Degrees been students during one and a half academic years at one or more of the medical institutions or schools recognised by the University and of having attended (1) a course of not less than 100 lectures and demonstrations on Human Anatomy; (2) a course of Dissections for not less than 12 months; (3) a course of not less than 60 lectures on Physiology; (4) adequate courses of Experimental Physiology, Histology, and Physiological Chemistry; (5) adequate courses of lectures and demonstrations on Pharmacology, Pharmacy, and Materia Medica; and (6) Practical Pharmacy for not less than two months. These certificates must be transmitted to the Registrar at least not later than Feb. 15th or June 1st for the March and July examinations respectively, applications for forms of entry having been made by Feb. 1st or May 17th. The fee for each entry to the whole examination is £8. For re-examination in one subject it is £4.

M.B., B.S. Examination.—The M.B., B.S. examination takes place twice in each year, commencing on the fourth Monday in October and on the first Monday in May. No candidate except those who pass the Preliminary Science or First Examination for Medical Degrees before July, 1911, will be admitted to this examination within three academic years from the date of passing in Anatomy and Physiology at the Second Examination (Part II.), nor unless he has completed that examination together with prescribed courses of study or practice summarised below. (1) Principles and Practice of Medicine; (2) Clinical Methods and Physical Diagnosis; (3) Insanity (with clinical demonstrations at a recognised Asylum); (4) Therapeutics; (5) Vaccination; (6) Principles and Practice of Surgery; (7) Operative Surgery, Surgical Anatomy, Practical Surgery, and the Administration of Anæsthetics; (8) Diseases of the Eye, Ear, and Throat; (9) Lectures and Demonstrations on Midwifery and Diseases of Women; (10) Practical Midwifery, the conduct of at least 20 Labours, and practice as a Clinical clerk in Gynæcological work; (11) Pathology and Bacteriology; (12) work of the Post-mortem room; (13) Forensic Medicine; and (14) Hygiene. He must also have attended the Medical and Surgical practice of a recognised hospital for two years and a course of instruction at a recognised Fever Hospital for two months. He must have had clinical instruction and must have held the posts of medical clinical clerk and surgical dresser for periods of six months each. For internal students the above form the subjects of the last two and a half years of study as prescribed by the University. Forms of entry for the examination must be applied for on or before Sept. 21st or March 24th and returned with certificates of having undertaken the above-mentioned courses of study by Sept. 28th or April 1st respectively. Candidates will be examined in Medicine (including Therapeutics and Mental Diseases), Pathology, Forensic Medicine and Hygiene, Surgery, Midwifery, and Diseases of Women. The subjects may be divided into two groups—namely: (1) Medicine, Pathology, Forensic Medicine, and Hygiene; and (2) Surgery, Midwifery, and Diseases of Women. These groups may be taken either separately or together. The fee is £10 for each entry to the whole examination and £5 for examination or re-examination in either group. There will be no separate examination held for Honours, but the list of candidates who have passed will be published in two parts—namely, an Honours list and a Pass list. Bachelors of Medicine of this University who graduated in or before May, 1904, may obtain the B.S. degree by passing the Surgical part of the M.B., B.S. examination.

Doctor of Medicine.—The examination for this degree takes place twice in each year, commencing on the first Monday in December and on the first Monday in July. Candidates must have taken the degrees of M.B., B.S. not less than two years previously, but for those who have taken the M.B., B.S. degrees with honours or have done certain original work this period of delay may be reduced to one year. Candidates who have obtained their M.B. degrees in or before May, 1904, will not be required to hold the degree of B.S. before seeking the doctorate. They may present themselves for examination in one of the following branches, namely: (1) Medicine; (2) Pathology; (3) Mental Diseases; (4) Midwifery and Diseases of Women; (5) State Medicine; and (6) Tropical Medicine. In most branches an appointment at an approved hospital is necessary. Certain conditions have to be fulfilled in each case, varying according to the nature of the branch in question. Candidates who have passed or presented themselves for the M.D. examination in one branch may present themselves for examination in another branch at a subsequent examination. Any candidate for the degree of M.D. may transmit to the Registrar, not less than two months before the commencement of the examination, a thesis or published work having definite relation to the branch of Medicine in which he is a candidate, and if the thesis be approved by the examiners the candidate may be exempted from the written examination in that subject. The fee is £20, and for re-examination £10.

Note.—In and after the session 1910–11 with regard to the regulations for internal and external students in the Faculty of Medicine the following will apply. In Branches I. and IV. candidates (other than those who present a thesis) for the July examination must apply to the Academic or External Registrar for forms of entry on or before May 20th, which must be returned not later than June 1st, and candidates (other than those who present a thesis) for the December examination must apply for forms of entry on or before

Oct. 20th, which must be returned not later than Nov. 1st. The corresponding dates for application for, and return of, forms of entry for candidates in Branches II., III., V., and VI., and candidates in other branches who present a thesis, are April 20th and May 1st for the July examination; and Sept. 20th and Oct. 1st for the December examination. Forms of entry must be returned duly filled up, accompanied by the proper fee, and by certificates, as enumerated below, for the branch concerned.

Master in Surgery.—The examination for the degree of Master in Surgery takes place twice in each year and commences on the first Monday in December and on the first Monday in July. Candidates must produce certificates of having taken the degrees of M.B. and B.S. not less than two years previously (with certain exemptions, as in the examination for the M.D.) and of having subsequently held for at least six months a resident or non-resident Surgical hospital appointment. The examination is conducted by means of printed papers and *viva-voce* interrogation, and the subjects are Surgery, Surgical Pathology and Anatomy, a Clinical examination, and operations on the dead body. Any candidate for the degree of M.S. may transmit to the Registrar, not later than two months before the commencement of the examination, a thesis or published work having definite relation to Surgery, and if the thesis be approved by the examiners the candidate may be exempted from the written examination in Surgery. The fee is £20, and for re-examination £10.

Full details of the prescribed curricula of study, with the syllabus for each examination and of certain exemptions which the Senate has power to grant in respect to certain examinations and the courses of study presented for them, and the names of the recognised Internal and External Schools of the University, can be obtained free on application to the Academic Registrar, University of London, South Kensington, S.W. Students should apply direct to the University for this detailed information.

MEDICAL SCHOOLS OF THE UNIVERSITY OF LONDON.[1]

ST. BARTHOLOMEW'S HOSPITAL.—The clinical practice of the hospital is large. The hospital contains 750 beds, of which 680 are for patients in the hospital at Smithfield and 70 for convalescent patients at Swanley.

This hospital receives within its walls nearly 8000 in-patients annually and its out-patients and casualties amount to more than 130,000 annually.

Special departments have been organised for Diseases of Women and Children, the Eye, Ear, Larynx, and Skin, as well as for Orthopædic and Dental Surgery in which Chief Assistants and Clinical Assistants are appointed annually. There is an Electrical Department, including X Ray, &c. Surgical operations take place every day at 1.30 P.M. and Surgical Consultations are held on Thursdays at the same hour. Medical Consultations are held on Thursdays at 3.15 P.M. The physicians and surgeons deliver clinical lectures weekly during both the winter and the summer sessions. Clinical Lectures on all special subjects are also given. The visits of the physicians and surgeons are made at 1.30.

Ten house physicians and ten house surgeons are appointed annually. During their first six months of office they act as "junior" house physicians and house surgeons and receive a salary of £25 a year. During their second six months they become "senior" house physicians and house surgeons and are provided with rooms by the hospital authorities and receive £80 a year as salary. A resident midwifery assistant of an ophthalmic house surgeon and a house surgeon for diseases of the throat nose and ear are appointed every six months, and are provided with rooms and receive a salary of £80 a year. Two assistant anæsthetists are appointed annually, and receive salaries of £120 and £100 respectively, with rooms. An extern midwifery assistant is appointed every three months, and receives a salary of £80 a year. The clinical clerks, the obstetric clerks, the clerks to the medical out-patients, the dressers to the surgical in-patients and to the out-patients, and the dressers in the special departments are chosen from the students. All the appointments are now free. A residential college is attached to the hospital.

New Buildings.—The new buildings that have been recently opened comprise residential quarters for the resident staff, new casualty, medical, surgical, and special out-patient departments, new casualty wards, dispensary, and clinical lecture theatre. A new chemical laboratory has been added to the Medical School, and a laboratory devoted to instruction in Public Health. A second new Block which is devoted to Pathology, and contains extensive laboratories for bacteriology, clinical pathology, pathological histology, &c., was opened in May, 1909.

The Medical School Buildings include three large lecture theatres, a large dissecting room, a spacious library (containing 13,000 volumes), a well-appointed museum of anatomy, physiology, comparative anatomy, materia medica, botany, and pathological anatomy. The pathological museum is the most complete in the kingdom. There are laboratories for chemistry, physiology, pharmacology, physics, public health, and biology, giving ample accommodation in every department.

Special Classes for the Final F.R.C.S. are held twice yearly.

Instruction in Preliminary Science is given to University of London students in chemistry, biology, and physics throughout the year.

Laboratory Instruction for the D.P.H. is provided during the winter and summer sessions, and elementary instruction in Bacteriology is also given throughout the year.

The recreation ground of 10 acres is at Winchmore Hill for the use of the members of the Students' Union, which all students are expected to join. Additional rooms for the Students' Union have recently been added, viz.: (*a*) a large reading and smoking room; (*b*) a committee and writing room; and (*c*) luncheon and dining hall; and a miniature rifle range has been provided. These are in the new block.

Staff.—Consulting Physicians: Sir William S. Church, Bart., K.C.B., Dr. Hensley, Sir Lauder Brunton, Bart., F.R.S., Dr. Gee, and Sir Dyce Duckworth, Bart. Consulting Surgeons: Mr. Willett, Mr. Butlin, Professor Marsh, Mr. Langton, and Mr. Harrison Cripps. Consulting Ophthalmic Surgeon: Mr. Henry Power. Consulting Aural Surgeon: Mr. Cumberbatch. Physicians: Dr. Norman Moore, Dr. Samuel West, Dr. Ormerod, Dr. Herringham, and Dr. Tooth, C.M.G. Surgeons: Mr. Bruce Clarke, Mr. Anthony Bowlby, C.M.G., Mr. Lockwood, Mr. D'Arcy Power, and Mr. Waring. Assistant Physicians: Dr. Garrod, Dr. Calvert, Dr. Morley Fletcher, Dr. Drysdale, and Dr. Horton-Smith-Hartley, M.V.O. Assistant Surgeons: Mr. Eccles, Mr. Bailey, Mr. Rawling, Mr. Gask, and Mr. Gordon Watson. Physician Accoucheur: Sir Francis H. Champneys, Bart. Physician Accoucheur with charge of out-patients: Dr. W. S. A. Griffith. Surgeon to Obstetric Wards: Mr. Bruce Clarke. Assistant Physician Accoucheur: Dr. Williamson. Ophthalmic Surgeons: Mr. Jessop and Mr. Holmes Spicer. Surgeon Throat and Nose Department: Mr. W. D. Harmer. Assistant Surgeon Throat and Nose Department: Mr. F. A. Rose Aural Surgeon: Mr. Ernest West. Assistant Aural Surgeon: Mr. Sydney Scott. Dental Surgeons: Mr. Paterson and Mr. Ackland. Assistant Dental Surgeons: Dr. Austen and Mr. Coleman. Medical Officer in charge of Electrical Department: Dr. Lewis Jones. Assistant Medical Officer to Electrical Department: Dr H. Walsham. Pathologist: Dr. Andrewes. Assistant Pathologist: Dr. H. M. Gordon. Administrators of Anæsthetics: Mr. Gill and Mr. Cross. Assistant Administrators of Anæsthetics: Mr. Boyle and Mr. Trewby. Medical Registrars: Dr. Horder and Dr. Langdon Brown. Surgical Registrars: Mr. Etherington-Smith and Mr Elmslie. Casualty Physicians: Dr. Holdin Davis and Dr. Woodwark.

Lectures and Demonstrations.—Medicine: Dr. Norman Moore and Dr. S. West. Clinical Medicine: Dr. Norman Moore, Dr. S. West, Dr. J. A. Ormerod, Dr. W. P. Herringham, and Dr. H. H. Tooth. Practical Medicine: Dr. J. H. Drysdale and Dr. Horton-Smith-Hartley. Surgery: Mr. W. Bruce Clarke and Mr. D'Arcy Power. Clinical Surgery: Mr. W. Bruce Clarke, Mr. Anthony Bowlby, Mr. C. B Lockwood, Mr. D'Arcy Power and Mr. Waring. Practical Surgery: Mr. L. B. Rawling and Mr. G. E. Gask Operative Surgery: Mr. W. McAdam Eccles, Mr. L. B Rawling, and Mr. G E. Gask. Midwifery and the Diseases of Women and Children: Sir Francis H. Champneys, Bart., and Dr. W. S. A. Griffith. Practical Midwifery: Dr J. D. Barris. Pathology: Dr. F. W. Andrewes. Bacteriology

[1] For Ancillary Metropolitan Medical Schools see p. 637.

(advanced): Dr. E. E. Klein. Chemical Pathology: Dr. A. E. Garrod and Dr. J. D. Priestley. Morbid Anatomy and Post Mortems: Dr. T. J. Horder, Dr. Langdon Brown, Mr. Etherington-Smith, and Mr. Elmslie. Practical Pathology: Dr. H. Thursfield, Mr. W. G. Ball, Dr. Pritchard, Mr. J. E. H. Roberts, Mr. A. E. Gow, and Mr. B. G. Klein. Ophthalmic Medicine and Surgery: Mr. W. H. Jessop. Diseases of the Eye: Mr. W. H. Jessop and Mr. W. Holmes Spicer. Ophthalmic Demonstrations: Mr. W. Holmes Spicer. Diseases of the Ear: Mr. C. E. West and Mr. Sydney Scott. Diseases of the Larynx: Mr. W. D. Harmer and Mr. F. E. Rose. Orthopædic Surgery: Mr. W. McAdam Eccles. Diseases of the Skin: Dr. H. G. Adamson. Diseases of Children: Dr. A. E. Garrod and Dr. H. Morley Fletcher. Medical Electricity and Electro-therapeutics: Dr. H. Lewis Jones and Dr. H. Walsham. Mental Diseases and Insanity: Dr. R. Jones. Dental Surgery: Mr. W. B. Paterson and Mr. R. C. Ackland. Anæsthetics: Mr. R. Gill, Mr. W. F. Cross, Mr. H. E. G. Boyle, and Mr. F. Trewby. Forensic Medicine: Dr. W. P. Herringham. Descriptive and Surgical Anatomy: Dr. C. Addison. Practical Anatomy: Dr. C. Addison, Mr. H. W. Wilson, Mr. R. F. Moore and Mr. H. Blakeway. General Anatomy and Physiology: Dr. J. S. Edkins. Practical Physiology: Dr. J. S. Edkins, Dr. W. Langdon Brown, and Dr. C. M. H. Howell. Materia Medica, Pharmacology, and Therapeutics: Dr. James Calvert. Pharmacology: Dr. F. A. Bainbridge. Biology and Comparative Anatomy: Dr. T. W. Shore. Practical Biology: Dr. T. W. Shore and Dr. W. A. Cunnington. Chemistry: Dr. W. H. Hurtley. Practical Chemistry: Dr. W. H. Hurtley and Mr. W. O. Wootton. Physics: Mr. F. Womack. Practical Physics: Mr. F. Womack and Mr. Lloyd Hopwood. Botany: Rev. G. Henslow. Public Health: Dr. George Newman. Sanitary Law: Dr R. Porter. Museum Curator: Dr. F. W. Andrewes. Junior Curator: Dr. Woodwark. Dean of the School: Dr. T. W. Shore. Warden of College: Mr. R. B. Etherington-Smith.

Scholarships given in aid of Medical Study.—At this school various Scholarships, prizes, &c., are given, none of those in the following list having a less value than £10. There are also other prizes and medals on a lower scale of value. For five of the Scholarships and the Exhibition—namely, (*a*), (*b*), (*c*), three Entrance Scholarships of the respective values of £75, £75, and £150; (*d*) Entrance Scholarship in Arts, £100; (*e*) Jeaffreson Exhibition, £50; and (*f*) Shuter Scholarship, £50—a full or University course at St. Bartholomew's Hospital is required. The awards of (*a*), (*b*), and (*c*) are made after examination in selections from the subjects of Chemistry, Physics, Zoology, Botany, Physiology, and Anatomy; (*d*) and (*e*) are awarded after examination in Latin, Mathematics, and Greek or French or German; (*f*) is awarded after competitive examination among Cambridge Graduates in Anatomy and Physiology. For the remaining Scholarships and prizes study at St. Bartholomew's Hospital is required. These remaining Scholarships and prizes, with the money value and the subjects of examination, are as follows:—Four Junior Scholarships: (*g*) No. 1, £30, Anatomy and Biology; (*h*) No. 2, £20, Anatomy and Biology; (*i*) No. 3, £25, Chemistry, Physics, and Histology; (*j*) No. 4, £15, Chemistry, Physics, and Histology; (*k*) Senior Scholarship, £50, Anatomy, Physiology, and Chemistry; (*l*) Kirkes Scholarship, £30 and medal, Clinical Medicine; (*m*) and (*n*) two Brackenbury Scholarships, £39 each, one in Medicine and one in Surgery; (*o*) Lawrence Scholarship, £45 and medal, Surgery, Medicine, and Midwifery; (*p*) Sir Geo. Burrow's Prize, £10, Pathology; (*q*) Skynner Prize, 13 guineas, Regional and Morbid Anatomy; (*r*) Matthews Duncan Medal and Prize, £20, Midwifery and Gynæcology; and (*s*) Luther Holden Research Scholarship in Surgery, awarded by election, £105.

CHARING CROSS HOSPITAL.—This hospital and convalescent home contain 200 beds, a certain proportion of which are set aside for the diseases of children and those special to women. The number of patients treated during 1909 amounted to 23,995—viz., 2112 in-patients and 21,883 out-patients, of whom 9756 were casualties. There were 69,247 out-patient attendances. The following hospital appointments are open to students. Clinical Pathologist and Bacteriologist, salary £150 per annum. Curator and Pathologist (annual), £100. Assistant Anæsthetist, £60. Medical and Surgical and Obstetrical Registrars (annual), £40 each. Resident Medical Officer (annual), £100, with board and residence. Six House Physicians, six House Surgeons, and two Resident Obstetric Officers, appointed each year on the recommendation of the committee after competitive examinations, are provided with board and residence in the hospital. Clinical clerks and dressers are appointed in all the general and special departments of the hospital. Arrangements can be made for students who have not entered for the entire curriculum to hold these posts. In the medical school demonstratorships and assistant demonstratorships in various subjects are open to students of the school and carry honoraria. Total fees, including students' club:—For general students: 1. Composition fee, payable in one sum on joining, 115 guineas. 2. Sessional payment system: Entrance fee, 10 guineas. In addition a sum of 15 guineas must be paid at the beginning of every Winter Session and one of 10 guineas at the beginning of every Summer Session so long as the student remains in the school. For Dental students: The fees for the two years' curriculum required by dental students may be paid: (*a*) in one sum of 55 guineas on entry; (*b*) in two instalments, one of 31 guineas on entry and the second of 30 guineas at the end of the first twelve months. General students pay proportionally lower fees and are admitted without additional fee to the courses of Clinical Medicine and Surgery. They are entitled to compete for the Scholarships which are awarded annually to the value of £500, including two University Scholarships, value 50 guineas and 40 guineas respectively, Gold Medal, Huxley, Livingstone, Travers, and Pereira Prizes.

Classes for the First and Second Examinations for Medical Degrees, Parts I. and II. of the University of London and for the Primary F.R.C.S. are held at this Medical School. There are also special classes for the practical work for the Department of Public Health and for the Primary F.R.C.S.

Staff.—Consulting Physicians: Dr. Green, Dr. Bruce, and Dr. Abercrombie. Consulting Obstetric Physician: Dr. J. Watt Black. Physicians: Dr. Mott, Dr. Galloway, and Dr. Hunter. Assistant Physicians: Dr. Bosanquet, Dr. Fenton, Dr. Forsyth, and Dr. Jewesbury. Consulting Surgeons: Mr. Barwell, Mr. Bloxam, and Mr. Morgan, C.V.O. Surgeons: Mr. Boyd, Mr. Waterhouse, and Mr. Wallis. Surgeon to Out-patients: Mr. Gibbs. Assistant Surgeons: Mr. Clogg and Mr. Daniel. Obstetric Physician: Dr. Amand Routh. Obstetric Physician with care of Out-patients: Dr. T. W. Eden. Physician for Diseases of the Skin: Dr. Galloway. Assistant Physician for Diseases of the Skin: Dr. MacLeod. Physician to the Electrical Department: Dr. Ironside Bruce. Surgeon for Nose, Throat, and Ear: Mr. Waggett. Ophthalmic Surgeon: Mr. Treacher Collins. Orthopædic Surgeon: Mr. Fairbank. Surgeon Dentist: Mr. J. F. Colyer. Physician for Mental Diseases: Dr. Mercier.

Lecturers: Winter Session.—Anatomy: Dr. Alexander Macphail. Bacteriology: Mr. Leathem. Biology and Comparative Anatomy: Dr. H. W. Marett Tims. Chemistry and Physics: Dr. H. Forster Morley. Dental Surgery: Mr. J. F. Colyer. Medicine: Dr. James Galloway and Dr. F. W. Mott (Nervous Diseases). Ophthalmology: Mr. E. Treacher Collins. Physiology and Histology: Mr. C. F. Myers-Ward. Practical Anæsthetics: Mr. C. Carter Braine. Practical Anatomy: Dr. Alexander Macphail. Practical Hygiene: Mr. Leathem and Dr. H. Forster Morley. Practical Medicine: Dr. Forsyth and Dr. Jewesbury. Diseases of Women: Dr. Amand Routh and Dr. T. W. Eden. Practical Midwifery: Dr. C. J. Lockyer. Practical Physiology: Mr. C. F. Myers-Ward. Practical Surgery: Mr. F. C. Wallis, Mr. H. S. Clogg, Mr. Peter Daniel, and Mr. Fairbank. Operative Surgery: Mr. Charles Gibbs. Psychological Medicine: Dr. Mercier. Surgery: Mr. H. F. Waterhouse and Mr. F. C. Wallis. Tropical Medicine: Sir Patrick Manson, K.C.M.G.

Summer Session.—Anatomy: Dr. Alexander Macphail. Anæsthetics: Mr. C. Carter Braine. Dental Surgery: Mr. J. F. Colyer. Forensic Medicine: Dr. Brend. Materia Medica and Practical Pharmacy: Dr. Fenton. Midwifery: Dr. T. W. Eden. Pathology: Dr. W. Hunter. Pharmacology and Therapeutics: Dr. Fenton. Practical Chemistry: Dr. H. Forster Morley. Practical Medicine: Dr. Forsyth and Dr. Jewesbury. Practical Physiology: Mr. C. F. Myers-Ward. Public Health: Dr. H. T. Bulstrode. Toxicology: Dr. H. Forster Morley. Roentgen Ray: Dr. Ironside Bruce. Dean of the Medical School: Mr. Frederick C. Wallis.

Scholarships and Prizes.—At this school five Entrance Scholarships are awarded at the commencement of each Winter Session after examination in the following groups of

subjects:—(1) English, including English Language and Literature, English History with alternative questions on the history of the British Empire, and Geography; (2) Latin and any one of the following three languages—Greek, French, and German; (3) Mathematics, including Arithmetic, Algebra, and Geometry: with Mechanics, including Statics and Dynamics; (4) Inorganic Chemistry and any three of the following branches of Experimental Physics—Acoustics, Heat, Magnetism, Electricity, and Optics; and (5) Animal and Vegetable Biology. A candidate may offer himself for examination in not more than three of the above groups of subjects, but Group (1) must be one of the three. The designations, money value, and conditions of the Entrance Scholarships are as follows:—(*a*) Livingstone, 75 guineas, open to all general students; (*b*) Huxley, 50 guineas, for sons of medical men; (*c*) 30 guineas, for dental students; (*d*) and (*e*), 30 and 20 guineas respectively, open to all general students. The remaining scholarships and prizes are as follows:—(*f*) Epsom Scholarship, open to Epsom Foundation Scholars who have passed the First Examination for Medical Degrees of the University of London (free education); (*g*) and (*h*) two Universities Scholarships awarded after examination in Anatomy and Physiology, including Histology, 50 and 40 guineas respectively; open to Oxford students who have passed the first M.B. Examination, or Cambridge students who have passed the second M.B. Examination, or London students who have passed the Intermediate Examination in Medicine and have not entered at any London Medical School; (*i*) Llewellyn Scholarship, awarded annually to the student of not more than five years' standing who has been most distinguished at the Prize Examinations in Medicine, Surgery, Midwifery, Pathology, Therapeutics, Forensic Medicine, Public Health, Psychological Medicine, Ophthalmology, and Gynæcology, £25; (*j*) Huxley Prize, awarded after Examination in Anatomy and Physiology at the end of the Second Winter Session, £3 3*s.*; (*k*) Golding Prize, awarded after competition among First-year Students in Anatomy and Physiology who have attended the classes in each subject at this school, £2 2*s.*; (*l*) Dr. T. H. Green Prize for Clinical Medicine, given annually for a special subject involving clinical observation in the wards or laboratory, 5 guineas; (*m*) Dr. William Travers Prize for the student in the fifth year who is most proficient in Obstetrics and Gynæcology, £15; and (*n*) John H. Morgan Prize, £10. The Pereira Prize, £4 4*s.*, for the best reports with commentary on six cases that have been in the wards of the hospital during the preceding 12 months, for Students who have attended the clinical teaching of the Hospital for at least 12 months.

ST. GEORGE'S HOSPITAL.—This hospital has a service of 436 beds, of which 180 are allotted to surgical, 150 to medical cases, and 100 are at the Convalescent Hospital at Wimbledon. One ward is set apart for Diseases Peculiar to Women. Children's beds are placed in all the women's wards. Two wards are allotted to ophthalmic cases.

The Winter Session commences on Oct. 1st but students can enter at any time or for any particular course. The Hospital and Medical School are situated at Hyde Park-corner and are readily accessible from all parts of London. At this school Entrance Scholarships and Endowed Prizes of a total value of £671 are awarded annually; a detailed list is placed below. As the scientific and clinical parts of the medical student's curriculum are entirely separate there is no longer any object in conducting the scientific courses upon hospital premises. The entire teaching and laboratories are therefore now devoted to purely clinical subjects, as in other universities, to the great advantage of students in their fourth and fifth years of study. Arrangements have been made with the University of London for students who enter during the first, second, or third year of the curriculum as students of St. George's to carry out the necessary courses of instruction at either University College or King's College. Students therefore have the unrivalled advantages of the lectures and practical classes of these Colleges of the University during the preliminary and intermediate portions of their studies, and then complete their course, without payment of any entrance fee, in a school entirely devoted to Clinical work. Students are permitted to enter the wards of the hospital at any hour. Dresserships to the surgeons and clinical clerkships to the physicians are open without fee to all students of the hospital. Eight house physicians and eight house surgeons are appointed annually. All house appointments are open without fee to every perpetual student of the hospital and are made strictly in accordance with the merits of the candidates. Special attention is directed to the following paid appointments, among others, which are open to students after they have held house office:—Medical Registrarship at £200 per annum; Surgical Registrarship at £200; Curatorship of the Museum at £200; Assistant Curatorship at £100; Obstetric Assistantship (Resident) at £50; the post of Resident Anæsthetist at £100; the post of Senior Anæsthetist at £50; the posts (2) of Junior Anæsthetists, each at £30. Great attention is paid by members of the staff to individual teaching. A number of special courses are given in which the requirements of university and other examinations receive careful attention. The following may be cited as examples:—(1) Elementary Bacteriology; (2) Advanced Bacteriology; (3) Clinical Pathology; (4) Systematic Pathology; (5) Histological Pathology and Morbid Anatomy; (6) Pharmacology; (7) Surgical Anatomy; (8) Advanced Anatomy and Physiology; (9) Operative Surgery; (10) Public Health; and (11) Tropical Diseases. Special classes are held by members of the staff for all examinations. The St. George's Hospital Club, with smoking- and luncheon-rooms on the hospital premises, is an amalgamation of the Hunterian, the *Gazette*, and the chess, lawn tennis, boxing, hockey, rifle, and golf clubs. The club contributes also to the Æsculapian, Rugby football, and cricket clubs. Students have the advantage of a library of medical and scientific books which is kept up-to-date. A register of accredited apartments and a list of medical men and others willing to receive St. George's men as boarders may be seen on application to the Dean. Further information may be obtained from the Dean of the Medical School.

Staff.—Consulting Physicians: Dr. W. H. Dickinson, Dr. T. T. Whipham, Sir Isambard Owen, and Dr. Ewart. Consulting Surgeons: Mr. Pick, Mr. Haward, Sir W. Bennett, and Mr. Marmaduke Sheild. Consulting Ophthalmic Surgeons: Mr. Brudenell Carter and Mr. Adams Frost. Consulting Aural Surgeon: Sir William Dalby. Consulting Dental Surgeon: Mr. Winterbottom. Physicians: Dr. H. D. Rolleston, Dr. Ogle, Dr. Latham, and Dr. Collier. Obstetric Physician: Dr. W. R. Dakin. Assistant Physicians: Dr. Spriggs, Dr. Jex-Blake, and Dr. Golla. Assistant Obstetric Physician: Dr. A. F. Stabb. Physician to the Skin Department: Dr. W. S. Fox. Physician Anæsthetist: Dr. F. Hewitt. Surgeons: Mr. C. T. Dent, Mr. G. R. Turner, Mr. F. Jaffrey, and Mr. Pendlebury. Ophthalmic Surgeon: Mr. H. B. Grimsdale. Assistant Ophthalmic Surgeon: Mr. R R. James. Assistant Surgeons: Mr. T. Crisp English, Mr. W. F. Fedden, and Mr. I. Back. Surgeon to the Throat Department: Mr. H. S. Barwell. Aural Surgeon: Mr. W. C. Bull. Dental Surgeon: Mr. N. G. Bennett. Assistant Dental Surgeon: Mr. Morley.

Lecturers.—Baillie Lecturer in Physic: Dr. Howship Dickinson. Thomas Young Lecturer in Medicine: Professor William Osler. Clinical Medicine: the Physicians and Assistant Physicians. Clinical Surgery: the Surgeons and Assistant Surgeons. Principles and Practice of Physic: Dr. Rolleston, Dr. Ogle, Dr. Latham, and Dr. Collier. Tropical Medicine: Dr. T. S. Kerr. Principles and Practice of Surgery: Mr. Dent, Mr. Turner, Mr. Jaffrey, and Mr. Pendlebury. Midwifery and Diseases of Women and Children: Dr. Dakin. Assistant Lecturer on Midwifery and Diseases of Women and Children: Dr Stabb. Vaccination: Mr. E. Climson Greenwood. Insanity and Clinical Instructor in Insanity: Dr. Seymour Tuke. Ophthalmic Surgery: Mr. Grimsdale. Diseases of the Skin: Dr. Fox. Aural Surgery: Mr. Bull. Diseases of the Throat and Nose: Mr. Barwell. Dental Surgery: Mr. Norman Bennett. Assistant Lecturer on Dental Surgery: Mr Morley. Practical Medicine: Dr. Jex-Blake. Practical Surgery: Mr. English. Operative Surgery: Mr. I. Back. Surgical Anatomy: Mr. Fedden. Edward Jenner Lecturer on Public Health: Dr. F E. Fremantle. Hygiene: Dr. H. Spitta. Forensic Medicine and Toxicology: Dr. Trevor. Toxicological Chemistry: Mr. Gardner. Pathological Chemistry: Dr. Spriggs. Pathology: Dr. Trevor. Bacteriology: Dr. Slater. Assistant Lecturer on Bacteriology and Lecturer on Clinical Pathology: Dr. Harold Spitta. Materia Medica and Therapeutics: Dr. Cyril Ogle. Pharmacology: Dr. Spriggs. Anæsthetics: Dr. Frederic Hewitt, M.V.O. Teacher of

Anæsthetics: Dr. Blumfeld. Assistant Teachers of Anæsthetics: Dr. Powell and Mr. Longhurst. Advanced Anatomy: Mr. Jaffrey. Advanced Physiology and Histology: Dr. Buckmaster. Advanced Chemistry and Pharmacological Chemistry: Mr Gardner. Teacher of Skiagraphy: Dr. Simmons. Curator of the Museum: Dr. Trevor. Assistant Curator of the Museum and Demonstrator in Pathology: Dr. J. A. Torrens. Obstetric Tutor: Dr. G. F. Darwall Smith. Curator of the Peirse-Duncombe Laboratory: Dr. Harold Spitta. Demonstrator in Materia Medica: Dr. A. Manuel Medical Tutor: Dr. F. W. Higgs. Surgical Tutor: Mr C. Frankau. Dean of the Medical School: Dr. E. I. Spriggs.

Scholarships and Prizes.—At this school six entrance scholarships are given, the money value and the subjects of examination being as follows: (*a*) and (*b*), two in Arts, 50 guineas each, Latin or Greek, French or German, English, Mathematics; (*c*) and (*d*), two in Science, 50 guineas each, Chemistry, Physics, Zoology, and Botany; (*e*) and (*f*), two University Entrance Scholarships, 70 guineas and £50 respectively, Anatomy and Physiology. The others are as follows: (*g*) William Brown Exhibition, tenable for two years and open to perpetual pupils having registrable qualifications, £100 per annum, Practice of Medicine, Midwifery, and Surgery; (*h*) William Brown Exhibition, tenable for three years and open to perpetual pupils qualified not more than three years previously, £40 per annum, Essay and Original Work; (*i*) Allingham Scholarship in Surgery for students qualified not more than three years £50, Competitive Essay; (*j*) and (*k*), two Brackenbury Prizes, one in Medicine and one in Surgery, £30 each, open to students of not more than five years' standing; (*l*) Treasurer's Prize for Proficiency in Clinical Examination of Cases and a written Examination in Medicine, Surgery, and Midwifery, £10 10*s.*; (*m*) H. C. Johnson Memorial Prize, £15, Practical Anatomy; (*n*) Pollock Prize, £17, Physiology, Physiological Chemistry, and Histology; (*o*) Clarke Prize, £5; (*p*) Thompson Medal, £7, Clinical Reports; (*q*) Brodie Prize, interest on £220, Clinical Reports; (*r*) Webb Prize, open to perpetual pupils, £30, Bacteriology.

GUY'S HOSPITAL.—This hospital, founded by Thomas Guy in 1721 for the reception of 400 patients, and enlarged through the aid of a large bequest from the late William Hunt, contains at the present time 618 beds.

House physicians, house surgeons, out-patient officers and assistant house surgeons, obstetric residents, ophthalmic house surgeons, clinical assistants, clerks to anæsthetists, surgeons' and assistant surgeons' dressers, surgical and medical clinical clerks, post-mortem clerks, extern obstetric attendants, and dressers and clerks in the special departments are appointed from among the students upon the recommendation of the medical council according to merit. The house physicians, of whom there are four, hold office for six months each. The out-patient officers, who hold office for three months, attend in the out-patient or casualty department during the week and see all the cases not seen by the assistant physician of the day. The house physicians have the care of the patients in the medical wards and attend to all emergencies arising in the absence of the physicians. They are provided with board and lodging in the college free of expense. The house surgeons, of whom there are four, hold office for six months each and are provided with board and lodging in the college free of expense. The Surgical Casualty Department is in charge of two assistant house surgeons and there are four out-patient officers appointed each three months. The surgeons' dressers are selected from those students who have completed their third winter session and have been most diligent in the junior appointments. They hold office for three or six months. Six are attached to each surgeon and during their weeks of special duty they are provided with board and lodging in the hospital free of expense. The college stands upon a site fronting the east gate of the hospital and is connected with it by a subway. The building serves as a Residential College for Students and at the same time provides accommodation for the Students' Club.

Medical and Surgical Staff.—Consulting Physicians: Sir Samuel Wilks, Bart., Dr. F. W. Pavy, Dr. P. H. Pye-Smith, Dr. J. F. Goodhart, and Dr. F. Taylor. Consulting Surgeons: Mr. Thomas Bryant, Sir H. G. Howse, Mr. W. H. A. Jacobson, Mr. R. C. Lucas, and Mr. Golding-Bird. Consulting Obstetric Physician: Dr. A. L. Galabin. Consulting Physician for Mental Diseases: Dr. G. H. Savage. Consulting Aural Surgeon: Mr. W. Laidlaw Purves. Consulting Anæsthetist: Mr. Tom Bird. Consulting Ophthalmic Surgeons: Mr. C. Higgens and Mr. W. A. Brailey. Consulting Dental Surgeon: Mr. Newland-Pedley. Physicians and Assistant Physicians; Dr. W. Hale White, Dr. G. Newton Pitt, Sir Cooper Perry, Dr. L. E. Shaw, Dr. J. Fawcett, Dr. A. P. Beddard, Dr. H. S. French, and Dr. A. F. Hertz. Surgeons and Assistant Surgeons: Mr. Charters J. Symonds, Mr. W. Arbuthnot Lane, Mr. L. A. Dunn, Sir Alfred Fripp, C.B., K.C.V.O., Mr. F. J. Steward, Mr. Fagge, Mr. R. P. Rowlands, and Mr. Philip Turner. Obstetric Physicians: Mr. J. H. Targett and Mr. G. Bellingham Smith. Ophthalmic Surgeons: Mr. H. L. Eason and Mr. A. W. Ormond. Physician in Charge of Skin Department: Sir Cooper Perry. Physician for Mental Diseases: Dr. M. Craig. Surgeon in Charge of Throat Department: Mr. F. J. Steward. Surgeon in Charge of Aural Department: Mr. W. M. Mollison. Dental Surgeons: Mr. W. A. Maggs, Mr. R. Wynne Rouw, Mr. H. L. Pillin, and Mr. M. F. Hopson. Anæsthetists: Mr. G. Rowell, Dr. H. F. Lancaster, Mr. C. J. Ogle, Dr. F. E. Shipway, Mr. H. M. Page, Mr. A. R. Thompson, Mr. R. Davies-Colley, Mr. Hughes, Dr. Cameron, and Mr. T. B. Layton. Medical Registrars and Tutors: Dr. H. C. Cameron and Dr. C. H. Rippmann. Obstetric Assistant and Tutor: Mr. R. Davies-Colley. Surgical Registrars and Tutors: Mr. K. H. Digby and Mr. V. Townrow. Actinc-Therapeutic Department: Dr. C. E. Iredell. Radiographers: Mr. E. W. H. Shenton, Dr. A. E. Jordan, and Dr. C. J. Morton. Bacteriologist to the Hospital: Dr. J. W. H. Eyre. Surgeon in charge of Genito-Urinary Department; Mr. A. R. Thompson. Resident Surgical Officer: Mr. W. H. Trethowan. Hon. Librarian, Wills Library: Dr. H. L. French Lying-in Charity: Mr. Targett and Mr. Bellingham Smith. Dean of the Medical School: Dr. H. L. Eason. Warden of the College: Mr. W. M. Mollison, M.C.

Lecturers and Demonstrators.—Clinical Medicine: the Physicians and Assistant Physicians. Clinical Surgery: the Surgeons and Assistant Surgeons. Medicine: the Physicians. Practical Medicine: Dr. H. C. Cameron and Dr. C. H. Rippmann. Surgery: Mr. Symonds, Mr. Lane, Mr. Dunn, and Sir Alfred Fripp. Operative Surgery: Mr. R. P. Rowlands and Mr. P. Turner. Practical Surgery: Mr. K. H. Digby and Mr. Townrow. Midwifery and Diseases of Women: Mr. Targett and Mr. Bellingham Smith. Practical Obstetrics: Mr. Davies-Colley. Mental Diseases: Dr. Craig. Ophthalmic Surgery: Mr. Eason. Dental Surgery: Mr. Wynne Rouw. Aural Surgery: Mr. Mollison. Diseases of the Skin: Sir Cooper Perry. Diseases of the Throat: Mr. Steward. Anæsthetics: Mr. Rowell. Hygiene and Public Health: Dr. R. King Brown. Pathology: Dr. A. E. Boycott. Gordon Lecturer on Experimental Pathology: Dr. Boycott. Morbid Anatomy: Dr. Fawcett and Dr. French. Morbid Histology and Bacteriology: Dr. Eyre and Dr. Boycott. Medical and Surgical Pathology Classes: Dr. Fawcett and Mr. Rowlands. Bacteriology: Dr. Eyre. Practical Bacteriology: Dr. Eyre. Forensic Medicine: Dr. French and Mr. Ryffel. Anatomy: Mr. Steward and Mr. Fagge. Practical Anatomy: Mr. A. R. Thompson, Mr. Hughes, and Mr. Layton. Physiology: Dr. Pembrey. Practical Physiology: Dr. Pembrey, Mr. J. H. Ryffel, B.C., and Mr. E. L. Kennaway, M.B., B.Ch. Materia Medica and Therapeutics: Dr. A. P. Beddard. Practical Pharmacy: the Hospital Pharmacist. Chemistry: Dr. Wade. Practical Chemistry: Dr. Wade, Mr. Ball, and Mr. Merriman. Experimental Physics: Dr. Fison and Mr. Merriman. Biology: Mr. Assheton and Mr. Hughes. Psychology: Dr. Craig.

Scholarships and Prizes.—For the first two scholarships in the list here given a course of study at Guy's Hospital is required; for all the others a perpetual course is required. There are five entrance scholarships, the money value, the conditions of eligibility, and the subjects of examination being as follows:—(*a*) and (*b*), two scholarships, one of £100 for students under 20 years of age and one of £50 for those under 25 years, Latin, English, Greek or French or German, Arithmetic, Euclid, and Algebra; (*c*) and (*d*) two scholarships for students under 25 years, £150 and £60 respectively; Chemistry, Biology, and Physics; (*e*) scholarship open to students under 25 years who have completed the curriculum for, or passed, the

graduation examinations in Anatomy and Physiology in any university of the British Empire and have not entered as students in any Metropolitan Medical School, £50; (*f*) Hilton prize for senior students, £5, Dissections; (*g*), (*h*), and (*i*), three Junior General Proficiency Prizes, £20, £15, and £10 respectively, Anatomy, Histology, &c.; (*j*) Michael Harris Prize for second year students, £10, Human Anatomy; (*k*) Sands Cox Scholarship for second-year students tenable for three years, £15 per annum; Physiology, Histology, &c.; (*l*) Wooldridge Memorial Prize for second-year students, £10; Physiology, Histology, &c.; (*m*) and (*n*), two Treasurer's Gold Medals, one for Clinical Medicine and one for Clinical Surgery open to senior students; (*o*) Golding-Bird Prize for senior students £20 and Medal, Bacteriology; (*p*) Beaney Prize, £34, Pathology; (*q*) Gull Studentship tenable for three years awarded for research without competitive examination, £150 per annum, Pathology; (*r*) Beaney Scholarship tenable for three years awarded for research without competitive examination, £31 10*s*.. Therapeutics; (*s*) Arthur Durham Travelling Studentship tenable for three years, £100; (*t*) Greville Research Scholarship, £200, Cancer Investigation; and (*u*) Oldham Prize in Ophthalmology, £30.

KING'S COLLEGE AND HOSPITAL.—On Sept. 1st, 1909, the Faculty of Medicine at King's College was divided into two parts. The first is concerned with Preliminary and Intermediate subjects and instruction on these is given in the College laboratories. This department is now designated Faculty of Science (Medical Division). The second deals with the Advanced or Final subjects of the curriculum, instruction on which is given at the hospital, the committee of management of which is now the governing body of King's College Hospital Medical School.

In the Faculty of Science (Medical Division) the following are the:—

Lecturers on Preliminary and Intermediate Subjects.—Anatomy: Dr. P. Thompson (Professor), Dr. C. J. Jenkins (Lecturer), and Mr. J. E. S. Frazer (Demonstrator). Physiology: Dr. W. D. Halliburton (Professor), Dr. H. W. Lyle (Lecturer), Dr. O Rosenheim (Lecturer on Chemical Physiology), and Dr. C. S. Myers (Lecturer on Experimental Psychology). Zoology: Dr. A. Dendy (Professor). Botany: Dr. W. B. Bottomley (Professor) and Mr. E. J. Schwartz (Demonstrator). Chemistry: Dr. J. M. Thomson (Professor), Mr. H. Jackson (Assistant Professor), and Mr. P. H. Kirkaldy (Lecturer). Physics: Dr. C. G. Barkla. Materia Medica and Pharmacology: Dr. W. E. Dixon (Professor).

Fees.—For London University Course: for Preliminary Scientific (Part I.), 25 guineas; for Preliminary Scientific (Part II.) and Intermediate M.B., 55 guineas, or two instalments of 30 guineas each. For Conjoint Board Course: for First examination, 20 guineas; for Second examination, 55 guineas, or two instalments of 30 guineas each. For prospectus and further information application should be made to Dr. P. Thompson, Dean of the department.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.—The advanced or final subjects in the curriculum are dealt with at the Medical School attached to King's College Hospital. The hospital contains 224 beds. 3000 in-patients, 16,000 new out-patient cases, 40,600 casualties, and about 350 midwifery cases are attended yearly. The hospital contains special departments for diseases of women and children, and of the eye, ear, throat and nose, skin and teeth. There are special operation theatres for diseases of women, for eye, and for throat, nose, and ear cases. There is a clinical pathologist and a laboratory in the hospital where histological, bacteriological, hæmatological, and chemical investigations are carried out. In connexion with this is a vaccine department for the treatment of patients suffering from tuberculosis and other infective diseases. The appointments open to students are those of senior clinical assistant to the special departments; senior medical, surgical, and obstetric registrar; and Sambrooke medical and surgical registrars, all of whom receive salaries, as do the medical and surgical tutors. There are 14 resident medical and surgical officers appointed yearly and the usual six senior surgical dressers, medical and obstetric clinical clerks, surgical dressers, and clerks and dressers in all the special departments for in- and out-patients, and post-mortem clerks.

Hospital Staff.—Consulting Physicians: Dr. Alfred B. Duffin, Dr. I. Burney Yeo, and Dr. D. Ferrier. Consulting Surgeon: Lord Lister. Physicians: Dr. Nestor Tirard, Dr. Norman Dalton, Dr. Raymond Crawfurd, and Dr. Aldren Turner. Surgeons: Sir W. Watson Cheyne, Bart., Mr. A. B. Barrow, Mr. A. Carless, Mr. F. F. Burghard, Mr. G. L. Cheatle, and Mr. P. T. B. Beale. Assistant Physicians: Dr. Tunnicliffe Dr. J. C. Briscoe, and Dr. H. W. Wiltshire. Obstetric Physician: Dr. John Phillips. Assistant Obstetric Physician: Dr. Hugh Playfair. Physician for the Diseases of Children: Dr. George F. Still. Diseases of the Throat: Dr. StClair Thomson. Dental Surgeon: Mr. A. S. Underwood. Assistant Dental Surgeon: Mr. C. E. Wallis. Ophthalmic Surgeons: Mr. M. M. McHardy and Mr. L. V. Cargill. Aural Surgeons: Mr. Arthur H. Cheatle and Dr. G. J. Jenkins. Physician for Diseases of the Skin: Dr. A. Whitfield. Pathological Registrar: Dr. Norman Dalton. Physician in charge of Electrical Department: Dr. W. Aldren Turner. Medical Officer in charge of X Ray Department: Mr. A. D. Reid. Anæsthetist and Instructor in Anæsthetics: Dr. J. F. W. Silk. Anæsthetist: Dr. G. B. Flux. Clinical Pathologist: Dr. Emery. Senior Medical Registrar and Tutor: Dr. H. W. Wiltshire. Senior Surgical Registrar and Tutor: Dr. T. Percy Legg. Obstetric Registrar and Tutor: Dr. E. L. Holland. Sambrooke Registrars: Mr. Arthur D. Griffith and Mr. J. F. McQueen.

Lecturers on Final Subjects.—Medicine (Principles and Practice of): Dr. Nestor Tirard (Professor). Neuro-Pathology: Dr. W. A. Turner (Lecturer). Psychological Medicine: Dr. Steen (Professor). Surgery (Principles and Practice of): Mr. A. Carless (Professor). Surgery (Operative): Mr. F. F. Burghard (Teacher). Surgical Pathology: Mr. G. L. Cheatle (Teacher). Obstetric Medicine and Diseases of Women and Children: Dr. John Phillips (Professor). Practical Obstetrics: Dr. Hugh Playfair (Lecturer). Diseases of Children: Dr. G. F. Still (Professor). Pathology: Dr. N. Dalton (Professor). Forensic Medicine: Dr. W. R. Smith (Professor). Hygiene: Dr. W. J. R. Simpson (Professor). State Medicine: Dr. Hewlett (Professor) and Mr. D. Somerville (Demonstrator). Bacteriology: Dr. Hewlett (Professor) and Dr. F. E. Taylor. Ophthalmic Surgery: Mr. M. M. McHardy (Professor). Aural Surgery: Mr. A. H. Cheatle (Lecturer). Dermatology: Dr. A. Whitfield (Professor). Anæsthetics: Dr. J. F. W. Silk. Dental Surgery: Mr. A. S. Underwood (Professor). Diseases of the Skin: Dr. A. Whitfield (Professor).

Fees.—The composition fee for Hospital work and Final subjects of the curriculum is 70 guineas in one sum or in two equal instalments of 36 guineas, payable on entrance and on commencement of second year of study respectively. For information and prospectus application should be made to the Dean of the Hospital, or to Mr. Clifton Kelway, the Secretary of the Medical School, Portugal-street, W.C. For information regarding fees, curriculum, &c., in Public Health and Bacteriology application should be made to Professor Hewlett.

Athletics.—The King's College Hospital Clubs and Societies Union was formed in 1908 and consists of the Medical and Musical Societies, the Hospital Common Room, and the various athletic and sports clubs. Students become members of the Union at a small annual subscription.

Scholarships and Prizes.—For the first two scholarships in the list here shown a perpetual course at King's College is required. The money value and subjects of examination are as follows:—(*a*) and (*b*) Two Warneford Scholarships, tenable for four years, £25 each per annum, Divinity, English History, Latin, Greek, French, German, and Mathematics; (*c*) Sambrooke Exhibition, £100, Mathematics, Physics, Inorganic Chemistry, Botany, and Zoology; (*d*) Rabbeth Scholarship, £20, Preliminary Scientific Subjects; (*e*) and (*f*) Two Science Exhibitions, open to students under 19 years of age and tenable for two years, £30 and £20 per annum respectively, Mathematics, Mechanics, Physics, &c.; (*g*) Medical Entrance Scholarship, £50, Anatomy and Physiology, open to students who (1) propose to take a degree at any British University and have passed the examination there in Biology, Chemistry, and Physics, and who (2) will become perpetual students at King's College from date of entering upon Scholarship; (*h*), (*i*), (*j*) and (*k*). Two Medical Entrance Exhibitions in Arts and two in Science, £50 each, tenable for five years, successful candidates to study at King's College and King's College Hospital; (*l*), (*m*), and (*n*), Three Medical Scholarships, £40 for fourth-year students, £20 for third-year

students, and £20 for second-year students; (*o*) and (*p*), Two Sambrooke Registrarships, open to matriculated students who have filled certain appointments in hospitals, £50 each; (*q*) Daniel Scholarship, open to six-months' laboratory students, and tenable for two years, £20 per annum. Chemistry; (*r*) Carter Prize, £15, Botany; (*s*) Tanner Prize, £10, Obstetrics and Diseases of Women and Children; (*t*) Todd Prize, £4 4*s*. and medal, Clinical Medicine.

LONDON HOSPITAL.—The hospital has 922 beds in constant use and no beds are closed. Being the only general hospital for East London—i.e., for a million and a half people—the practice is immense. In-patients last year, 14,990; out-patients, 238,691; accidents, 15,067; major operations, 4438. Owing to the enormous number of patients more appointments are open to students than at any other hospital. Receiving-room officers, house physicians, house surgeons, emergency officers, pathological assistants, out-patient clinical assistants, senior dressers to out-patients, &c.: 100 of these qualified appointments are made annually and more than 150 dressers, clinical clerks, &c., appointed every three months. All are free to students of the College. Holders of resident appointments have free board. Special classes are held for the University of London and other higher examinations. Special entries for medical and surgical practice can be made. Lectures and classes are held throughout the year to suit the requirements of candidates desirous of obtaining the diploma in Public Health. The Lecturer on Public Health has his offices in the College, enabling the candidates to attend daily to work under his supervision. These courses are recognised both by the Universities of Oxford, Cambridge, London, &c., and by the Examining Board in England. A reduction of 15 guineas is made from the perpetual fee to the sons of members of the profession. The new laboratories and class-rooms for Bacteriology, Vaccino-therapy, Public Health, Operative Surgery, Chemistry, and Biology are now in full use. New laboratories for Physiology, Chemistry, and Physics have recently been provided. The new Clubs Union Rooms, Garden, and Fives Court are now open. The Clubs Union Athletic Ground is within easy reach of the hospital. The Metropolitan and other railways have stations close to the hospital and the college.

Staff.—Consulting Physician: Dr. Hughlings Jackson. Consulting Surgeons: Sir Jonathan Hutchinson, Mr. Couper, Mr. McCarthy, Sir Frederick Treves, Bart., Mr. Tay, Mr. Mansell Moullin, and Mr. Hurry Fenwick. Consulting Obstetric Physician: Dr. Herman. Consulting Dental Surgeon: Mr. Barrett. Consulting Aural Surgeon: Mr. Mark Hovell. Consulting Anæsthetist: Dr. Hewitt. Physicians: Dr. Francis Warner, Dr. Percy Kidd, Dr. Frederick J. Smith, Dr. W. J. Hadley, Dr. Bertrand Dawson, Dr. Henry Head, Dr. Robert Hutchison, and Dr. Lewis Smith. Assistant Physicians: Dr. Wall, Dr. Grünbaum, and Dr. Thompson. Surgeons: Mr. F. S. Eve, Mr. J. Hutchinson, Mr. T. H. Openshaw, Mr. H. P. Dean, Mr. P. Furnivall, Mr. Rigby, and Mr. Sherren. Assistant Surgeons: Mr. Lett, Mr. Russell-Howard, Mr. R. Warren, Mr. Frank Kidd, and Mr. R. Milne. Obstetric Physicians: Dr. Lewers and Dr. Andrews. Physician to the Skin Department: Dr. Sequeira. Ophthalmic Surgeons: Mr. A. B. Roxburgh and Mr. Lister. Surgeon to the Throat Department: Dr. Lambert Lack. Aural Surgeon: Mr. Hunter Tod. Surgeon in charge of the Orthopædic Department: Mr. Openshaw. Massage Department: Dr. Theodore Thompson and Mr. Openshaw. Medical Officer in charge of the Radiographic Department: Dr. Gilbert Scott. Physiciau in charge of the Photo-therapy Department: Dr. Sequeira. Analyst to the Hospital: Mr. Hugh Candy. Bacteriologist to the Hospital: Dr. W. Bulloch. Pathological Institute: Dr. H. M. Turnbull, Director. Dental Surgeons: Mr. Farmer and Mr. Scott MacFarlane. Anæsthetists: Dr. Probyn-Williams, Mr. Clapham, and Mr. Daly.

Lecturers.—Medicine: Dr. Hadley. Clinical Medicine: the Physicians and Assistant Physicians. Surgery: Mr. J. Hutchinson. Clinical Surgery: the Surgeons and Assistant Surgeons. Anatomy: Dr. Wright. Physiology: Dr. Leonard Hill, Dr. Flack and Dr. Miller. Chemistry: Mr. Hugh Candy and Mr. Twort. Pathology—General and Surgical: Dr. W. Bulloch. Midwifery and Diseases of Women: Dr. Andrews. Clinical Obstetrics: the Obstetric Physicians. Practical Obstetrics: Dr. Andrews. Forensic Medicine—(1) Public Health: Dr. J. C. Thresh; and (2) Medical Jurisprudence and Toxicology: Dr. F. J. Smith. Public Health and Sanitary Science: Dr. W. Bulloch, Dr. J. C. Thresh, and Mr. Candy. Mental Diseases: Dr. J. Kennedy Will. Materia Medica and General Therapeutics: Dr. Francis Warner and Dr. Grünbaum. Biology: Mr. G. P. Mudge. Experimental Physics: Mr. Hugh Candy, Mr. Griffith, and Mr. Twort. Ophthalmic Surgery: Mr. A. B. Roxburgh. Diseases of the Throat: Dr. Lambert Lack. Aural Surgery: Mr. Hunter Tod. Orthopædic Surgery: Mr. Openshaw. Anatomy and Pathology of the Teeth: Mr. F. M. Farmer and Mr. Scott MacFarlane. Practical Anatomy: Dr. Wright, Mr. Warren, Mr. Frank Kidd, and Mr. Souttar. Practical Physiology and Histology: Dr. Leonard Hill, Dr. Flack, and Dr. Miller. Foods and Dietetics: Dr. R. Hutchison. Practical Chemistry: Mr. Hugh Candy and Mr. Twort. Operative Surgery: Mr. H. P. Dean. Demonstrators of Morbid Anatomy: Dr. F. J. Smith, Dr. W. J. H. Hadley, Dr. Lewis Smith, Dr. Grünbaum, and Dr. Theodore Thompson. Bacteriology: Dr. W. Bulloch and Mr. Fildes. Pathological Histology: Dr. W. Bulloch. Inoculation Department: Dr. Western. Anæsthetics: Dr. R. J. Probyn-Williams. Elementary Clinical Medicine: Dr. Lewis Smith and Dr. Grünbaum. Medical Tutor: Dr. Thompson. Elemental Clinical Surgery: Mr. J. Sherren and Mr. Lett. Surgical Tutor: Mr. Lett. Obstetric Tutor: Dr. R. D. Maxwell. As Emeritus Professors of Surgery Sir Jonathan Hutchinson will give in the Summer Session and Sir Frederick Treves, Bart., will give in the Winter Session a course of lectures in Clinical Surgery. The special subjects and the dates will be announced in due course. Dr. Hewitt, as Emeritus Lecturer on Anæsthetics, will give a course of lectures during the first half of the Winter Session. The Schorstein Memorial Lecture in Clinical Medicine will be given on Oct. 3rd, by Dr. Robert Hutchison, Physician to the Hospital. Warden: Mr. Munro Scott.

Scholarships and Prizes.—At this school the successful candidate for the first items in the list here shown must enter as a full student. The money value and subjects of examination are as follows:—(*a*) Price Scholarship £120, subjects of Preliminary Scientific M.B. Examination at the University of London; (*b*) and (*c*) two Entrance Scholarships, £60 and £35 respectively, subjects of Preliminary Scientific Examination as above; (*d*) Epsom College Scholarship free education, subjects of Preliminary Scientific Examination as above; (*e*) Price Scholarship in connexion with study at Oxford or Cambridge £60, Human Anatomy and Physiology; (*f*) and (*g*) two Buxton Scholarships £30 and £20 respectively, subjects of Preliminary Examination; (*h*), (*i*), and (*j*) three Scholarships for Clinical Work £20 each, Medicine, Surgery, and Obstetrics; (*k*) Sutton Prize £20, Pathology; (*l*) Duckworth Nelson Prize, biennial, £10, Pathology, Practical Medicine, and Surgery; (*m*) Letheby Prizes (3) £30, Chemistry; (*n*) and (*o*) two Scholarships £25 in Anatomy and Physiology, £20 in Anatomy and Biology; (*p*), (*q*), (*r*), (*s*), (*t*), (*u*) six Dressers' Prizes, £10 each, zeal, efficiency, and knowledge of Minor Surgery; (*v*) Hutchinson Prize, triennial, £40, Clinical Surgery; (*w*) and (*x*) two Practical Anatomy Prizes, £6 and £4 respectively; (*y*) Andrew Clark Prize, biennial, £26, Clinical Medicine and Pathology; (*z*) James Anderson Prizes, £9, Clinical Medicine; (*a a*) Douro Hoare Prize, £5, Physiology; and (*b b*) Wynne Baxter Prize, £5 5*s*., Forensic Medicine.

Medical Research.—The London Hospital Medical College has lately become the trustees of a generous gift, the income of which is to be devoted entirely to the encouragement of Medical Research. Special facilities are now offered to those desirous of engaging in research at the Hospital or College and to students preparing theses for University degrees.

ST. MARY'S HOSPITAL.—301 beds, 31 of which have been recently opened in the Clarence Wing and are devoted to cases requiring treatment by therapeutic inoculation. The number of in-patients treated during 1909 was 4242. The number of out-patients was 26,816 with 25,195 casualty cases, a total of 52,011. The situation of the hospital and Medical School in the centre of the residential districts of Paddington, Bayswater, and North Kensington renders it exceptionally convenient for students' rooms, a register of which is kept by the authorities for the use of students.

Laboratories, &c.—The Medical School provides for the entire curriculum. Special laboratories are in use for

Biology, Chemistry, and Physics, a series of lecture theatres and laboratories for anatomy and physiology, and a spacious and well-lighted dissecting-room. The Pathological Department is under the direction of Sir Almroth Wright, F.R.S., and a block of consulting-rooms and laboratories in the New Wing of the Hospital has been equipped for the department of Therapeutic Inoculation to meet the increased amount of work in that department. During the past year 107 in-patients and 751 out-patients have received treatment in the department. A special laboratory is provided for the study of chemical pathology.

Appointments.—All clinical appointments in the hospital are free to students of the Medical School and the resident medical officers are chosen by competitive examination. Six house physicians, six house surgeons, four obstetric officers, and two Resident Medical Officers for the Inoculation Wards are appointed in each year and receive board and lodging in the hospital. Two resident anæsthetists are appointed in each year and receive a salary at the rate of £100 per annum, with board and lodging. Two casualty house surgeons are appointed in each year upon the same conditions. Several assistants in the department of Therapeutic Inoculation are appointed annually at salaries of £100 per annum and upwards, the total sum available for salaries of assistants in this department being £1600 per annum. In addition to the above, the senior appointments, medical and surgical registrar, casualty physician, demonstrator of anatomy, physiology, and biology are made annually.

Clubs, &c.—The amalgamated clubs include all the various athletic clubs, as well as the rifle club, medical society, &c. There is a students' club on the Hospital premises, the membership of which is included in the amalgamated clubs. The athletic clubs' ground is situated at Park Royal, Acton, and is easy of access from the Medical School. It consists of Rugby and Association football grounds, tennis courts, and a large cricket pitch.

Special Tuition.—In addition to systematic courses of lectures and demonstrations special tuition is provided for the Intermediate and Final Examinations of the Universities of Oxford, Cambridge, and London, and for the Primary and Final F.R.C.S.

Preliminary Scientific Course.—Special classes, including lectures and laboratory work, are held throughout the year under recognised teachers of the University of London.

The composition fee for full students is £140 if paid in one sum, or £145 if paid in four instalments. University students who have completed their examinations in Anatomy and Physiology are admitted on payment of a composition fee of 60 guineas (£63) paid in one sum or by payment of two annual instalments of 35 guineas (£36 15*s.*) and 30 guineas (£31 10*s.*) respectively. University students who have not completed their examination in Anatomy and Physiology pay an annual fee of 25 guineas (£26 5*s.*) until they have passed these examinations, and then pay the composition fee. Separate courses of lectures, laboratory work, or hospital practice may be taken. The School Calendar and full information can be obtained from the Secretary, St. Mary's Hospital Medical School, Paddington, W.

Staff.—Consulting Physician: Dr. Lees. Consulting Surgeons: Mr. A. T. Norton, Mr. Edmund Owen, Mr. Herbert Page, Mr. A. J. Pepper, Mr. G. P. Field (Aural), Sir G. Anderson Critchett, Bart. (Ophthalmic), Sir Malcolm Morris (Skin), Mr. Morton Smale (Dental), and Dr. Scanes Spicer (Throat). Consulting Anæsthetist: Mr. Henry Davis. Physicians: Dr. Sidney Phillips, Dr. A. P. Luff, Dr. H. A. Caley, and Dr. Wilfred Harris. Surgeons: Mr. J. Ernest Lane, Mr. H. Stansfield Collier, and Mr. Warren Low. Physicians in charge of Out-Patients: Sir John Broadbent, Bart., Dr. W. H. Willcox, and Dr. R. H. Miller (assistant). Surgeons in charge of Out-Patients: Mr. W. H. Clayton-Greene, Mr. Maynard Smith, and Mr. Fitzwilliams. Obstetric Surgeon: Dr. Montagu Handfield-Jones. Obstetric Surgeon in charge of Out-Patients: Dr. W. J. Gow. Physician in charge of Children's Department: Dr. Sidney Phillips. Ophthalmic Surgeon: Mr. H. E. Juler. Assistant Ophthalmic Surgeon: Mr. Leslie Paton. Physician to the Skin Department: Dr. Graham Little. Dental Surgeon: Mr. W H. Dolamore. Surgeons to the Ear, Nose, and Throat Department: Dr. G. William Hill and Mr. C. I. Graham (assistant). Administrators of Anæsthetics: Dr. Blumfeld, Mr. Collum, and Mr. Henry Chaldecott. Director in Medical Charge of Inoculation Department: Sir Almroth Wright. Dean: Sir John Broadbent.

Lecturers.—Clinical Medicine: Dr. Sidney Phillips. Clinical Surgery: Mr. Ernest Lane. Medicine: Dr. A. P. Luff, Dr. Harris, and Sir John Broadbent. Surgery: Mr. H. Stansfield Collier and Mr. V. Warren Low. Practical and Operative Surgery: Mr. Maynard Smith and Mr. Fitzwilliams. Pathology: Sir A. E. Wright and Dr. Spilsbury. Bacteriology: Sir A. E. Wright and Captain S. R. Douglas (assistant lecturer). Pathological Chemistry: Dr. W. H. Willcox and Mr. J. Webster (demonstrator). Midwifery and Gynæcology: Dr. M. Handfield-Jones. Materia Medica and Therapeutics: Dr. R. H. Miller. Forensic Medicine: Dr. Willcox. Neurology: Dr. Harris. Descriptive and Surgical Anatomy: Mr. W. H. Clayton-Greene. Demonstrators: Mr. C. I. Graham and Mr. D. W. Daniels. Physiology and Histology: Dr. N. H. Alcock and Dr. Ellison (demonstrator). Biology: Dr. W. G. Ridewood. Demonstrator: Mr. T. Reed. Chemistry: Dr. G. Senter and Mr. R. W. Davies (demonstrator). Physics: Mr. W. H. White. Hygiene and Public Health: Dr. W. H. Willcox. Mental Diseases: Dr. Theo. B. Hyslop. Diseases of the Eye: Mr. Leslie Paton. Diseases of the Ear, Nose, and Throat: Dr. G. William Hill. Diseases of the Skin: Dr. Graham Little. Dental Surgery: Mr. Dolamore. Medical Tutor: Dr. Willcox. Surgical Tutor: Mr. Maynard Smith. Obstetric Tutor: Dr. T. G. Stevens. Medical Registrar: Mr. C. M. Wilson. Surgical Registrar: Mr. V. Z. Cope. Department for Nervous Diseases: Dr. Wilfred Harris. Practical Pharmacy: Mr. E. A. Andrews (demonstrator). School Secretary: Mr. B. E. Matthews.

Scholarships and Prizes.—The money value and subjects of examination of these are as follows: (*a*), (*b*), (*c*), and (*d*), four Natural Science Scholarships awarded by competition, £145, £50, £50, and £25 respectively; (*e*) and (*f*), two University Scholarships open to students from any British University, £52 10*s.* each, Natural Science; (*g*) Epsom College Scholarship awarded by nomination, representing free tuition; (*h*) Gold Medal, £20, an Essay on Some Special Point in Clinical Medicine; (*i*), (*j*), and (*k*), three General Proficiency Scholarships, £20 each, one in Advanced Anatomy, Physiology, and Histology, one in Midwifery, Materia Medica, Pathology, and Forensic Medicine, and one in Medicine, Surgery, Hygiene, and Mental Diseases; (*l*) Dermatology Prize, awarded twice in each year, £5 5*s.*; (*m*) Meadows' Prize, awarded in alternate years, £8, Obstetrics; (*n*) and (*o*), Clinical Medicine and Clinical Surgery Prizes, £5 5*s.* each, Clinical Reports by Students of third and fourth years; (*p*) nine Winter Session Prizes, £3 3*s.* each, subjects of the medical curriculum; and (*q*) nine Summer Session Prizes, £2 2*s.* each, subjects of the medical curriculum

MIDDLESEX HOSPITAL.—The hospital contains 345 beds, which includes a special wing for patients suffering from cancer, consisting of four wards, containing 45 beds; here cancer patients are received and attended for a period limited only by the duration of their disease. The number of patients treated last year were: Out-patients, 51,318; in-patients, 5470. Cancer: Out-patients, 90; in-patients, 157.

The Hospital and Medical School are fully equipped for the theoretical and practical teaching of all the subjects included in the examinations in Medicine and Surgery in the United Kingdom and for the diploma in Public Health; and ample laboratory and class-room accommodation is provided for the teaching of the various subjects of the curriculum and for original research in Medicine, Pathology, or Bacteriology. A Maternity Ward in which students receive systematic instruction in Obstetric Medicine has recently been added to the hospital.

Special Classes are held to prepare students for the Second M.B. (Lond.) Examinations and for the Primary and Final Examinations for the diploma of F.R.C.S. Eng.

Attached to the Cancer Wing of the hospital is a special research laboratory and in connexion with this there are the Emden Cancer Research Scholarship, the Richard Hollins Research Scholarship, the Salters' Company Cancer Research Scholarship, and a Cancer Research Scholarship.

There is a Bacteriological and Public Health Laboratory for Women in connexion with this hospital.

Hospital Appointments.—All hospital appointments are allotted to students without any extra fee. The following 18 resident appointments—six house physicians, six house surgeons, two obstetric house physicians, two casualty medical officers, and two casualty surgical officers—are

annually filled from the pupils of the hospital, each appointment extending over six months.

A Residential College to accommodate a limited number of students adjoins the hospital. Breakfast, luncheon, and dinner are supplied in the College Hall at moderate charges.

The Amalgamated Students' Club includes the following: the Medical Society, the Common Room Society, the cricket club, the football clubs, the athletic clubs, the rowing club, the musical society, the chess club, the lawn tennis club, and the hockey club. The athletic ground, which is eight acres in extent, is situated within easy access at Park Royal.

Fees.—The Composition Fee for the entire curriculum is 135 guineas, or 145 guineas if paid in three instalments. The fee for London University students is 145 guineas; for those who have passed the First Examination for Medical Degrees 120 guineas. The fee for the Dental Curriculum is 54 guineas, or 60 guineas if paid in two instalments. Students who have completed the study of Anatomy and Physiology and passed First Examination for Medical Degrees are received on special terms.

Lecturers.—Winter Session: Anatomy: Dr. Cameron. Demonstrator: Dr. Gladstone. Embryology: Dr. Gladstone. Biology and Physiology: Mr. Goodall. Demonstrator: Mr. Earle. Chemistry: Dr. Kellas. Emeritus Lecturer in Medicine: Sir R. D. Powell, Bart., M.D. Medicine: Dr. Pasteur and Dr. Wynter. Practical Medicine: Dr. Voelcker. Emeritus Lecturer in Surgery: Sir Henry Morris, Bart. Surgery: Mr. Pearce Gould, Mr. Bland-Sutton, and Mr. Murray. Practical Surgery: Mr. Kellock. Operative Surgery: Mr. Kellock. Practical Midwifery: Dr. Bonney. Pathology: Dr. Voelcker. Forensic Medicine and Toxicology: Dr. Wethered. Clinical Lectures in Medicine: The Physicians. Clinical Lectures in Surgery: The Surgeons. Clinical Lectures on Diseases of the Ear, Throat, and Nose: Mr. S. Hastings. Lectures in Ophthalmology: Mr. Lang. Lectures in Dental Surgery: Mr. Nowell. Public Health and Bacteriology: Mr. Foulerton. Summer Session: Pharmacology and Therapeutics: Dr. R. A. Young. Midwifery: Dr. Comyns Berkeley. Pathological Histology: Dr. Voelcker. Practical Toxicology: Dr. Kellas. Mental Diseases: Dr. Bond. Lectures in Dermatology: Dr. Pringle. Anatomy, Chemistry, and Physiology: as in Winter Session. Tutors—Medicine: Dr. Campbell Thomson; Surgery: Mr. Handley; Obstetrics: Dr. Taylor.

Staff.—Consulting Physicians: Dr. W. Cayley, Dr. Sidney Coupland, and Sir Richard Douglas Powell. Physicians: Dr. J. K. Fowler, Dr. W. Pasteur, and Dr. W. E. Wynter. Physicians to Out-patients: Dr. A. F. Voelcker, Dr. F. J. Wethered, Dr H. Campbell Thomson (Dean of the Medical School), and Dr. R. A. Young. Consulting Physician to the Skin Department: Dr. R. Liveing. Physician to the Skin Department: Dr. J. J. Pringle. Consulting Obstetric Physician: Dr. W. Duncan. Obstetric Physician: Dr. Comyns Berkeley. Assistant Obstetric Physician: Dr. Victor Bonney. Consulting Surgeons: Sir Henry Morris, Bart., and Mr. Andrew Clark. Surgeons: Mr. Pearce Gould, Mr. Bland-Sutton, and Mr. Murray. Surgeon to Out-patients: Mr. Kellock. Assistant Surgeons: Mr. Handley and Mr. Gordon Taylor. Ophthalmic Surgeon: Mr. W. Lang. Assistant Ophthalmic Surgeon: Mr. Arnold Lawson. Aural Surgeon: Mr. S. Hastings. Consulting Dental Surgeon: Mr. W. Hern. Dental Surgeon: Mr. Nowell. Assistant Dental Surgeon: Mr. H. W. Turner. Curator of the Museum and Pathologist: Dr. Lakin. Registrars: Dr. MacCormac, Mr. Rowntree, and Dr. F. E. Taylor. Resident Medical Officer: Mr. A. E. Johnson. Anæsthetists: Mr. T. G. A. Burns and Mr. H. P. Noble. Assistant Anæsthetist: Mr. H. Charles.

Scholarships and Prizes.—Holders of the Entrance Scholarships are required to become general students of the school. The money value and subjects of examination are as follows: (*a*), (*b*), and (*c*), three Entrance Scholarships, £100, £50, and £25 respectively; (*d*) Entrance Scholarship for Students from the Universities of Oxford or Cambridge, £50, Anatomy and Physiology, including Histology; (*e*) Freer Lucas Scholarship for Students of Epsom College, on nomination of Headmaster, £126; (*f*) and (*g*), two Broderip Scholarships for Senior Students, £60 and £40 respectively, Clinical subjects; (*h*) Freeman Scholarship, £30, Obstetrics and Gynæcology; (*i*) Hetley Clinical Prize for Fifth-Year Students, £25; (*j*) John Murray Gold Medal and Scholarship, awarded every third year, £25, Theoretical and Practical Medicine; (*k*) Lyell Medal and Scholarship, £55 5*s*., Surgical Anatomy and Practical Surgery; (*l*) Leopold Hudson Prize, £11 11*s*., Surgical Pathology and Bacteriology; (*m*) second year's Exhibition, £10 10*s*., Anatomy and Physiology; (*n*) "Emden" Cancer Research Scholarship tenable for three years, £100; (*o*) Richard Hollins Research Scholarship, £105; (*p*) Salters' Company Cancer Research Scholarship, £100; and (*q*) Cancer Research Scholarship, £60.

ST. THOMAS'S HOSPITAL.—This hospital received its present charter from King Edward VI., but as a monastic institution was in existence prior to the year 1207. The building occupies a unique position by the river, opposite the Houses of Parliament, and contains 600 beds. The in-patients last year numbered 7221, whilst the number of attendances as out-patients, including the casualty and light departments, was 232,876. There are departments for the treatment of women, children, the eye, ear, nose and throat, skin, and teeth. Departments for light treatment, X rays, and physical exercises are also special features. Exceptional facilities are offered in the hospital laboratories for the study of general pathology, clinical pathology, and of treatment by serums and vaccines. Surgical operations take place in the main theatres every day except Saturdays at 2 P.M. Clinical teaching in the wards, out-patients' and special departments is available every day of the week. Clinical lectures are delivered every Wednesday during the sessions. All appointments in the hospital are open to students without extra fee. Casualty officers and resident anæsthetists, house physicians, house surgeons, obstetric house physicians, ophthalmic house surgeons, and out-patient officers are appointed and hold office for six months. They are provided with rooms and commons in the hospital free of expense. Clinical assistants to all the special departments are appointed every three months; they are non-resident. A resident assistant physician and a resident assistant surgeon, at a salary of £100 each, a reappointed biennially; also four hospital registrars (medical, surgical, obstetric, and ophthalmic), the two former receive a salary of £100 and the two latter £50. An assistant in the clinical laboratory, at a salary of £137 10*s*. per annum, and an assistant pathologist, at a salary of £137 10*s*. are from time to time appointed. Appointments open to students before qualification: Clinical clerks and dressers for in- and out-patients are selected from students who have completed their third year's work. The accident dressers are provided with board and lodging during their periods of special duty. Every student acts as clerk in the post-mortem room and in one of the pathological laboratories, takes his turn for three weeks on maternity duty under proper supervision, and is practically instructed in the administration of anæsthetics by one of the hospital anæsthetists. On completion of his term as clerk or dresser he is expected to fill appointments in one or more of the special departments. In their earlier years of study students are selected as assistants to the lecturers in the preliminary and intermediate subjects. The Medical School is fully equipped for the teaching of all subjects of the curriculum. A fine museum and large library are at the disposal of the students. There are three lecture theatres, an unusually large and well-ventilated dissecting-room, and special laboratories for biology, chemistry, physics, physiology, and pathology. The post-mortem room, where demonstrations are given every day, is ventilated by the electric fan and provided with cold storage. The Students' Club comprises a spacious restaurant and magnificent smoking and reading room. There is no occasion for students to leave the hospital buildings during working hours. The athletic ground of the Amalgamated Clubs at Chiswick is over nine acres in extent and is easily accessible from Waterloo Station. The curriculum is arranged to meet the requirements of all the Examining Bodies. Special classes are held for the examinations at the University of London and for the First and Final Fellowship Examinations of the Royal College of Surgeons of England. Tutorial classes in all subjects precede the various examinations. There is a special course for the Diploma in Public Health. The hospital is easily accessible from all parts. It is close to the Waterloo and Westminster Bridge Stations (L. & S.W., Bakerloo, and District Railways). Electric trams which pass the doors connect it with all parts of South London. A register of lodgings and a list of medical men and others who are willing to receive boarders

is kept by the secretary, Mr. G. Q. Roberts, who will give any further information required.

Fees.—The annual composition fee is 30 guineas, covering all tutorial classes—in addition to a fee on entrance. Post-graduate study is afforded to qualified practitioners by a joint ticket which admits to the practice of 14 hospitals (general and special) on terms which may be ascertained from the secretary.

Staff.—Consulting Physicians: Dr. Harley, Dr. Payne, and Dr. Sharkey. Consulting Surgeons: Mr. S. Jones and Mr. B. Pitts. Consulting Obstetrical Physician: Dr. Gervis. Consulting Ophthalmic Surgeons: Mr. Liebreich and Mr. Nettleship. Consulting Anæsthetist: Mr. W. Tyrrell. Consulting Dentist: Mr. C. E. Truman. Physicians: Dr. Acland, Dr. Hawkins, Dr. Mackenzie, and Dr. Turney. Surgeons: Mr. G. H. Makins, C.B., Mr. Battle, Mr. Ballance, M.V.O., and Mr. Robinson. Physicians to Out-patients: Dr. Perkins, Dr. Colman, Dr. Box, and Dr. Russell. Surgeons to Out-patients: Mr. Cuthbert S. Wallace, Mr. E. M. Corner, Mr. Sargent, and Mr. C. A. R. Nitch. Obstetric Physician: Dr. Tate. Obstetric Physician to Out-patients: Dr. Fairbairn. Ophthalmic Surgeons: Mr. Lawford and Mr. Fisher. Physician for Diseases of Children: Dr. Box. Surgeon for Diseases of Children: Mr. C. A. R. Nitch. Surgeon for Diseases of the Throat: Mr. H. B. Robinson. Physician for Diseases of the Skin: Dr. E. Stainer. Surgeon for Diseases of the Ear: Mr. Marriage. Dental Surgeons: Mr J. G. Turner and Mr. G. L. Bates. Resident Assistant Physician: Dr. De Wesselow. Resident Assistant Surgeon: Mr. L. E. C. Norbury. Anæsthetists: Dr. H. Low, Dr. Bevan, Dr. Mennell, and Dr. Hedley. Pharmaceutist: Mr. J. A. Jennings. Curator of Museum: Mr. S. G. Shattock. Director of Laboratories: Mr. L. S. Dudgeon. Superintendent of X Ray Department: Dr. Greg.

Lecturers and Demonstrators.—Anatomy: Mr. F. G. Parsons and Dr. Wood Jones. Chemistry: Dr. Le Sueur. Physiology: Dr. E. Mellanby and Dr. A. Mavrogordato. Biology: Mr. Cutting. Pathology and Bacteriology: Mr. Shattock and Mr. Dudgeon. Surgery: Mr. Battle and Mr. Robinson. Medicine: Dr. Sharkey and Dr. Mackenzie. Practical and Operative Surgery: Mr. Robinson, Mr. Wallace, and Mr. Corner. Comparative Anatomy: Mr. Parsons. Applied Anatomy: Dr. Box. Anæsthetics: Dr. Low. Physics: Mr. Brinkworth. Clinical Medicine: The Physicians. Clinical Surgery: The Surgeons. Midwifery and Diseases of Women: Dr. Tate and Dr. Fairbairn. Diseases of the Eye: Mr. Lawford and Mr. Fisher. Pharmacology and Therapeutics: Professor Dixon. Throat Disease: Mr. H. B. Robinson. Physiological Demonstrator: Mr. E. Mellanby. Obstetrical Demonstrators: Dr. Fairbairn and Dr. Hedley. Practical Medicine: Dr. Perkins, Dr. Colman, Dr. Box, and Dr. Russell. Surgical Classes: Mr. Wallace, Mr. Corner, Mr. Sargent, Mr. Fisher, and Mr. Shattock. Forensic Medicine and Toxicology: Dr. Colman and Dr. Haas. Mental Diseases: Dr. R. Percy Smith. Public Health: Professor Simpson, C.M.G. Tropical Medicine: Dr. Sandwith. Instruction in Vaccination by Dr. Cope. Dean of the School: Dr. H. G. Turney. Sub-Dean: Dr. C. R. Box. Secretary: Mr. G. Q. Roberts, from whom any further information may be obtained.

Scholarships and Prizes.—At this school there are five Entrance Scholarships—namely, two in Arts, equivalent to the tuition fees for the first medical examination; two in Natural Science of the value of £150 and £60 respectively, to be taken out in tuition fees; and the University Scholarship of £50 in Anatomy, Physiology, and Chemistry. The money value and subjects of examination of the remainder are as follows:—(*a*) and (*b*), two college prizes, one for second-year students and one for third-year students, £10 and £5 respectively; (*c*) William Tite Scholarship for second-year students, £25; (*d*) and (*e*), Musgrove Scholarship or (alternately) Peacock Scholarship each for third-year students and tenable for two years, £35 each; (*f*) three College Prizes for fifth year students of £10 each and three of £5 each; (*g*) Cheselden Medal, Surgery and Anatomy; (*h*) Mead Medal, Medicine, Pathology, and Hygiene; (*i*) Toller Prize, Medicine Pathology, and Hygiene; (*j*) Bristowe Medal, Pathology and Morbid Anatomy; (*k*) Solly Medal and Prize, biennially, Surgical Reports; (*l*) Medal for the most distinguished fifth-year student; (*m*) Wainwright Prize, Medicine, Pathology, and Hygiene; (*n*) Hadden Prize, Pathology; (*o*) Beaney Scholarship, £50 biennially, Surgery and Surgical Pathology; (*p*) Sutton Sams Prize, biennially, reports of cases in Obstetric Medicine; (*q*) Grainger Testimonial Prize, £15, Anatomy and Physiology; (*r*) Salters' Company Research Fellowship, tenable for three years, £100 annually, Pharmacology; and (*s*) Louis Jenner Research Scholarship, tenable for two years, £60 annually, Pathology.

UNIVERSITY COLLEGE, LONDON.—University College has been constituted a University centre for the teaching of medical sciences. The College Faculty of Medical Sciences comprises the Departments of Physics, Chemistry, Botany, and Zoology (the Preliminary Medical Sciences); also the Departments of Anatomy, Physiology, and Pharmacology (the Intermediate Medical Sciences), and the Departments of Hygiene and Public Health and of Pathological Chemistry (Post-graduate Study).

The new Institute of Physiology, opened by the Right Hon. R. B. Haldane in June, 1909, the new Department of Botany, and the new Department of Pharmacology are now available for students.

Faculty of Medical Sciences.—Composition fees.—For the courses required by the University of London. 1. For the First Medical (Preliminary Scientific) Course, 26 guineas, entitling to one attendance and to the privileges of the Union Society (including the use of the gymnasium and the athletic ground at Perivale) for one session. 2. For the Second Medical (Intermediate) Course, 58 guineas if paid in one sum; 63 guineas if paid in two instalments of 32 guineas and 31 guineas respectively. This fee entitles to attendance on Anatomy and Physiology during three years and to one attendance on Organic and Applied Chemistry, Pharmacology, and Materia Medica, and to the privileges of the Union Society (including the use of the gymnasium and the athletic ground at Perivale) for two sessions.

For the medical education required by the Examining Board in England and the Society of Apothecaries. First examination, Parts I., II., III., 21 guineas, entitling to one attendance and to the privileges of the Union Society (including the use of the gymnasium and the athletic ground at Perivale) for one session. First examination, Part IV., and second examination, 58 guineas if paid in one sum, and 63 guineas if paid in two instalments of 32 guineas and 31 guineas respectively. This fee entitles to attendance during three years and to the privileges of the Union Society (including the use of the gymnasium and the athletic ground at Perivale) for two sessions.

Professors and Lecturers.—1. First Medical (Preliminary Scientific) Course.—Chemistry:—Professor: Sir William Ramsay, K.C.B., F.R.S.; assistant professors: Samuel Smiles, D.Sc., N. T. M. Wilsmore, D.Sc., and R. W. Gray, Ph.D.; teachers of chemistry to medical students: R. H. Aders Plimmer, D.Sc., and W. B. Tuck, D.Sc.; demonstrator: H. T. Clarke. Physics:—Professor: F. T. Trouton, F.R.S.; assistant professor: A. W. Porter, B.Sc.; assistants: N. Eumorfopoulos, B.Sc., A. O. Rankine, D.Sc., and D. O. Wood, B.Sc. Botany:—Professor: F. W. Oliver, M.A., D.Sc., F.R.S.; assistant professors: F. E. Fritsch, D.Sc., Ph.D., and T. G. Hill, A.R.C.S. Zoology:—Professor: J. P. Hill, D.Sc.; assistants: W. N. F. Woodland, D.Sc., and C. H. O'Donoghue, B.Sc. 2. Second Medical (Intermediate) Course.—Anatomy:—Professor: G. D. Thane, LL.D.; assistant and curator of the museum: D. E. Derry, M.B., Ch.B.; demonstrators: H. T. Mant, M.S., F.R.C.S., and E. K. Martin, M.B., B.S., F.R.C.S.; assistant demonstrators: H. A. Lake and M. E. Vlasto. Physiology:—Professor: E. H. Starling, M.D., F.R.S.; assistant professors: W. M. Bayliss, D.Sc., F.R.S., G. A. Buckmaster, M.D., and R. H. Aders-Plimmer, D.Sc. Pharmacology:—Professor: A. R. Cushny, M.D., F.R.S. Organic Chemistry:—Professor: J. N. Collie, F.R.S.; assistant professor: Samuel Smiles, D.Sc.

Scholarships and Prizes.—At University College the various exhibitions, prizes, medals, &c., which are given have a relation to medical study. The first three items on the present list require a complete intermediate course at University College. The money value and subjects of examination are as follows:—(*a*) The Bucknill Scholarship, 135 guineas; (*b*) and (*c*) two Entrance Exhibitions, 55 guineas each, Chemistry, Physics, Botany, and Zoology; (*d*) Cluff Memorial Prize £15 biennially, Anatomy, Physiology, and Chemistry; (*e*) Schäfer Prize in Physiology, £18 triennially; (*f*) Sharpey Physiological Scholarship, £105, Biological Sciences; (*g*) Morris Bursary for sons of deceased professional men, by nomination, tenable for two years, £16 a year; and (*h*) five Gold and five Silver Medals awarded annually in various departments.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—Dean: Raymond Johnson. B.S., F.R.C.S. Vice-Dean: G. F. Blacker, M.D., F.R.C.P., F R.C.S. Secretary: L. R. Thomas. Fees for Preliminary and Intermediate Course: See under University College. For the Final M.B., B.S. Lond. Course, 80 guineas if paid in one sum, 82 guineas if paid in two instalments, as follows—first year, 50 guineas; second year, 32 guineas. This fee entitles to attendance on Lectures and Hospital Practice during three years and to one attendance on Practical Pathology and Practical Surgery. Vaccination and attendance at a Fever Hospital are not included. Students who obtain a medical qualification within three years of the time of commencing this course are not required to pay an additional fee for further attendance. This course of instruction is also suitable for the corresponding examinations at the Universities of Oxford, Cambridge, and Durham, and for the medical education required by the Examining Board in England and the Society of Apothecaries.

There are over 300 beds in the hospital.

Special Departments, Clinical or Laboratory Facilities.—Those who are desirous of carrying out original research in Pathology, including Morbid Anatomy, Bacteriology, Experimental Pathology, and Chemical Pathology are admitted to work in the laboratories of the school by the Director of Pathological Studies. A special course of instruction is given for preparation for the examinations for Diplomas in Public Health of the various universities and examining bodies; also special courses of Lectures and Demonstrations in Anæsthetics, Diseases of the Eye, Ear, Nose, and Throat, Skin, and Diseases of the Teeth, in Electrical and Radioscopic Diagnosis and Treatment, and in Clinical and Tropical Pathology. These courses are designed for senior students and graduates.

Appointments tenable by Students.—Clerkships and dresserships to the physicians, surgeons, anæsthetist, and pathologist are allotted amongst the students of the hospital. Maternity students are appointed each month and reside in the Students' House connected with the Medical School and Hospital. Eight house physicians and house surgeons, four senior and four junior obstetric assistants are selected annually by examination from among the senior students who have a medical qualification. The house physicians and house surgeons reside free in the hospital for six months, and the senior obstetric assistants for three months. In addition to these posts there are certain special appointments which are vacant from time to time and are filled by senior students of the hospital: 1. The Resident Medical Officer. This officer is appointed for a period of two years and is chosen from amongst the more senior recent residents of the hospital. 2. The Surgical Registrar is also chosen from among the more senior recent residents of the hospital. 3. The Obstetric Registrar. 4. A Casualty Medical Officer and a Casualty Surgical Officer are appointed, each for a period of six months. 5. Deputy Anæsthetists. During the absence of one or another of the Anæsthetists in the summer months a senior qualified student is appointed as a substitute and is granted a special certificate.

School Buildings and Equipment.—The new buildings for University College Hospital, completed by the generosity of the late Sir Blundell Maple, Bart., were opened by H.R.H. the Duke of Connaught on Tuesday, Nov. 6th, 1906. The new buildings for the Medical School, erected through the generosity of Sir Donald Currie, are now in occupation and contain accommodation for undergraduate and post-graduate students in all departments of medical study subsequent to the intermediate course.

Museum of Pathological Anatomy.—The Museum, a spacious and well-lighted room, is open for study from 9 A.M. to 5 P.M. The collection is divided into three sections—medical, surgical, obstetrical and gynæcological. The surgical section is a particularly complete one and contains examples of every variety of surgical disease and injury. Diseases of the skin are well illustrated by a number of wax models which are conveniently displayed in glass cases. The obstetrical and gynæcological section is very complete. Microscopic sections of most of the specimens in the Museum have been prepared and are available for the use of students on application to the Curator. The Museum contains 1100 admirable paintings by Sir Robert Carswell and Sir Charles Bell and a collection of old surgical instruments formerly belonging to Robert Liston.

The Anatomical Museum of the University of London, University College, is open to all students of University College Hospital and Medical School on the recommendation of the School Committee.

The Medical Library is open daily for the purposes of study to every student of the Medical School from 9 A.M. to 5 P.M. Saturdays 9 A.M. to 1 P.M. It contains about 12,500 works on medical subjects, including all the current text-books and works of reference required for study or research.

The Medical Society of University College Hospital Medical School exists for the dual purpose (1) of promoting the study of Medical and Surgical Science and (2) of promoting social intercourse among its members. All Students of the Medical School are eligible for membership. Meetings are held once a fortnight for the purpose of discussing subjects connected with the study of medicine and the allied sciences and for the exhibition of cases of pathological interest. One room in the Medical School is specially reserved as a Reading Room and is provided with current medical works and periodicals. The society also possesses an osteological and a pathological collection for the use of its members. In its social aspect the society includes various athletic clubs and has the management of three rooms on the ground floor of the Medical School, which are supplied with newspapers, magazines, writing materials, chess- and draught-boards, &c. solely for the use of its members. The society also superintends the commodious gymnasium of the Medical School. The Athletic Ground, which is used in conjunction with the Union Society of the University of London University College, is situated near the Great Western Railway station at Perivale and is within easy reach of the Hospital and School, about 35 minutes by train from Gower-street station. The following clubs are connected with the society: Cricket Club, Rugby Football Club, Association Football Club, Hockey Club, and Lawn-Tennis Club. The society also has the use of the College racquets and fives courts for its members. The affairs of the society are conducted by a committee elected annually by the members.

Residence of Students.—A register of boarding residences is kept in the office of the Medical School for the convenience of students; these residences are not under the control of the school authorities. The Students' House in University-street contains large and comfortable rooms. The Maternity Students occupy them on payment of a moderate charge.

Private Instruction.—Gentlemen who desire assistance in their studies should consult the Dean, Professors, or Lecturers.

Hospital Staff.—Consulting Physicians: Sir W. R. Gowers, Dr. H. C. Bastian, Sir J. Williams, Bart., Dr. S. Ringer, Dr. F. T. Roberts, and Sir Thomas Barlow, Bart. Physicians: Dr. J. Rose Bradford, Dr. Sidney Martin, Dr. J. Risien Russell, Dr. H. Batty Shaw, and Dr. F. J. Poynton. Assistant Physicians: Dr. C. Bolton and Dr. T. R. Elliott. Obstetric Physicians: Dr. H. R. Spencer and Dr. G. F. Blacker. Physician to Skin Department: Dr. A. M. H. Gray. Consulting Surgeons: Sir John Tweedy (Ophthalmic) and Sir Victor Horsley. Surgeons: Mr. A. E. Barker, Mr. R. J. Godlee, Mr. Bilton Pollard, and Mr. Raymond Johnson. Assistant Surgeons: Mr. Wilfred Trotter and Mr. H. Morriston Davies. Ophthalmic Surgeon: Mr. Percy Flemming. Assistant Ophthalmic Surgeon: Mr. J. H. Parsons. Professor and Lecturer on Public Health: Dr. Henry R. Kenwood. Dental Surgeon: Mr. Sidney Spokes. Assistant Dental Surgeon: Mr. H. J. Relph. Anæsthetist: Dr. Dudley Buxton. Assistant Anæsthetists: Dr. H. J. Scharlieb and Dr. A. Beresford Kingsford. Surgical Registrar: Mr. G. S. O. Williams. Resident Medical Officer: Mr. J. R. C. Canney. Pathologist: Mr. T. W. P. Lawrence. Officer in Charge of Electro-Radiographic Department: Mr. R. H. Cooper. Pharmacist: Mr. R. R. Bennett.

Teaching Staff.—Medicine—The Principles and Practice of Medicine: Dr. Sidney Martin. Clinical Medicine: Dr. J Rose Bradford, Dr Sidney Martin, Dr. J. Risien Russell, Dr. H. Batty Shaw, Dr. F. J. Poynton, Dr. C. Bolton, and Dr. T. R. Elliott. Therapeutics: Dr. H. Batty Shaw. Surgery—The Principles and Practice of Surgery: Mr. Arthur E. J. Barker. Clinical Surgery: Mr. Arthur E. J. Barker, Mr. Rickman J. Godlee, Mr. Bilton Pollard, Mr. Raymond Johnson, Mr. Wilfred Trotter, and Mr. H. Morriston Davies. Practical Surgery: Mr. Raymond Johnson and Mr. H. Morriston Davies. Surgical Anatomy: Mr. H. T. Mant. Midwifery and Gynæcology—Dr. H. R. Spencer. Clinical Midwifery and Gynæcology: Dr. H. R. Spencer and Dr. G. F. Blacker. Diseases of Childhood: Dr. F. J. Poynton,

Mr. Raymond Johnson, Mr. Percy Flemming, and Mr. Herbert Tilley. Pathology and Morbid Anatomy—General Pathology: Dr. Charles Bolton. Practical Pathology: Dr. F. H. Thiele, Mr. T. W. P Lawrence, Mr. D. Embleton, and Dr. L. F. Hirst. Laboratory and Special Instruction: Dr. Charles Bolton. Chemical Pathology and Clinical Pathology: Dr. F. H. Thiele. Museum of Pathological Anatomy and Post-mortem Examination: Mr. T. W. P. Lawrence. Forensic Medicine: Dr. F. J. Poynton. Diseases of the Eye—Ophthalmic Medicine and Surgery: Mr. Percy Flemming. Clinical Ophthalmology: Mr. Percy Flemming and Mr. J. Herbert Parsons. Diseases of the Ear and Throat: Mr. Herbert Tilley. Diseases of the Skin: Dr. A. M. H. Gray. Mental Physiology and Mental Diseases: Mr. Berrard Hart. Dental Surgery: Mr. Sidney Spokes and Mr. H. J. Relph. Instruction in the Use of Anæsthetics: Dr. Dudley W. Buxton. Electro-radiographic Department: Mr. R. Higham Cooper. Practical Pharmacy: Mr. R. R. Bennett.

Scholarships and Prizes.—At this School the first two Scholarships (*a*) and (*b*) require a complete course at University College and University College Hospital Medical School; the second two (*c*) and (*d*) require a final course at the Medical School. The money value and subjects of examination are as follows:—(*a*) Entrance Scholarship, Bucknill, 135 guineas, Chemistry, Physics, Botany, and Zoology; (*b*) Epsom Free Medical Scholarship, subjects of Preliminary Scientific Examination and nomination by Epsom College; (*c*) and (*d*) two Entrance Exhibitions, 80 guineas each Anatomy and Physiology; (*e*) Atkinson Morley Scholarship tenable for three years, £45 per annum, Surgery; (*f*) Atchison Scholarship tenable for two years, £55 per annum; (*g*) Filliter Exhibition, £30 Pathology; (*h*) Erichsen Prize, £10 10*s*., Practical Surgery; (*i*) two Senior and two Junior Fellowes Clinical Medals for Clinical Medicine; (*j*) two Liston Gold Medals for Clinical Surgery; (*k*) Alexander Bruce Gold Medal for Pathology and Surgery; and (*l*) Tuke Silver and Bronze Medals for Pathology.

WESTMINSTER HOSPITAL.—The hospital contains 215 beds and affords relief to upwards of 2000 in-patients and 30,000 out-patients annually. There are separate departments for Diseases of the Eye, Ear, Skin, Teeth, and Throat, for Orthopædic practice, for Diseases of Women, for Diseases of Children, for Radiography, and for the Light Treatment. The Anatomical, Pathological, and Materia Medica Museums are open to all students of the school.

A medical and a surgical registrar, each with a salary of £50, are appointed annually. Two house physicians, three house surgeons, and a resident obstetric assistant are appointed for six months after examination, and are provided with rooms and commons; also one assistant house physician and one assistant house surgeon with commons only. Clinical assistants to the assistant physicians and assistant surgeons, and to the officers in charge of special departments, are appointed from among qualified students of the hospital.

By a scheme for the concentration of the teaching of the preliminary and intermediate subjects of the curriculum, which has the support of the London University, an arrangement has been made by the Westminster School for the teaching of these subjects at King's College. Students, however, join the Westminster Medical School as formerly and the Entrance Scholarships remain as heretofore.

There is laboratory accommodation for practical work in Chemistry, Physics, Biology, Anatomy, Physiology, Histology, Pathology, and Bacteriology, and a new Clinical Laboratory has recently been erected. Facilities for research are afforded in all the laboratories.

For out-door recreation the following clubs exist: the Athletic Sports Club, the Cricket, Lawn Tennis, and Swimming Clubs, and the Rugby and Association Football Clubs. For in-door recreation there are the Students' Club, the Chess Club, and the Guthrie Society, the last named being a debating club. These clubs and societies together constitute the Clubs Union, for membership of which students are not required to pay, the expense being covered by the entrance fee to the school.

Staff.—Consulting Medical Staff: Dr. H. B. Donkin and Sir William H. Allchin. Consulting Surgical Staff: Mr. Richard Davy, Mr. G. Cowell, and Mr. N. C. Macnamara. Medical In-patient Staff: Dr. de Havilland Hall, Dr. W. Murrell, and Dr. R. G. Hebb. Obstetric Physician: Dr. G. H. Drummond Robinson. Surgical In-patient Staff: Mr. C. Stonham, Mr. W. G. Spencer, and Mr. A. H. Tubby. Medical Out-patient Staff: Dr. A. M. Gossage, Dr. Purves Stewart, Dr. Eric Macnamara, and Dr. Carmalt-Jones. Physician for Diseases of the Skin: Dr. T. Colcott Fox. Assistant Obstetric Physician: Dr. S. Dodd. Surgical Out-patient Staff: Mr. W. Turner, Mr. Arthur Evans, Mr. Rock Carling, and Mr. J M. G. Swainson. Surgeon in Charge of the Throat Department: Mr. P. R. W. De Santi. Ophthalmic Surgeon: Mr. G. Hartridge. Surgeon in charge of the Orthopædic Department: Mr. A. H. Tubby. Surgeon in charge of the Ear Department: Mr. P. R. W. De Santi. Dental Surgeons: Mr. C. W. Glassington and Mr. E. Gardner. Administrators of Anæsthetics: Dr. N. W. Bourns and Dr. V. B. Orr. Assistant Anæsthetist: Dr. Cecil Hughes. Physician Pathologist: Dr. R. G. Hebb. Assistant Pathologist and Curator of Museum: Dr. J. A. Braxton Hicks. Medical Registrar: Dr. H. F. Marris. Surgical Registrar: Mr. J. J. W. Evans. Pharmacist: Mr. A. E. Tanner. Secretary: Mr. S. M. Quennell.

Lecturers.—Clinical Medicine: Sir William Allchin, Dr. Hall, Dr. Murrell, and Dr. Hebb. Clinical Surgery: Mr. Stonham, Mr. Spencer, and Mr. Tubby. Clinical Gynæcology: Dr. Drummond Robinson. Medicine: Dr. Murrell, Dr. Hebb, Dr. Gossage, Dr. Purves Stewart, Dr. Macnamara, Dr. Duncan, and Dr. Carmalt Jones. Diseases of the Skin: Dr. Colcott Fox. Insanity: Dr. Stoddart. Surgery: Mr. Spencer. Ophthalmic Surgery: Mr. Hartridge. Surgery of the Throat and Nose: Mr. De Santi. Orthopædic Surgery: Mr. Tubby. Aural Surgery: Mr. De Santi. Dental Surgery: Mr. Glassington. Anæsthetics: Dr. Bourns. Operative Surgery: Mr. Turner. Surgical Anatomy: Mr. Arthur Evans. Practical Surgery: Mr. Rock Carling (Dean of the school) and Mr. Swainson. Surgical Pathology: Mr. Turner. Midwifery and Diseases of Women: Dr. Drummond Robinson. General Pathology and Morbid Anatomy: Dr. Hebb. Post-mortem Demonstrations: Dr. Hebb. Materia Medica, Therapeutics, and Pharmacology: Dr. Dixon. Demonstrator of Practical Pharmacy: Mr. A. E. Tanner. Forensic Medicine: Mr. Henslowe Wellington. Toxicology: Dr. H. Wilson Hake. Public Health: Dr. S. Monckton Copeman. Bacteriology: Dr. Bernstein. Anatomy: Dr. Waterston and Mr. Frazer. Demonstrators of Practical Anatomy: Mr. Black and Mr. Hickey. Physiology: Dr. Halliburton. Practical Physiology and Histology: Dr. Halliburton, Dr. Lyle, and Dr. Rosenheim. Biology: Dr. Bottomley and Dr. Dendy. Chemistry and Practical Chemistry: Dr. Thomson, Mr. Jackson, and Mr. Kirkaldy. Physics: Dr. Barkla, Dr. Allen, Mr. Nicol, and Dr. W. Wilson. Secretary and Librarian: Mr. W. Fryer.

Scholarships and Prizes.—At this school the first five items in the following list are for students entering in the Winter Session. The money value and subjects of examination are as follows: (*a*) Guthrie Entrance Scholarship open to Students under 25 years of age, £60 Latin, Mathematics, English, and Greek, French, or German; (*b*) and (*c*), two Entrance Scholarships, age of candidates and subjects of examination as above, £40 and £30 respectively; (*d*) Dental Scholarship, age of candidates and subjects of examination as above, £20; (*e*) Natural Science Prize, £60 subjects of Preliminary Scientific of University of London; (*f*) and (*g*) two Entrance Scholarships in Arts for Students entering in the Summer Session, £60 and £40 respectively—conditions as for the Guthrie Scholarship; (*h*) Free Presentation, open to Pupils of the Epsom Medical College and obtained by recommendation; (*i*) Entrance Scholarship £40, Chemistry and Physics according to the synopsis of the Conjoint Board; (*j*) and (*k*), two University Scholarships open to University Students £60 each, Anatomy and Physiology; (*l*) Natural Science Prize, £60 subjects of Preliminary Scientific of University of London; (*m*) Sturges Prize in Clinical Medicine, about £6 Notes of Cases; (*n*) Clinical Surgery Prize, £5, Notes of Cases; (*o*) Chadwick Prize £21 in books or instruments Medicine and Surgery, including Pathology and Applied Anatomy and Physiology; (*p*) Frederic Bird Medal and Prize, open to Fourth-year Students £14 in medal and books or instruments—Midwifery Diseases of Women, Medicine and Pathology; (*q*) Abrahams Prize in Clinical Pathology, 5 guineas, a Paper and Tests in Practical Work;

(*r*) Alfred Hughes Memorial Prize, open to Second-year Students, about £5 in books or instruments—Anatomy; (*s*) Carter Gold Medal and Prize for Botany, open to Students of not more than three years' attendance, gold medal and books of the joint value of £15; (*t*) Jelf Medal awarded to Third-year Students; (*u*) Second-year Scholarship, £20, Elementary Anatomy, Physiology, Histology, and Organic Chemistry; (*v*) Daniell Scholarship, tenable for two years, £20, Chemistry; and (*w*) Rabbeth Scholarship, open to First-year Students, £20, Class Examinations in the Preliminary Scientific Course.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, Brunswick-square, W.C.—The fee for the medical course for the degrees of the University of London and for the diplomas of the Royal Colleges of England, after the completion of the First Medical Examination Course, is £135 in one sum, or £145 in four instalments. The fee for the First Medical classes is £25. The fee for the course for the University of Durham, the Society of Apothecaries, and the Conjoint Colleges of Scotland, including Elementary Science, is £140 in one sum, or £150 in four instalments.

The hospital contains 165 beds, of which 78 are reserved for surgical, 64 for medical, 13 for gynæcological, six for ophthalmic, and four for isolation cases. The number of in-patients treated during the past year was 2225. There is also a department for attending women in their confinements at their own homes. Students can also attend the in-patient and out-patient practice of the New Hospital for Women.

Special classes for the First Medical Examination of the University of London are held and special courses of instruction in Anatomy, Physiology, and Practical Pharmacology are provided for students preparing for the Second Medical Examination of the University of London.

Students after qualification can hold at the Royal Free Hospital the posts of house physician, house surgeon, obstetric assistants, clinical assistants, anæsthetists and assistant anæsthetist, medical and surgical registrars, medical electrician, and museum curator; and at the Medical School the posts of demonstrators in the departments of Anatomy, Physiology, Chemistry, and museum curator. They can also hold posts at the New Hospital for Women, which is officered entirely by medical women.

The School buildings have been entirely rebuilt in recent years and there are spacious, well-equipped laboratories, which afford every facility for efficiency of teaching and practical work in all departments.

There are residential chambers at 8, Hunter-street, with accommodation for 17 students, and the Secretary can be consulted on the subject of other residences for students There is a Tennis Club with a gravel court at the School, and also hockey, boating, and other clubs.

Staff.—Consulting Physician: Dr. S. West. Physicians: Dr. Harrington Sainsbury, Dr. J. W. Carr, and Dr. A. G. Phear. Assistant Physicians: Dr. Farquhar Buzzard and Dr. W. P. S. Branson. Consulting Surgeons: Mr. W. Rose and Mr. A. B. Barrow. Surgeons: Mr. J. Berry, Mr. E. W. Roughton, and Mr. W. H. Evans. Assistant Surgeons: Mr. T. Percy Legg and Mr. Cunning. Consulting Physician for Diseases of Women: Mrs. Scharlieb, M.S., M.D. Physician for Diseases of Women: Mrs. Vaughan-Sawyer, M.S., M.D. Assistant Physician for Diseases of Women: Mrs Willey, M.S., M.D. Ophthalmic Surgeon: Mr. H. Work Dodd. Surgeon for Diseases of Throat, Nose, and Ear: Mr. E. W. Roughton. Surgeon for Diseases of Skin: Mr. W. H. Evans. Senior Resident Medical Officer: Mr. C. B. Heald. Registrars: Miss Turnbull, M.D., B.S., and Miss Bolton, M.D., B.S. Dentist: Mr. T. C Budden. Assistant Dental Surgeon: Miss Eva Handley, L.R.C.P. & S., L.D.S. Anæsthetists: Mrs. Berry, M.D., B.S., and Miss Gates, M.B., B.S. Secretary: Mr. C. W. Thies.

Lecturers.—At the School: Anatomy and Practical Anatomy: Mr. Parsons. Physiology and Practical Physiology: Miss Cullis, D.Sc. Chemistry: Miss C. de B. Evans, D.Sc. Practical Chemistry: Miss Widdows, B.Sc. Physics: Miss E. Stoney, M.A. Biology: Mr. Mudge. A.R.C.S. Pharmacology: Dr. R. H. P. Crawfurd. Practice of Medicine: Miss Cock, M.D., and Dr. J. W. Carr. Midwifery: Mrs. Scharlieb, M.S. Gynæcology: Mrs. Vaughan-Sawyer, M.D. Forensic Medicine: Dr. Hawthorne. Toxicology: Dr. Wilson Hake. Practice of Surgery: Mr. Roughton. Operative Surgery: Mr. Roughton. Ophthalmic Surgery: Mr. Percy Flemming. Pathology: Dr. L. S. Dudgeon. Mental Pathology: Dr. Hyslop. Tropical Diseases: Sir Patrick Manson. Operative Midwifery: Miss McCall, M.D., Mrs. Vaughan-Sawyer, M.D., and Mrs. Willey, M.D., M.S. Demonstrators of Anatomy, Mrs. Addison, M.B., B.S., and Miss E. Davies-Colley, M.D., B.S.; of Physiology, Miss Simmons, B.Sc.; of Chemistry, Miss Laycock, B.Sc.; of Practical Pharmacology, Miss Buchanan, M.P.S. At the Royal Free Hospital: Clinical Medicine: Dr. Sainsbury and Dr. Carr. Clinical Surgery: Mr. Berry and Mr. Roughton. Clinical Obstetrics: Mrs. Willey, M.D., M.S. Pathology: Dr. Buzzard. Bacteriology: Miss Chambers, M.D., B.S. Surgical Tutors: Mr. W. Evans, Mr. Legg, and Mr. Cunning. Medical Tutor: Dr. A. G. Phear. Demonstrator of Auscultation: Dr. Phear. Demonstrator of Practical Clinical Pathology: Miss Chambers, M.D., B.S. Practical Pathology: Miss D. Hare, M.D., B.S.

Dean of the School, Miss Cock, M.D.; Honorary Secretary, Dr. May Thorne; Secretary and Warden, Miss L. M. Brooks.

Scholarships and Prizes.—At this School candidates for the second item (*b*) on the following list must be (1) not more than 20 years of age on June 1st preceding the examination; (2) resident in the Metropolitan Police district; (3) Matriculated Students of the University of London; and (4) in need of an Exhibition for the prosecution of their medical studies. The third item (*c*) is given as the result of an examination held by the University of London in June to a student who has passed the First or Second Medical Examinations of that University held in the previous July or the July following the examination. Candidates are expected to read for the M.B., B.S degree of the University of London. The money value and subjects of examination are as follows: (*a*) Entrance Scholarship, £30, English, Latin, Arithmetic, Euclid, and Algebra; (*b*) St. Dunstan's Medical Exhibition tenable for three years, extendible to five years, £60. English, Latin, Arithmetic, Euclid, and Algebra; (*c*) Bostock Scholarship, tenable for two or four years, and next to be awarded in June, 1911, £60; (*d*) Mabel Webb Research Scholarship, tenable for one year and renewable, £30. Physiology, Chemistry, or Pathology; (*e*) Fanny Butler Scholarship, tenable for four years; Candidates must be willing to work in connexion with the Church of England Zenana Missionary Society; next award in September, 1910, £14 10*s.*; (*f*) John Byron Bursary, tenable from two to four years, for students already in the School requiring assistance for the prosecution of their medical studies, application to the Secretary by March 31st; next award in March, 1912, £20; (*g*) Helen Prideaux Scholarship, awarded every second year to a student who has become qualified during the two years immediately preceding the award, and to be spent in assisting the holder to further study, £40, Medicine, Surgery, Obstetric Medicine, and Pathology. Three Evans Prizes of £3 3*s.*, £2 2*s.*, and £1 1*s.* are given in alternate years on the results of the class examination in midwifery, and a Durham Prize, value £5, is given in alternate years on the results of the class examination in gynæcology, and a prize of £5 is awarded in alternate years on the results of the class examination in Midwifery and Gynæcology respectively. The Evans Prize for Operative Midwifery, value £5 5*s.*, is awarded yearly. Prizes of £10 each are awarded yearly in Anatomy and Physiology. There is also a small fund from which assistance can occasionally be given to students and to graduates who specially require pecuniary help. Prizes and Certificates of Honour are awarded in each class at the end of the session.

UNIVERSITY OF DURHAM.

Two Diplomas and six degrees are conferred—viz., the Diploma in Public Health and the Diploma in Dental Surgery, and the degrees of Bachelor of Medicine, Bachelor of Surgery, Master of Surgery, Doctor of Medicine, Bachelor of Hygiene, and Doctor of Hygiene. These degrees are open both to Men and Women.

For the degree of *Bachelor of Medicine* there are four professional examinations. The subjects of the First Examination are—Elementary Anatomy and Elementary Biology, Chemistry, and Physics. The subjects of the Second Examination are—Anatomy and Physiology. The subjects for the Third Examination are—Materia Medica

and Pharmacy, Pathology, Medical Jurisprudence, Public Health, and Pathology and Elementary Bacteriology. The subjects of the Fourth Examination are—Medicine, Clinical Medicine and Psychological Medicine, Surgery and Clinical Surgery, Midwifery and Diseases of Women and Children.

It is required that at least one of the five years of professional education shall be spent in attendance at the University College of Medicine, Newcastle-upon-Tyne. Candidates who have passed the First and Second Examinations of the University will be exempt from First and Second Examinations of the Conjoint Board.

For the degree of *Bachelor of Surgery* every candidate must have passed the examination for the degree of Bachelor of Medicine of the University of Durham and must have attended one course of lectures on Operative Surgery and one course on Regional Anatomy. Candidates will be required to perform operations on the dead body and to give proof of practical knowledge of the use of surgical instruments and appliances.

For the degree of *Master of Surgery* candidates must not be less than 24 years of age and must satisfy the University as to their knowledge of Greek or German. In case they shall not have passed in one of these subjects at the Matriculation Examination for the M.B. degree they must present themselves at Durham for examination in it at one of the ordinary examinations held for this purpose before they can proceed to the higher degree of M.S. They must also have obtained the degree of Bachelor of Surgery of the University of Durham and must have been engaged for at least two years subsequently to the date of acquirement of the degree of Bachelor of Surgery, in attendance on the practice of a recognised hospital, or in the naval or military services, or in medical or surgical practice. The subjects of examination are:—Principles and Practice of Surgery, Surgical Pathology, Surgical Anatomy, Surgical Operations, Clinical Surgery.

For the degree of *Doctor of Medicine* candidates must be not less than 24 years of age and must satisfy the University as to their knowledge of Greek or German. In case they shall not have passed in one of these subjects at the Matriculation Examination for the M.B. degree they must present themselves at Durham for examination in it at one of the ordinary examinations held for this purpose before they can proceed to the higher degree of M.D. They must also have obtained the degree of Bachelor of Medicine of the University of Durham and must have been engaged for at least two years subsequently to the date of acquirement of the degree of Bachelor of Medicine in attendance on the practice of a recognised hospital, or in the military or naval services, or in medical and surgical practice. Each candidate must present an essay prepared entirely by himself, which must be typewritten, based on original research or observation, on some medical subject selected by himself, and approved of by the Professor of Medicine and must pass an examination thereon, and must be prepared to answer questions on the other subjects of his curriculum so far as they are related to the subject of the essay.

Doctor of Medicine (without residence).—The University of Durham has instituted a special examination whereby the degree of Doctor of Medicine may be obtained without residence. Candidates shall not be under 40 years of age and shall have been in active practice for 15 years as registered medical practitioners. They shall produce certificates of moral character from three registered members of the medical profession, and if they have not passed an examination in Arts previously to the Professional Examination in virtue of which they have been placed on the Register, they shall be required to pass in Classics and Mathematics. Candidates who have passed an examination in Arts previously to being placed on the Register are required to pass an examination in Latin. They will be examined in the Principles and Practice of Medicine, including Psychological Medicine, Hygiene, and Therapeutics, the Principles and Practice of Surgery, Midwifery, and Diseases of Women and Children, Pathology (Medical and Surgical), Anatomy (Medical and Surgical), Medical Jurisprudence, and Toxicology. The fee will be 50 guineas, of which 20 guineas will be retained if the candidate fails to satisfy the examiners.

Candidates for any of the above degrees must give at least 28 days' notice to Professor Howden, Secretary, College of Medicine, Newcastle-upon-Tyne. In the case of the M.D. (essay) examination candidates must send in their essays six weeks before the date of the examination.

Professors—Medicine: Sir G. H. Philipson, M.D., D.C.L. Surgery: J. Rutherford Morison, F.R.C.S. Physiology: Sir T. Oliver, M.D. Anatomy: R. Howden, M.B. Midwifery: R. P. R. Lyle, M.D. Comparative Pathology: H. J. Hutchens, M.R.C.S.

Scholarships and Prizes.—In connexion with this University the following scholarships and prizes are awarded:—(*a*), (*b*), (*c*), and (*d*), Four Scholarships of £25 a year each, tenable for four years; the examination will be the September Matriculation Examination. Candidates must take English, Latin, Arithmetic, Euclid, Algebra, Geography, English History, with Greek or German, or both. (See College Calendar for special books.) Open to candidates desirous of being admitted as Medical Students. The successful candidates must take out their entire curriculum at the University of Durham College of Medicine, Newcastle-upon-Tyne. (*e*) Pears Scholarship of £50 a year, tenable for three years; Matriculation Examination. —At the College of Medicine are: (*f*) Dickinson Scholarship, interest on £400 and gold medal; examination in Medicine, Surgery, Midwifery, and Pathology. Open to full students of the College of Medicine who have passed the third M.B. Examination. (*g*) Tulloch Scholarship, interest on £400; examination in Anatomy, Physiology, and Chemistry. No student is eligible who commenced his medical curriculum more than two academical years before the date of examination. (*h*) Charlton Memorial Scholarship, interest on £700; examination in Medicine. Open to full students of the College entered for the class on the Principles and Practice of Medicine. (*i*) Gibb Scholarship, interest on £500; awarded annually as a Scholarship in Pathology to full student who passes the best examination in that subject. No student is eligible after completion of his curriculum. (*j*) Luke Armstrong Memorial Scholarship, interest on £680: original essay on some subject in Comparative Pathology. (If no essay of sufficient merit be presented the scholarship may be awarded to the candidate who, in passing the first part of the Examination for the B.Hy. Degree, obtains the highest number of marks in Comparative Pathology during the year.) Open to all Graduates in Medicine or Hygiene and candidates for these degrees who have spent six months at the University and whose age does not exceed 30 years. (*k*) Stephen Scott Scholarship, interest on £1000; original essay on any Surgical subject. Open to any graduate in Medicine or Surgery of the University or any student of the College of Medicine. Student's age must not exceed 30 years. (*l*) Heath Scholarship, interest on £4000. For 1912: Original Essay on Inflammations of Bone—excluding Tuberculous and Syphilitic. All Graduates in Medicine or Surgery of the University are eligible. (*m*) Gibson Prize, interest on £225; examination in subject of Midwifery and Diseases of Women and Children. Open to students who have attended one course of lectures on Midwifery and Diseases of Women and Children. (*n*) Turnbull Prize and Medal; examination in Surface Anatomy. Open to students at end of their second winter session.—At the Royal Infirmary is (*o*) Goyder Memorial Scholarship, interest on £325; awarded annually to student who most distinguishes himself in Clinical Medicine and Clinical Surgery at the Royal Infirmary.

Hygiene.—The regulations with regard to the degrees in Sanitary Science will be found under the section on Public Health.

Clinical Instruction.—THE COLLEGE OF MEDICINE, Newcastle-upon-Tyne.—A new wing has been added to accommodate the departments of physiology and bacteriology. It also contains a students' gymnasium and a set of Students' Union rooms. The new Royal Victoria Infirmary, containing upwards of 400 beds, was opened by His late Majesty King Edward VII. in 1906. In the new infirmary adequate accommodation is provided for the study of the various special subjects, in addition to the ordinary clinical work. The following Scholarships and Prizes are awarded annually:—Four University of Durham Scholarships, value £25, tenable for four years, for proficiency in Arts, awarded to full students in their first year. The Pears Scholarship, value £50 a year, tenable for three years (when vacant). The Dickinson Scholarship, value interest of £400, and a Gold Medal, for Medicine, Surgery, Midwifery, and Pathology. The Tulloch Scholarship, value the

interest of £400, for Anatomy, Physiology, and Chemistry. The Charlton Scholarship, value the interest of £700, for Medicine. The Gibb Scholarship, value the interest of £500, for Pathology. The Goyder Memorial Scholarship (at the Infirmary), value the interest of £325, for Clinical Medicine and Clinical Surgery. The Luke Armstrong Memorial Scholarship, value the interest of £680, for Comparative Pathology. The Stephen Scott Scholarship in Surgery, value the interest of £1000. Heath Scholarship: The late Dr. George Yeoman Heath, President of the University of Durham College of Medicine, bequeathed the sum of £4000 to found a Scholarship in Surgery, the interest to be awarded every second year; the next award will be in 1912. The Gibson Prize, interest on £225, in the department of Midwifery and Diseases of Women and Children. The Turnbull Prize and Medal for Surface Anatomy. At the end of each session Prizes of Books are awarded in each of the regular classes. Assistant Demonstrators of Anatomy, Prosectors, and Assistant Demonstrators of Physiology and Pathology are elected yearly. Pathological Assistants, Assistants to the Dental Surgeon, Assistants in the Eye Department, Throat and Ear Department, and Skin Department, Clinical Clerks, and Dressers are appointed every three months.

NEWCASTLE-UPON-TYNE ROYAL VICTORIA INFIRMARY.—This Infirmary was founded in 1751 but has been recently rebuilt, the new hospital being opened in 1906. The number of beds is 425. The number of in-patients annually is 7500 and of out-patients 100,000. The medical students of the University of Durham attend the practice of this hospital. Clinical Lectures are delivered by the Physicians and Surgeons weekly and ward demonstrations are given daily. Tutorial classes are held by the Assistant Physicians and Assistant Surgeons weekly, and demonstrations are given in the several out-patient departments daily. Pathological demonstrations are given by the Pathologist daily or as opportunity occurs, and in the new buildings nothing has been spared in perfecting scientific equipment. In addition to medical and surgical in-patient and out-patient departments the following special departments are fully equipped for teaching students: Ophthalmic, Throat and Ear, Skin, Orthopædic, Gynæcological, Electrical, and Bacteriological. The hospital building contains the following laboratories: 1. Special Pathological Laboratory, attached to the post-mortem rooms. 2. Bacteriological Laboratory, in which all clinical bacteriological investigations are carried out—opsonic indices estimated with a view to treatment by vaccines and serums, &c. 3. There is in addition a Clinical Laboratory attached to each ward and to the out-patient department. There are five operating theatres in use in the hospital, three large theatres, a smaller one for emergencies, and an out-patient theatre. The surgical practice is especially good; more than 6000 surgical operations were performed in the last 12 months. Every facility is given to students to take out the full or any part of the hospital curriculum, and clerkships or assistantships in any of the several special departments are open to undergraduates or graduates for periods of from one to three months. There are 11 resident medical and surgical officers, three of whom are paid, and preference for these appointments is given to students who have fulfilled their curriculum in the hospital. The sessions open on May 1st and Oct. 1st of each year. Applications for detailed information should be made to the Dean, Dr. W. E. Hume, at the hospital. The following is the staff of the hospital:—Physicians: Dr. David Drummond, Sir Thomas Oliver, Dr. T. Beattie and Dr. W. E. Hume. Assistant Physicians: Dr Horsley Drummond, Dr. Alfred Parkin, Dr. George Hall, and Dr. T. M. Allison. Surgeons: Mr. J. Rutherford Morison, Mr. A. M. Martin, Mr. H. B. Angus, and Mr. J. V. W. Rutherford. Assistant Surgeons: Mr. W. G. Richardson, Mr J. W. Leech, Mr. John Clay, and Mr. G. G. Turner. Ophthalmic Surgeon: Mr. J. D. Wardale. Assistant Surgeon: Mr. T. Gowans. Throat and Ear Department: Surgeon: Mr. G. W. Ridley; Assistant Surgeon: Mr. S. S. Whillis. Gynæcological Department: Dr. R. P. R. Lyle. Skin Department: Physician: Dr. Robert A. Bolam; Assistant Physician: Dr. D. W. Patterson. Orthopædic Department: Mr. A. M. Martin. Electrical Department: Dr. W. D. Arnison. Pathologist: Dr. Stuart McDonald. Bacteriologist: Dr. H. J. Slade. Pathological and Analytical Chemist: Mr. P. P. Bedson, D.Sc. Anæsthetists: Dr. F. G. Armstrong, Dr. W. J. Phillips, Dr. H. H. Markham, and Dr. W. Seymour. Medical Registrars: Dr. H. Glen Davison and Miss H. Gurney. Surgical Registrars: Mr. J. W. Heslop, Mr. J. C. Stewart, Mr. R. J. Willan, Mr Hamilton Drummond, and Mr. F. C. Pybus.

There are other institutions at which the student of medicine of the University of Durham can receive clinical instruction. Practical Midwifery can be studied at the Newcastle Lying-in Hospital. Instruction is given in Psychological Medicine at the Northumberland County Asylum, Morpeth. A special course of instruction is given in the City Hospital for Infectious Diseases by the Superintendent, the City Officer of Health, Dr. H. E. Armstrong.

NORTHUMBERLAND, DURHAM, AND NEWCASTLE INFIRMARY FOR DISEASES OF THE EYE, St. Mary's-place, Newcastle-on-Tyne.—Consulting Surgeon: Mr. F. Page. Staff Surgeons: Mr. A. S. Percival and Mr. H. P. Bennett. Assistant Surgeons: Mr. J. B. Hartley and Mr. Stanley Robson. Honorary Anæsthetists: Mr. O. W. Ogden and Mr. T. H. Livingstone. House Surgeon: Mr. R. B. Reid, Matron: Miss C. Crump. Secretary: Mr. Richard Smith, 61, Westgate-road, Newcastle-on-Tyne. Out-patients for 1909, 7570; in-patients, 340.

UNIVERSITY OF BIRMINGHAM.

The University of Birmingham grants the degrees of M.B., Ch.B., M.D., Ch.M., and also a degree and a diploma in Public Health. The course for the Bachelors' degrees extends over five years from the date of registration with the General Medical Council. As a rule the first four of these years must be spent in the University, but the Senate has power of recognising attendance at another University as part of the attendance qualifying for these degrees and of recognising examinations passed at such other Universities as exempting from the examinations in Chemistry, Physics, and Elementary Biology. In the case of such students at least three years must be spent in attendance upon classes at the University. The fifth year may be spent at any other school or schools of medicine recognised by the University. The students of the Medical Faculty can be members of the University Club, the University Athletic Club, and the University Officers' Training Corps, while they possess a guild—the Guild of Undergraduates—which is designed to be a recognised medium of communication between the teachers and the taught. The University Medical Society and the Dental Students' Society also offer opportunities of coöperation for mutual benefit.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—The student must have passed either the Matriculation Examination of the University or one of the following examinations. For the present the University will recognise any one of the following examinations, in lieu of its own Matriculation, in the case of medical students, provided always that such examination shall have included the subjects of English, Latin, Mathematics, and any one of the following: Greek, French, German, or any other modern foreign language, together with Chemistry or Experimental Mechanics, or some other branch of Experimental Physics, and that all the subjects have been passed at one examination: (*a*) the previous examination of the University of Cambridge; (*b*) Responsions of the University of Oxford; (*c*) the Preliminary or Matriculation Examination of a recognised University; (*d*) the (Higher) Certificate of the Oxford and Cambridge Examinations Board; (*e*) the Oxford or Cambridge Senior Local Examination. A Matriculation Examination will commence on Sept. 12th, 1910. First Examination.—Chemistry and Physics and Elementary Biology. Second Examination.—Anatomy and Physiology. Third Examination.—Pathology and Bacteriology. Materia Medica and Practical Pharmacy. Fourth Examination (at the end of the fourth year).—Forensic Medicine, Toxicology, Public Health, and Therapeutics. Two years' hospital work must have been accomplished. Final Examination.—Medicine, Surgery, Midwifery, Diseases of Women, Mental Diseases, and Ophthalmology. Attendance at a general hospital for a year after the passing of the fourth examination will be required, also attendance at a fever hospital and lunatic asylum. Vaccination instruction must be taken out and courses of Ophthalmology, Medical and Surgical Anatomy, and Operative Surgery.

Degrees of Doctor of Medicine and Master of Surgery.—At the end of one year from the date of having passed

he final M.B., Ch.B. examination the candidate will be ligible to present himself for the higher degrees of either)octor of Medicine or Master of Surgery or both.

Candidates for either of these degrees will be required to omply with the following regulations. Every candidate or the degree of M.D. shall present a thesis embodying)bservations in some subject embraced in one of the depart-nents of the medical curriculum enumerated below, and in ddition he will be required to pass a general examination n Principles and Practice of Medicine. It will be in the)ower of the Board of Examiners to exempt a candidate vhose thesis is of exceptional merit from any part of these ·xaminations.

A thesis may be presented in any of the following lepartments of study: (*a*) Anatomy, including Comparative Anatomy, (*b*) Physiology, (*c*) Human or Comparative 'athology, (*d*) Bacteriology, (*e*) Pharmacology, (*f*) Thera-)eutics, (*g*) Medicine, (*h*) Mental Diseases, (*i*) Preventive Medicine or Public Health, (*j*) Toxicology, (*k*) Legal Medicine, (*l*) Midwifery.

Candidates for the degree of Ch.M. are required to comply with the following regulations:—At the end of one year from the date of having passed the final M.B., Ch.B. Examination candidates will be eligible to present themselves for the higher degree of Master of Surgery. Candidates for this degree will be required to comply with the following regulations: 1. Every candidate shall present a thesis, embodying observations in some subject embraced in one of the departments of the medical curriculum enumerated below; in addition the candidates will be required to pass a general examination in Principles and Practice of Surgery and to perform operations on the cadaver. 2. It will be in the power of the board of examiners to exempt a candidate whose thesis is of exceptional merit from any part of these examinations. 3. The candidate may be examined in that department of the medical curriculum from which the subject of his thesis is chosen and the examiners may require to see the notes of original observations on which the thesis is based, (*a*) Surgery, (*b*) Pathology, (*c*) Bacteriology, (*d*) Gynæcology. (*e*) Ophthalmology.

Degree in Public Health.—For the regulations for this degree and for the diploma in the same subject see p. 681.

Fees.—Matriculation, £2; First Examination, £2; Second Examination, £2; Third Examination, £2; Fourth Examination. £2; Final Examination, £8; M.D. or Ch M., £10.

Professors—Physics: J. H. Poynting. Sc.D., F.R.S. Chemistry: P. H. Frankland, Ph.D., F.R.S. Elementary Biology: F. W. Gamble, D.Sc, F.R.S. Medicine: R. Saundby, M.D., and A. H. Carter, M.D. Surgery: G. Barling, F.R.C.S., and Jordan Lloyd, F.R.C.S. Anatomy: Peter Thompson, M.D. Physiology: E. W. Wace Carlier, M.D. Therapeutics: Sir R. M. Simon, M.D. Forensic Medicine: J. T. J. Morrison, F.R.C.S. Hygiene and Public Health: A. Bostock Hill, M.D. Midwifery: E. Malins, M.D. Diseases of Women: Thomas Wilson. Ch.M., M.D., F.R.C.S. Pathology: R. F. C. Leith, F.R.C.P. Edin. Lunacy and Mental Disease: E. B. Whitcombe, M.B. Ophthalmology: Priestley Smith. F.R.C.S. Operative Surgery: George Heaton. F.R.C.S., M.A.

At the University of Birmingham the following Scholarships are awarded:—(*a*) Myers Travelling Studentship of £150 tenable for one year, awarded by vote of committee to M.B., Ch.B Birm., B.Sc. candidates, tenable at one of certain German universities; (*b*) Ingleby Scholarship of £10, tenable for one year, awarded to the candidate at Final Examination obtaining highest "first-class" marks in the subjects of Midwifery and Disease of Women; (*c*) Sydenham Scholarship of £42 tenable for three years award of Council to orphan sons of medical practitioners; (*d*) Sands Cox Scholarship of £42, tenable for three years, awarded to the candidate, not being more than 19 years of age, taking the highest marks at the July Matriculation; (*e*) Dental Scholarship of £37 10*s*., Open Competitive Examination in subjects learned during apprenticeship; (*f*) (*g*) (*h*) and (*i*) Four Queen's Scholarships of £10 10*s*. each awarded to candidates taking highest "first-class" marks at Second, Third, Fourth, and Final M.B. Examinations; (*j*) George Henry Marshall Scholarship of £10, awarded annually, for the encouragement of Research Work in Ophthalmology; and (*k*) Russell Memorial Prize a prize of books, value about £2, awarded annually to the student who, not being of more than six years' standing as a student of the School of Medicine of the University shall pass the best examination in the subject of Nervous Diseases.

Clinical Instruction.—The medical students of the University receive their clinical instruction by attending the amalgamated practice of the General Hospital and the Queen's Hospital, details of which follow.

The clinical instruction of the Birmingham medical students is carried on under the direction of the Birmingham Clinical Board. The hospitals present an excellent field for clinical work, possessing more than 500 beds, treating annually 8000 in-patients and 100,000 out-patients. The students spend part of their curriculum in each hospital, and thus have every opportunity of acquiring a varied, full, and practical knowledge of their professional work. The curriculum is adapted in the first place to meet the needs of the students of the University of Birmingham, but it is also well adapted to the requirements of students preparing for the examinations of all other universities and licensing bodies. At the General Hospital there are open to the students the following appointments: A resident medical officer, elected annually (£100); a resident surgical officer, elected annually and eligible for re-election for three years (£100); a resident pathologist, elected for six months (£50); three surgical casualty officers, elected annually and eligible for re-election (£50); three house physicians and four house surgeons hold office for six months, receiving board, residence, and salaries at the rate of £50 a year; one house surgeon to the gynæcological, ophthalmic, and aural departments is elected every six months, receiving board, residence, and a salary of £50 a year; two assistant house surgeons are elected every three months, receiving board, residence, and salaries at the rate of £40 a year; a resident medical officer at the Jaffray Hospital, who is elected annually but is eligible for re-election, and who receives £150 a year; and a resident medical assistant at this hospital, who is not necessarily qualified, is provided with board and residence, and holds office for three months. At the Queen's Hospital there are open to the student the following appointments: Three house physicians, three house surgeons, and one obstetric and ophthalmic house surgeon, who hold office for six months and have salaries at the rate of £50 a year. Thirty-eight other appointments of varying value are at the City Workhouse and Workhouse Infirmary, at the Birmingham General and Branch Dispensaries, at the Birmingham Lunatic Asylums, at the City Fever Hospitals, at the Children's Hospital, at the Birmingham and Midland Eye Hospital, at the Orthopædic and Spinal Hospital, at the Maternity Hospital, and at the Ear and Throat Hospital.

THE BIRMINGHAM GENERAL HOSPITAL.—The General Hospital contains 349 beds, and of these 327 are in daily use, upwards of 5000 in-patients passing through the wards yearly. There are special wards for children, for gynæcological septic and infectious cases, and special beds are reserved for eye, ear and skin cases. Some 60,000 out-patients are treated there annually. The post-mortem department is in a separate building. It consists of a mortuary with a small chapel, a post-mortem room proper, and laboratories for bacteriology and morbid histology. In addition there are separate rooms in the main building, adjoining the various medical and surgical wards, for clinical pathology and these are under the direction of special officers. There are four operating theatres, all designed and fitted on the most modern lines. In connexion with the hospital is the Jaffray Suburban Hospital of 52 beds at Gravelly Hill. The arrangements for clinical teaching at this hospital are very thorough. In addition to the clinical teaching given in the wards and out-patient department by the honorary staff medical and surgical tutorial classes are held for senior and junior students, while clinical instruction is given in all the special departments by the gentlemen in charge of them.

Staff of General Hospital.—Consulting Physician: Right Hon. Lord Ilkeston of Ilkeston. Consulting Obstetric Officer: Dr Edward Malins. Physicians: Dr. Robert Saundby, Sir Robert M. Simon, Dr. T. Stacey Wilson, and Dr. T. Sydney Short. Surgeons: Sir Thomas F. Chavasse, Mr. Gilbert Barling, Mr. William F. Haslam, and Mr. George Heaton. Obstetric Physician: Dr. Thomas Wilson. Ophthalmic Surgeon: Dr. D. C. Lloyd-Owen. Aural Surgeon and Laryngologist: Dr F. W. Foxcroft. Physician in Charge of Skin Department: Dr. A. Douglas Heath. Assistant Physicians: Dr. James W. Russell and Dr. A. Stanley Barnes. Dr. William H. Wynn and Dr. J. E. H. Sawyer Assistant Surgeons: Mr. Albert Lucas, Mr. Leonard P. Gamgee, Mr. Frank Barnes, and Mr. Seymour Barling. Assistant Obstetric Officer: Mr. H. B. Whitehouse. Visiting Pathologist: Dr. J. C. Sholto Douglas. Anæsthetists: Dr. Sydney

Haynes, Dr. W. J. McCardie, and Mr. R. H. R. Whitaker. Surgical Photographers and Radiographers: Mr. J. Hall Edwards and Mr. F. Emrys-Jones. Dental Surgeon: Mr. A. T. Hilder.

THE QUEEN'S HOSPITAL.—Similar arrangements for clinical teaching are made here, and the material also is excellent. Ward and tutorial classes are regularly conducted by the staff, there are daily clinics in the out-patient department, while teaching duties are definitely assigned to the house physicians and house surgeons. There are also special departments for gynæcology and ophthalmology.

Staff of Queen's Hospital.—Consulting Physicians: Sir James Sawyer, Dr. C. W. Suckling, and Dr. A. H. Carter. Consulting Surgeons: Mr. Furneaux Jordan, Mr. Frank Marsh, and Mr. Bennett May. Consulting Ophthalmic Surgeon: Mr. Priestley Smith. Physicians: Dr. O. J. Kauffmann, Dr. J. Douglas Stanley, and Dr. J. G. Emanuel. Surgeons: Mr. Jordan Lloyd, Mr. J. T. J. Morrison, and Mr. C. A. Leedham-Green. Ophthalmic Surgeon: Mr. Wilfrid Allport. Obstetric Physician: Dr. C. E. Purslow. Physician for Out-patients: Dr. L. G. J. Mackey. Surgeons for Out-patients: Mr. W. Billington, Mr. A. W. Nuthall, and Mr. B. J. Ward. Pathologist: Dr. L. G. Parsons. Radiographer: Mr. F. Emerys-Jones.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street, Birmingham.—Honorary Consulting Physician: Dr. R. Saundby. Honorary Consulting Surgeon: Mr. D. C. Lloyd-Owen. Surgeons: Mr. H. Eales, Mr. E. W. Wood-White, and Mr. J. Jameson Evans. Dental Surgeon: W. Madin, B.D.S. Anæsthetist: Dr. S. W. Haynes. Radiographers: Mr. Hall Edwards and Mr. Emrys-Jones. This hospital possesses 110 beds, and there is an average daily attendance of out-patients of 246. This institution is recognised by Universities and the Royal College of Surgeons, England, and Royal College of Physicians, London, as an ophthalmic hospital at which clinical instruction in ophthalmology may be received. Students attending for a period of three months will be granted certificates which will qualify for the University and Conjoint Board examinations.

UNIVERSITY OF LIVERPOOL.

The student must pass either (1) the University Matriculation Examination, or (2) the Final Examination for Graduation in Arts of any university in Great Britain and Ireland, or (3) the Matriculation Examination of the University of London, or (4) the Higher Certificate Examination of Oxford and Cambridge Joint Board, or (5) the Senior Local Examination of Oxford or Cambridge, or (6) some other examination of equal standard accepted by the Joint Matriculation Board. The course of professional study, subsequent to passing the Matriculation Examination and having been registered as a medical student, extends over five years. The degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates for the degrees of Bachelor of Medicine and of Surgery must have attained the age of 21 years on the day of graduation. At least two of the five years of medical study must have been passed in the University, and one year at least must have been passed in the University subsequently to the date of passing the First Examination. The other three years may be passed at any college or medical school recognised for this purpose by the University. Candidates must pass three examinations entitled respectively: the First Examination, the Second Examination, and the Final Examination. The fee is £5 for each examination. The subjects of the First Examination are: (1) Chemistry, Inorganic and Organic; (2) Biology (Zoology and Botany); and (3) Physics. The examination is divided into two parts—namely, (1) Chemistry and Physics, and (2) Biology; and candidates may pass in these parts separately. The subjects of the Second Examination are (*a*) Anatomy and Physiology (including Physiological Chemistry and Histology), and (*b*) Materia Medica, Pharmacy, and Pharmacology. Candidates may pass in *a* or *b* separately. The subjects for the Final Examination are: (1) General Pathology and Morbid Anatomy; (2) Therapeutics; (3) Forensic Medicine and Toxicology, and Public Health; (4) Obstetrics and Diseases of Women; (5) Surgery, Systematic, Clinical, and Practical; and (6) Medicine, Systematic and Clinical, including Mental Diseases and Diseases of Children. The Final Examination is divided into three parts, the first consisting of subject (1), the second of subjects (2) and (3) the third of subjects (4), (5), and (6). Candidates may pa in these parts separately. Candidates for the third pa must have completed the fifth year of medical study.

Degrees of Doctor of Medicine and Master of Surgery.—No candidate will be admitted to the degrees of Doctor Medicine or Master of Surgery unless he has previous received the Degrees of Bachelor of Medicine and Bachel of Surgery, and at least one year has elapsed since he pass the examinations for those degrees. Candidates for t degree of Doctor of Medicine are required to present dissertation embodying the results of personal observatio or original research, either in some department of medici or of some science directly relative to medicine: provid always that original work published in scientific journa or separately shall be admissible in lieu of, or in addition t a dissertation specially written for the degree. No cand date shall be admitted to the degree unless his applic tion after report from the Faculty of Medicine shall ha been accepted by the Senate. Candidates may be require to undergo examination in any subject connected with t dissertation. The subjects of examination for the degree Master of Surgery are: (1) Surgical Anatomy, (2) Surger (3) Operative Surgery, (4) Clinical Surgery, (5) Ophthalm logy, and (6) Pathology and Bacteriology.

Professors—Physiology: C. S. Sherrington, M.D., F.R.S Physics: L. R. Wilberforce, M.A. Chemistry: J. Bal F.R.S. Natural History: W. A. Herdman, D.Sc., F.R.S Botany: R. J. H. Gibson, M.A. Anatomy: A. Melvill Paterson, M.D. Medicine: T. Robinson Glynn, M.D. Su gery: Rushton Parker, F.R.C.S. Pathology: Sir Rube Boyce, M.B., F.R.S. Midwifery and Gynæcology: H Briggs, M.D. Therapeutics: J. H. Abram, M.D. Hygiene E. W. Hope, D.Sc. Forensic Medicine: R. J. M. Buchanan M.D. Tropical Medicine: Major Ronald Ross, C.B., F.R.S Bio-Chemistry: B. Moore, D.Sc. Comparative Pathology H. E. Annett, M.D.

At this University the following Scholarships and Fellow ships are awarded:—(*a*) and (*b*), Robert Gee Entrance Scholar ships, two annually, of £25 each, tenable for two years Joint Matriculation Board Examination held in July, ope to First M.B. Course Students; (*c*) Lyon Jones Scholarship No. 1, of £21 per annum, tenable for two years, Competi tive Examination among Junior Students in First M.B. Sub jects, Perpetual Course at the University; (*d*) Lyon Jone Scholarship, No. 2, of £21, Competitive Examination among Senior Students in Anatomy, Physiology, and Pharmacology (*e*) Derby Exhibition of £15, Competitive Examination among Fourth- or Fifth-year Students in Clinical Subjects, and Clinical School Exhibition of £15 annually for Fifth-yea students; (*f*) University Scholarship of £25 for one year awarded on results of Second Examination for the degrees; (*g* Holt Fellowships, Physiology and Pathology, of £100 each, fo one year; this and the following six Fellowships are awarde by vote of Faculty to Student after graduation, for Teaching and Original Research; (*h*) Gee Fellowship, Anatomy, of £100, for one year, for Teaching and Research; (*i*) Alexande Fellowship, Pathology, of £100, for one year, for Researcl in Pathology, as are also the following four Fellowships; (*j*) Johnston Colonial Fellowship, Pathology and Bacteriology, of £100, for one year; (*k*) John W. Garrett International Fellowship, Physiology and Pathology, of £100, for one year; (*l*) Thelwall Thomas Fellowship, Surgical Pathology, of £100, for one year; (*m*) Ethel Boyce Fellowship in Gynæcological Pathology, of £100, for one year; the last two are awarded by vote of Faculty to graduate, and are for Research.

Medical School Buildings.—Spacious and well-equipped class-rooms and laboratories have been erected for the practical study of all the important scientific subjects which form the basis of medicine. Medical research has also been endowed with several new laboratories in which students can pursue research work after graduation. All the laboratories and class-rooms are situated close together, communicating with one another, and are made up of four large blocks of buildings which form one side of the College quadrangle. The most recent additions are the Johnston Laboratories for Experimental Medicine, Bio-Chemistry, and Comparative Pathology, and the new building for Anatomy, Surgery, Toxicology, Ophthalmology, and Dental subjects. The departments of Physiology and Pathology are accommodated in the large block provided by the generosity of the late Rev. S. A. Thompson Yates in 1898. The

Anatomical department is situated in a separate block and has a complete suite of rooms, including a large and well-stocked museum and a well-lighted dissecting room on the upper floor measuring 70 by 40 feet.

Fellowships and Scholarships.—Fellowships, scholarships, and prizes of over £1000 are awarded annually. A Holt Fellowship in Pathology and Surgery of the value of £100 for one year is awarded annually by the Medical Faculty to a senior student possessing a medical qualification. The successful candidate is required to devote a year to tutorial work and investigation in the Pathological department. A Holt Fellowship in Physiology, awarded under similar conditions of the value of £100 for one year. A Robert Gee Fellowship in Anatomy, awarded under similar conditions, also of the value of £100 for one year. An Alexander Fellowship for Research in Pathology of the annual value of £100, renewable. A Johnston Colonial Fellowship in Pathology and Bacteriology (£100 a year, renewable). A John W. Garrett International Fellowship in Physiology and Pathology (£100 a year, renewable). An Ethel Boyce Fellowship in Gynæcological Pathology (£100 a year, renewable). A Thelwall Thomas Fellowship (£100 a year, renewable) in Surgical Pathology. Two Lyon Jones Scholarships of the value of £21 each for two years are awarded annually—a Junior Scholarship, open at the end of the first year of study to Liverpool University students, on the subjects of the First M.B. Examinations, and a Senior Scholarship, open to all students in the school at the end of the second or third year of study, on the subjects of Anatomy, Physiology, and Therapeutics. A University Scholarship of £25 awarded on the results of the second examination for the degree. The Derby Exhibition of £15 for one year is awarded in Clinical Medicine and Surgery in alternate years. Students may compete in their fourth and fifth years. A Clinical School Exhibition of £15 for one year awarded under similar conditions. The Torr Gold Medal in Anatomy, the George Holt medal in Physiology, the Kanthack Medal in Pathology, the Robert Gee Book Prize, of the value of £5, for Children's Diseases. Two Robert Gee Entrance Scholarships of the value each of £25 per annum for two years are offered annually for competition. The holder is required to take out the Course for the University Degrees in Medicine. Communications should be addressed to the Dean, Mr. K. W. Monsarrat, The University, Liverpool.

Clinical Instruction.—The Clinical School of the University now consists of four general hospitals—the Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, and the Stanley Hospital; and of five special hospitals—the Eye and Ear Infirmary, the Hospital for Women, the Infirmary for Children, St. Paul's Eye and Ear Hospital, and St. George's Hospital for Skin Diseases. These hospitals contain in all a total of 1127 beds. The organisation of these hospitals to form one teaching institution provides the medical student and the medical practitioner with a field for clinical education and study which is unrivalled in extent in the United Kingdom. All the hospitals are within easy access from the University; those which are situated at any distance are readily reached by the tramway service of the city. The period of hospital practice extends over the last three years of medical study. During the first two years of this period no student will be permitted to change his attendance from one general hospital to another except at the commencement of an academic term. It is a regulation of the school that not more than five of the six terms of these two years shall be spent at any single general hospital. During the final year of hospital practice a student is permitted to attend the practice of all the general hospitals without restriction. The regulations demand only that his attendance shall be regular and to the satisfaction of the Hospitals' Board. There are a large number of appointments as house physicianships and surgeonships both at the general and special hospitals which are open to qualified students of the school. These appointments (20) in most cases carry salaries ranging from £60 to £100 per annum. Applications for further information regarding the Medical Curriculum should be addressed to the Dean of the Faculty of Medicine.

School of Veterinary Medicine.—A school of Veterinary Medicine in connexion with the University was opened in October, 1904; full courses of instruction for the Veterinary Curriculum will be provided and students will be prepared for the M.R.C.V.S. A diploma in Veterinary Hygiene is now granted by the University.

Public Health Department.—This is located in a separate building known as Ashton Hall, in which full courses of instruction are given to D.P.H. students for the D.P.H. of the University and the diplomas of other Examining Boards (see p. 681).

Special Diplomas.—The University has instituted diplomas in Anatomy, Bacteriology, Bio-chemistry, and Parasitology. A special course of study of three terms' duration is required in the subject chosen for the diploma and allied subjects.

School of Pharmacy.—Complete courses of instruction are provided adapted to the requirements of candidates preparing for either the Minor or Major Examinations of the Pharmaceutical Society of Great Britain.

Prospectuses and further information may be had on application to the Dean of the Faculty of Medicine, University of Liverpool.

Royal Infirmary Staff.—Consulting Physicians: Dr. A. T. H. Waters, Dr. T. R. Glynn, and Dr. R. Caton. Physicians: Sir James Barr, M.D., Dr. T. R. Bradshaw, and Dr. J. H. Abram. Assistant Physicians: Dr. R. J. M. Buchanan and Dr. John Hay. Consulting Surgeon: Mr. R. Parker. Surgeons: Mr. F. T. Paul, Mr. R. A. Bickersteth, and Mr. W. T. Thomas. Assistant Surgeons: Mr. T. C. Littler-Jones and Mr. R. E. Kelly. Gynæcological Surgeon: Mr. T. B. Grimsdale. Assistant Gynæcological Surgeon: Mr. W. B. Bell. Ophthalmic Surgeon: Mr. T. H. Bickerton. Surgeon to the Throat Department: Mr. J. M. Hunt. Physician to the Skin Department: Dr. L. Roberts. Dental Surgeon: Mr. E. J. M. Phillips. Pathologists: Sir R. W. Boyce and Dr. E. Glynn. Anæsthetists: Mr. W. Fingland, Mr. F. W. Bailey, Mr. H. Armstrong, and Mr. A. J. O'Leary.

David Lewis Northern Hospital Staff.—Physicians: Dr. T. Bushby and Dr. W. B. Warrington. Consulting Surgeons: Mr. W. M. Campbell and Mr. C. Puzey. Surgeons: Mr. D. Harrisson, Mr. R. W. Murray, and Mr. K. W. Monsarrat. Ophthalmic Surgeon: Mr. A. N. Walker. Surgeon to the Orthopædic Department: Mr. E. Broad. Dental Surgeon: Mr. W. Matthews. Pathologists: Dr. H. L. Murray and Dr. J. Owen. Bacteriologist: Dr. C. A. Hill. Anæsthetists: Mr. R. Stevenson and Dr. A. C. Edwards. Medical Tutor: Dr. P. Hick. Surgical Tutor: Mr. T. St. J. Barry.

Royal Southern Hospital Staff.—Consulting Physicians: Dr. W. Williams and Dr. William Carter. Consulting Surgeon: Mr. R. Hamilton. Physicians: Dr. J. W. Macalister, Dr. J. L. Roberts, and Professor Ronald Ross. Surgeons: Mr. R. Jones, Mr. G. P. Newbolt, and Mr. Douglas Crawford. Physician to the Skin Department: Dr. F. H. Barendt. Consulting Ophthalmic Surgeon: Mr. R. Hamilton. Consulting Aural Surgeon: Mr. G. C. Lee. Honorary Medical Officer for Tropical Diseases: Professor R. Ross. Consulting Surgeon to the Throat Department: Dr. W. Permewan. Radiologist: Dr. D. Morgan. Dental Surgeon: Mr. J. Royston. Anæsthetists: Dr. D. M. Alexander, Dr. F. M. Gardner-Medwin, and Dr. S. A. Smith.

Stanley Hospital Staff.—Consulting Physicians: Dr. R. J. Richardson and Dr. W. Whitford. Consulting Surgeons: Mr. J. Bark and Mr. K. A. Grossmann. Physicians: Dr. A. G. Gullan and Dr. J. Owen. Surgeons: Mr. F. C. Larkin and Mr. A. J. Evans. Ophthalmic Physician: Dr. J. Grimshaw. Laryngologist: Mr. J. E. McDougall. Dentist: Mr. J. P. Roberts.

School of Tropical Medicine.—The school is affiliated with the University of Liverpool and the Royal Southern Hospital of Liverpool. Three courses of instruction are given every year. Two of these last for three full months and are called respectively the Lent Course, from Jan. 6th to April 5th; and the Autumn Course, from Sept. 15th to Dec. 13th. The Third Course, called the Short Course, lasts one month, from June 1st to the 30th. The full course consists (1) of a systematic series of lectures on Tropical Medicine and Sanitation delivered by the Professor of Tropical Medicine at the University; (2) of additional lectures on Special African Diseases, and Special Indian Diseases, delivered at the University; (3) of systematic lectures and demonstrations on Tropical Pathology and Parasitology by the Walter Myers Lecturer at the University; (4) of similar instruction on Medical Entomology by the Lecturer on Economic Entomology at the University; (5) of Practical Work on the Bacteriology of Typhoid, Dysentery, Cholera, Plague, and Malta Fever by the Assistant Lecturer on Tropical Bacteriology; and (6) of clinical lectures and demonstrations delivered at the

Royal Southern Hospital by the Physician in charge of the Tropical Ward, the Professor, and the Walter Myers Lecturer. The instruction given occupies six hours a day for five days a week during the course. Teaching under headings 3, 4, and 5 above is delivered in the laboratory of the school at the University, which contains accommodation for 30 students, with all necessary appurtenances, including a well equipped museum, a class library, and access to the general departmental library. Teaching under heading 6 is given in the tropical ward and the attached clinical laboratories of the Royal Southern Hospital on two or three afternoons a week. At the end of each course an examination is held by the University for its diploma of Tropical Medicine (D T.M.), which is open only to those who have been through the course of instruction of the school. The examination lasts three days and consists (1) of three papers on Tropical Medicine, Tropical Pathology, and Tropical Sanitation and Entomology respectively; (2) of a clinical examination; and (3) of an oral examination. The results are declared as soon as possible afterwards. Those who do not wish to undertake the examination are given a certificate of attendance if their attendance has been satisfactory. The Short Course consists entirely of Practical and Clinical Laboratory Work, given at the laboratory at the University and at the Royal Southern Hospital. The fee for the full course of instruction is 13 guineas, with an extra charge of 10*s.* 6*d.* for the use of a microscope if required. The fee for the examination is 5 guineas. Applications should be made to the Dean of the Medical Faculty, University of Liverpool, from whom prospectuses may be obtained. Two University Fellowships of £100 a year each are open to students of the school, amongst others. Accommodation for research work is to be had both at the University Laboratory of the school and at its Research Laboratories at Runcorn (16 miles distant from Liverpool). Since it was instituted nine years ago the school has employed 25 different investigators paid out of its funds and has despatched to the tropics 21 scientific expeditions, many of the workers having been taken from among its students. The work done by them has been published in 21 special memoirs with many plates and figures, besides text-books and numerous articles in the scientific press. Since 1906 the memoirs have been succeeded by the "Annals of Tropical Medicine and Parasitology," published by the Committee and open to outside contributors (apply to the Secretary, B 10, Exchange-buildings, Liverpool). The Mary Kingsley Medal is awarded by the school for distinguished work in connexion with Tropical Medicine, and has been given to Sir David Bruce, Professor Koch, Dr. Laveran, and Sir Patrick Manson.

THE VICTORIA UNIVERSITY OF MANCHESTER.

Four degrees in Medicine and Surgery are conferred by the University—viz., Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

All candidates for degrees in Medicine and Surgery are required to pass an examination called the Matriculation Examination (Faculty of Medicine), or to have passed such other examination as may be recognised by the University for this purpose.[1]

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Before admission to the degree of M.B. or Ch.B. candidates are required to present certificates that they will have attained the age of 21 years on the day of graduation and that they have pursued the courses of study required by the University Regulations during a period of not less than five years subsequently to the date of their registration by the General Medical Council, two of such years having been passed in the University and one year at least having been passed in the University subsequently to the date of passing the First M.B. Examination. All candidates for the degrees of Bachelor of Medicine and Bachelor of Surgery are required to satisfy the examiners in the several subjects of the following examinations: the First Examination, the Second Examination, the Third Examination, and the Final Examination.

[1] 1. The Board will grant exemption from the Matriculation Examination to graduates of any university of the United Kingdom, provided Latin has formed part of one of the degree examinations. 2. For particulars of the conditions under which holders of Certificates from the Universities of Oxford, Cambridge, and London are entitled to exemption, the Calendar of the Joint Matriculation Board should be consulted. The fee for registering external Certificates when exemption is granted is £1.

The First Examination.—The subjects of examination are as follows:—(1) Inorganic Chemistry and Physics (2) Biology; and (3) Elementary Organic Chemistry Bio-Chemistry. Candidates must have attended during least one year courses both of lectures and of laboratory work in each of the above-named subjects. The Examination is divided into three parts: Part 1, Inorganic Chemistry and Physics; Part 2, Biology; Part 3, Elementary Organic Chemistry and Bio-Chemistry; and the candidates may pass in these parts separately under certain conditions.

The Second Examination.—The subjects of examination are as follows:—(1) Anatomy; (2) Physiology, including Physiological Chemistry and Histology. Candidates may pass in (1) and (2) separately under certain conditions.

The Third Examination.—(1) Pathology; (2) Pharmacology and Therapeutics; (3) Hygiene. These subjects may be taken separately under certain conditions.

The Final Examination.—The subjects of examination are as follows:—(1) Medicine, Systematic and Clinical (including Mental Diseases and Diseases of Children); (2) Surgery, Systematic, Clinical, and Practical; (3) Obstetrics and Gynæcology (including Clinical and Practical); (4) Forensic Medicine (including Toxicology). These subjects may be taken separately under certain conditions.

Candidates for the Final Examination must have completed the fifth year of medical study.

Degree of Doctor of Medicine.—Candidates are not eligible for the degree of Doctor of Medicine unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. Candidates may elect either (1) to present an original dissertation; or (2) to undergo an examination. The dissertation must embody the results of personal observation or original research, either in some department of medicine or of some science directly relative to medicine. The examination, which will be partly written, partly practical, is in the Principles and Practice of Medicine, in Pathology, and in some other subject to be selected by the candidate.

Degree of Master of Surgery.—Candidates are not eligible for the degree of Master of Surgery unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. The subjects of examination are as follows: (1) Surgical Anatomy; (2) Surgery; (3) Operative Surgery; (4) Clinical Surgery; (5) Ophthalmology; and (6) Pathology and Bacteriology.

Professors—Physics: E. Rutherford, D.Sc., F.R. Chemistry: H. B. Dixon, M.A., F.R.S. Organic Chemistry: W. H. Perkin, D.Sc., F.R.S. Zoology: S. J. Hickson, D.Sc., F.R.S. Botany: F. E. Weiss, D.Sc. Physiology: W. Stirling, D.Sc. Anatomy: Grafton Elliot Smith, M.A., M.D., F.R.S. Materia Medica: R. Wild, M.D. Comparative Public Health and Bacteriology: A. S. Delépine, M.B., C.M., M.Sc. Pathology: J. Lorrain Smith, M.D. Clinical Medicine: Graham Steell, M.D. Systematic Medicine: George R. Murray, M.A., M.D. Systematic Surgery: G. A. Wright, M.B., F.R.C.S. Clinical Surgery: William Thorburn, B.Sc., M.D., B.S., F.R.C.S. Obstetrics and Gynæcology: Sir W. J. Sinclair, M.D. Forensic Medicine: J. Dixon Mann, M.D.

Communications should be addressed to the Registrar, The University, Manchester.

Scholarships, Fellowships, and Prizes.—At this University there are 22 Foundation Scholarships, 12 Exhibitions, five being for subjects connected with medical study, a Surgical Prize, a Fellowship, Research Fellowships in Public Health, and Honorary Research Fellowships. 13 Scholarships are Entrance Scholarships, three are Medical, and there are one each for Surgery, Biology, Physiology, and Diseases of Children, and one General Medical and Surgical. Three of the Exhibitions are for Physiology, one for Anatomy, and one for French and German. The Surgical Prize, named "The Dumville," awarded for the subjects of Systematic, Practical, and Operative Surgery, Surgical Anatomy, and Surgical Pathology, £15. The Leech Fellowship (£100) is for the encouragement of study and research, and is open to persons who have graduated M.B., Ch.B. in the University. The Honorary Research Fellowships, tenable for two years, conferring the right of free use of the laboratories, are awarded generally in October on application, with evidence of capacity for independent investigation.

The following entrance scholarships are offered for

ward to persons of either sex proposing to enter a edical course of study at the University:—Seaton—ne of £40, tenable for two years. Subjects: Greek and atin Translation at sight, and Prose Composition. Credit ven for knowledge of Mathematics (Geometry and Algebra); ements of English Language, Literature, and History; ench and German. Rogers.—One of £40, tenable for two ars. Subjects as in Seaton. Dalton.—Two of £40, tenable r two years. Subjects: Geometry (Euclid I.—IV., and VI., the subjects thereof); Algebra (as far as the Binomial heorem, inclusive), Plane Trigonometry (to Solution of iangles); Elementary Analytical Geometry; Conic ctions. Credit given for knowledge of Classics, Elements English Language, Literature, and History; French and erman. Cartwright.—£35 per annum, tenable for three ars. Subjects as in Dalton. Dreschfeld Memorial—30, tenable for one year. Subjects: those of July atriculation Examination. Hulme.—£35, tenable for three ars. Subjects: English Language (Grammatical Structure d Outlines of its History); English Literature (an essay some subject of English literature); and Modern History utlines of English History and Geography); with at least o of the following: Latin (Translation at sight, Grammar, d Easy Composition); Greek (ditto); French (ditto); erman (ditto). Credit given for knowledge of Mathe-atics (Geometry and Algebra). Dora Muir.—£25 per num, tenable for three years (open to women only). Can-dates may select such of the subjects as they desire from nongst those set for the other Entrance Scholarships. mes Gaskill.—£35, tenable for two years. Subjects: athematics, Geometry (the substance of Euclid I.—IV. and I.), Algebra (as far as the Binomial Theorem, inclusive), ane Trigonometry (to Solution of Triangles), Elementary echanics, Chemistry. Credit given for knowledge of assics, Elements of English Language, Literature, and istory, and French and German. Manchester Grammar hool.—£25 per annum, tenable for three years. The exa-inations for all these scholarships are held in the month of ay. Kay-Shuttleworth (Sir James Phillips).—£30 per num, tenable for three years. Subjects: Mathematics, ementary Mechanics, Chemistry. Entrance Scholarships Medicine.—One or more Scholarships in each year will be fered for proficiency in Arts or Science. The Scholarships e of the value of £100 each, which will be set off ainst fees as follows: £60 against the University fees d £40 against the Infirmary fees.

The Platt Biological Scholarship of £50 for one year is arded to the candidate who shows the most promise of ability r prosecuting original research in Zoology and Botany, d the holder is to devote his time to research in Zoology or tany. The Robert Platt Physiological Scholarship of 50 for two years, with the subjects of Physiology and Com-rative Anatomy, is open to candidates whether or not eviously students of the University. There are two untesey Medical Scholarships of £35 each for one year, ith the subjects of Zoology, Botany, and Chemistry. These holarships are open to all students preparing for a edical course who shall not have attended lectures or boratory courses on Human Anatomy or Physiology, or a rely medical or surgical course in the University or in any her medical school in the United Kingdom. Candidates ust not be more than 25 years of age on Oct. 1st of the year competition. Scholars must immediately on election ter for a full course of medical studies. The subjects the Turner Scholarship of £20, for students who have mpleted a full course of medical study in the Uni-rsity, are: Medicine, Pathology (written and practical), bstetrics, Practical Surgery, Ophthalmology, Forensic edicine, and Public Health. The John Henry Agnew holarship of £30, awarded on the results of an examina-on, partly written and partly clinical, on Diseases of hildren Medical and Surgical, is open for competition nually to all students in the medical department who ve pursued a regular course of medical study in the niver ity extending over a period of not less than four ars or more than six years and have attended the urse of lectures on Diseases of Children. The Ashby emorial Scholarship, value £100, is open to duly qualified edical men and women who intend to pursue research in seases of children

The Professor Tom Jones Memorial Surgical Scholarship of 100 for one year is awarded on the result of evidence bmitted by the candidate who must have either graduated the University or have obtained the Diploma of the Conjoint Colleges. The Graduate Scholarship in Medicine of the value of £25 to £50 for one year is awarded on the results of the Final Examination for M.B., Ch.B. The Theodores Exhibition of £15 for one year has the subjects of French and German, and the successful candidate is required to enter for a regular University course. There are two Robert Platt Exhibitions of £15 each for first and second-year students in physiology, and the Sydney Renshaw Exhibition of £15 is for second-year students in physiology. The Professor Tom Jones Exhibition in Anatomy, value £25, is for first-year students in anatomy. The Dumville Surgical Prize of £15 is awarded after examination in Systematic, Practical and Operative Surgery, Surgical Anatomy, and Surgical Pathology. A gold medal is awarded for distinction on obtaining the degree of M.D.

The Medical School.—This medical school is located in a large building, which forms a part of the University. It is provided with large dissecting-rooms, physiological laboratories, private laboratories, and work-rooms, besides lecture-rooms, a museum, and a library. In order to give the fullest possible opportunities for teaching and investigation in the departments of Anatomy, Physiology, Pathology, and Materia Medica, a large extension of the school buildings was made in 1895. The greater part of the new buildings is devoted to the departments of physiology, pathology, toxicology, anatomy, and public health. The physiological department occupies more than half of the new buildings, and includes a large lecture theatre, accommodating 350 students, with preparation and diagram rooms adjacent to it, and a research laboratory fitted with the necessary apparatus for the use of advanced students, research scholars, or practitioners of medicine undertaking the investigation of some special subject. In the new pathological laboratories ample provision is made for the teaching of pathology and bacteriology and for the prosecution of original research. In the toxicological department there is a large laboratory, capable of accommodating 50 students, lighted from both sides and also from the roof, completely equipped with all that is necessary for the practical teaching of toxicology; also a small laboratory for private research, containing the apparatus and fittings necessary for investigations in toxicological chemistry. In the public health department suitable laboratory accommodation is provided for the study of sanitary chemistry, physics, and practical bacteriology in the departments of chemistry and physics and in that of pathology. A large room is provided in the new buildings for a museum of apparatus, models, plans, and other sanitary appliances for the practical instruction of the students, together with a special library of works on State medicine, hygiene, vital statistics, and sanitary engineering. In addition, a large lecture theatre for general purposes, accommodating 250 students, has been provided, and the existing accommodation for students is supplemented by the provision of a larger common room.

Clinical Studies.—The clinical and practical departments of medical study are taught partly in the Medical School and partly in the Royal Infirmary, as well as in a fever hospital, a lunatic asylum, and a convalescent home. Medical and Surgical Clinical Classes are conducted in the Infirmary, which in the new buildings together with the associated hospitals at Cheadle will contain 1158 beds, and separate instruction is afforded in the elements of Medical and Surgical Physical Diagnosis, in Obstetric Medicine, Ophthalmic Surgery, and Pathological Anatomy by the different members of the staff of the Medical School and Infirmary.

Public Health.—The regulations with regard to the Degrees in Sanitary Science will be found under the special section on p 681.

Clinical Instruction.—THE MANCHESTER ROYAL INFIRMARY.—The New Royal Infirmary has been built on the pavilion system, near the University, between the recently enlarged Eye Hospital and the new St. Mary's Hospital for Women and Children, and has accommodation for 592 beds. Of these 52 are allotted to the Special and Emergency Departments; the 540 remaining beds are allocated as follows: 240 for medical practice and 300 for surgical practice (180 for men and 120 for women and children). The medical side consists of five units each unit having a testing room for the scientific investigation of morbid products and a class-room. The surgical beds are also arranged in five units, each unit having its own operation theatre, with anæsthetising, recovery, sterilising, testing, and apparatus rooms, and its own class-room attached. Of

these units four on each side are already occupied. The fine educational block provides very handsomely for the wants and comforts of the students, there being separate suites of rooms for the men and the women, and also a large common reading room, a lecture theatre, and a museum. The present annual average number of in-patients is 8000, of out- and home-patients 32,000, and the list of casualties in the accident room has averaged 18,000 per annum. About 5000 operations are performed annually in the operation theatres. Associated with the Infirmary are: (1) the Convalescent Hospital at Cheadle, containing 136 beds; (2) the Royal Lunatic Hospital at Cheadle, accommodating with its branches 430 patients; and (3) the Central Branch in Piccadilly for casualty and out-patient work. The Associated Hospitals thus contain 1158 beds and are under the same management. Women students are admitted to the practice of the Infirmary on the same terms as men.

Fees.—Medical Practice: Three months, 5 guineas; six months, 8 guineas; 12 months, 12 guineas; full period required by the Examining Boards, 25 guineas.

In addition to the list of scholarships given under the general heading, "The Victoria University of Manchester," two Entrance Scholarships in Medicine of the value of £100 each are offered annually by the Council of the Manchester University and the Medical Board of the Manchester Royal Infirmary for proficiency in Arts and Science subjects respectively. The Bradley Memorial Scholarship in Clinical Surgery, value £20, is offered annually in the Summer Session. Gentlemen are eligible who are in their fifth or sixth year of study, have completed their dresserships, and have spent two years in clinical work at the Manchester Royal Infirmary. One Medical and one Surgical Clinical Prize of the value of 6 guineas are offered annually. (The other scholarships and prizes are in the College Syllabus.) Annual appointments may be held by those who have attended the practice of the infirmary: a Surgical Registrar (£80); a Pathological Registrar (£100); a Medical Registrar (£70); a Surgical Tutor (£30); a Director and an Assistant Director of the Clinical Laboratory (£200 and £40); an Assistant Medical Officer (£105); Three Assistant Surgical Officers (£35 each); Five Anæsthetists (£50); a Medical Officer for home patients (£150); and a Medical Officer for Radiography and Electricity Department (£100). The following resident appointments are also made annually: Resident Medical Officer (£150); Resident Surgical Officer (£150); Resident Medical Officer at the Convalescent Hospital at Cheadle (£150); two Medical Officers at the Central Branch, £100 each. An Assistant Medical Officer at this hospital is appointed every six months at a salary of £80 per annum. The following unpaid appointments are open to those who have attended the practice of the Infirmary:—House Surgeons: Two Senior and Two Junior House Surgeons are appointed every three months for a term of six months. House Physicians: Ten House Physicians are appointed during each year for a term of six months. Also every six months officers are appointed to the Accident Room, and the Gynæcological, Ear and Throat Departments. The House Surgeons and House Physicians and Resident Assistant at Cheadle must possess registrable qualifications. Consulting Physician: Dr. Henry Simpson. Physicians: Dr. Graham Steell, Dr. Judson S. Bury, Dr. A. T. Wilkinson, Dr. E. S. Reynolds, and Dr. G. R. Murray. Assistant Physicians: Dr. R. T. Williamson, Dr. E. M. Brockbank, and Dr. E. N. Cunliffe. Pathologist: Dr. J. Lorrain Smith. Consulting Surgeons: Mr. Walter Whitehead and Mr. F. A. Southam. Surgeons: Mr. G. A. Wright, Mr. W. Thorburn, Mr. J. E. Platt, and Mr. J. W. Smith. Assistant Surgeons: Mr. A. H. Burgess, Mr. J. H. Ray, Mr. E. D. Telford, and Mr. C. Roberts. Anæsthetist: Mr. Alexander Wilson. Consulting Obstetric Physician: Dr. Lloyd Roberts. Gynæcological Surgeon: Dr. A. Donald. Assistant Gynæcological Surgeon: Dr. W. E. Fothergill. Ophthalmic Surgeon: Mr. A. Hill Griffith. Aural Surgeon: Mr. William Milligan. Dental Surgeon: Mr. W. A. Hooton. Resident Medical Officer: Dr. F. E. Tylecote. Resident Surgical Officer: Mr. W. H. Hey. Pathological Registrar: Dr. W. B. Anderton. Medical Registrar: Dr. E. B. Leech. Surgical Registrar: Mr. Howard Buck. Director of the Clinical Laboratory: Dr. G. E. Loveday. Assistant Director of the Clinical Laboratory: Dr. A. Ramsbottom. Administrators of Anæsthetics: Dr. S. R. Wilson, Mr. Edward Moir, Dr. E. Falkner Hill, Dr. R. A. H. Atkinson, and Dr. T. Corgan. Assistant Medical Officer: Dr. A. Ramsbottom. Assistant Surgical Officers: Mr. P. R. Wrigley, Mr. H. H. Rayner, and Mr. W. R. Douglas. Medical Officer for Ho[s]e Patients: Dr. George Ashton. Medical Officer for Rad[io]graphy and Electricity Department: Mr. A. E. Barcl[ay]. General Superintendent and Secretary: Mr. Walter G. Car[r].

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury a[nd] Gartside-street, Manchester.—The hospital contains 168 b[eds] and 26 in the Convalescent Home, St. Anne's-on-Sea. T[he] medical staff visit the hospital daily at 10 A.M. Clini[cal] instruction is given by the medical staff at the Hospi[tal] and Dispensary. Out-patients are seen daily at 9 A.[M.] at the new Out-patient Department, Gartside-stre[et], Manchester. Physicians: Dr. Hutton, Dr. Heywood, a[nd] Dr. Lapage. Surgeons: Mr. J. Howson Ray, Mr. E. [H.] Telford, and Mr. C. Roberts. Honorary Consulting Surgeo[n] Mr. G. A. Wright. Honorary Consulting Pathologi[st] Professor R. Lorrain Smith. Honorary Surgeon for Thro[at], Nose, and Ear Diseases: Mr. F. H. Westmacott. Pathologi[st] Dr. W. Mair. Honorary Dental Surgeon: Mr. Barron [and] Rodway. Resident Medical Officers: Mr. C. B. Marshall a[nd] Mr. W. G. Pinching. Medical Officers at the Dispensar[y] Dr. H. T. Ashby and Miss J. B. Fleming. During 1909 th[ere] were 2483 in-patients, and 30,970 new out-patients w[ere] under treatment at the Dispensary, and there were 96,5[00] attendances made by out-patients. Secretary: Mr. H. [T.] Eason.

THE MANCHESTER NORTHERN HOSPITAL FOR WOM[EN] AND CHILDREN, Park-place, Cheetham Hill-road, Ma[n]chester.—The hospital contains 70 beds. Out-patie[nts] are seen daily from 8.30 to 10 A.M. Honorary Co[n]sulting Physicians: Dr. W. N. Maccall and Dr. T. [H.] Railton. Honorary Consulting Surgeons: Mr. Frederi[ck] A. Southam. Honorary Physician for Women: Dr. [J.] Arthur Helme. Honorary Surgeon for Women: Mr. Arn[old] W. W. Lea. Honorary Physician: Dr. J. J. Cox. Honora[ry] Physicians for Children: Dr. C. H. Melland and Dr. C. [E.] Heywood. Honorary Assistant Surgeon for Women: M[r.] Harold Clifford. Honorary Surgeon for Children: Mr. H. [H.] Rayner. Honorary Assistant Physician for Children: D[r.] A. A. Mumford. Anæsthetists: Mr. G. A. Barrow, Dr. H. [H.] Clarke, and Dr. C. H. Lee. Pathologist: Dr. H. R. Clark[e]. Assistant Medical Officers: Dr. Whitworth and Mr. R. [W.] Walsh. Honorary Dentist: Mr. W. A. Hooton. Hou[se] Surgeon: Mr. John Gow.

UNIVERSITY OF LEEDS.

Candidates presenting themselves for Matriculation in t[he] Faculty of Medicine must pass an examination in Engli[sh] (Language or Literature) and English History, Mathemati[cs] and Latin, and in two of eight optional subjects. Exemptio[n] from the matriculation examination is granted to graduat[es] of any university of the United Kingdom provided Latin h[as] formed part of one of the degree examinations.

Four degrees in Medicine and Surgery are conferred—viz. Bachelor of Medicine and Bachelor of Surgery (M.B. a[nd] Ch.B.), Doctor of Medicine (M.D.), Master of Surge[ry] (Ch.M.), also Degrees and Diplomas in Dental Surgery and Diploma in Public Health.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates for the degrees of Bachelor of Medicine and [of] Surgery are required to present certificates showing th[at] they will have attained the age of 21 years on the day [of] graduation, and that they have attended courses of instru[c]tion approved by the University extending over not less tha[n] five years, two of such years, at least, having been passed i[n] the University subsequently to the date of passing the Fir[st] Examination. Candidates must also satisfy the examine[rs] in the several subjects of the following examinatio[ns] entitled respectively: the Matriculation Examination, [or] such other examination as may have been recognise[d] by the Joint Matriculation Board in its stead; the Fir[st] Examination; the Second Examination; and the Fin[al] Examination.

The First Examination.—The First Examination consis[ts] of: Part I., Physics and Chemistry; Part II., Biology. Candidates will be allowed to pass the two parts separately.

The Second Examination.—The Second Examination co[n]sists of: Part I., Anatomy and Physiology; Part II., Materi[a] Medica and Pharmacy. Candidates will be allowed to pas[s] the two parts separately.

The Final Examination.—The Final Examination consis[ts] of: Part I., Pathology and Bacteriology, Forensic Medicin[e] and Public Health. Part II., Medicine: Systematic an[d] Clinical, including Mental Diseases and Diseases [of] Children; Surgery: Systematic, Clinical and Practical

Obstetrics and Gynæcology · Systematic, Clinical, and Practical ; Pharmacology and Therapeutics. Candidates will be allowed to pass the two parts separately and they may present themselves for examination in Part I. at the end of the tenth term.

Degree of Doctor of Medicine.—Candidates are not eligible for the degree of Doctor of Medicine unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. Candidates for the degree of Doctor of Medicine are required to present a dissertation and, if the dissertation be accepted, to pass an examination. The dissertation, of which the subject must previously have received the approval of the Board of the Faculty of Medicine, must embody the results of personal observations or original research, either in some department of medicine or of some science directly related to medicine ; provided always that original work published in scientific journals or in the Proceedings of learned societies, or separately, shall be admissible in lieu of, or in addition to, a dissertation specially written for the degree. Candidates will be required to write a short extempore essay on some topic connected with medicine and to answer questions on the history of medicine. They will also be examined orally on the dissertation or other work submitted. Any candidate may be exempted from a part or the whole of the examination if the Board of the Faculty so decide. No candidate will be admitted to the degree unless his application, after report from the Board of the Faculty of Medicine, shall have been accepted by the Senate.

Degree of Master of Surgery.—Candidates are not eligible for the degree of Master of Surgery unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. Every candidate is also required to furnish certificates of attendance in accordance with the regulations of the University. The subjects of examination are as follows: Surgical Anatomy, Surgery, Operative Surgery, Clinical Surgery, Ophthalmology, Pathology, and Bacteriology.

Diploma in Public Health.—The regulations for this diploma will be found on p. 681.

Professors—Physics: W. Bragg, M.A., F.R.S. Chemistry: A. Smithells, B.Sc., F.R.S. Organic Chemistry: J. B. Cohen, B.Sc. Zoology: W. Garstang, M.A. Botany: V. F. Blackman, M.A. Anatomy: J. K. Jamieson, M.B. Physiology and Histology: De Burgh Birch, M.D. Pathology: A. S. Grünbaum, M.D. Clinical Medicine: A. G. Barrs, M.D. Medicine: T. W. Griffith, M.D. Surgery: R. L. Knaggs, F.R.C.S. Clinical Surgery: B. G. A. Moynihan, F.R.C.S. Obstetrics: J. B. Hellier, M.D. Public Health: T. S. Cameron, M.D. Therapeutics: H. J. Campbell, M.D. Forensic Medicine: F. W. Eurich, M.D.

At the University of Leeds (School of Medicine) there are two Scholarships and six Prizes. The Entrance Scholarship, value £73 2*s.* 6*d.*, is awarded on the results of the Joint Matriculation Board Examination held in July after a complete course of lectures and practical classes at the Leeds School. The Infirmary Scholarship, value £42, is awarded on the results of the First M.B. Examination of the University of Leeds after a complete course of hospital practice and clinical lectures at Leeds Infirmary. The Hardwick Prize of £10 is awarded after competitive examination in Clinical Medicine among Clinical Clerk Students of two years' standing. The McGill Prize of £10 is awarded after competitive examination among advanced surgical students in Clinical Surgery. Thorp Prizes of £10 and £5 respectively are awarded after examinations in Forensic Medicine and Hygiene, and the Thorp Prize Essay, value £15, is awarded every three years to former students of the Leeds School for an Essay or Research on some subject connected with Forensic Medicine, Toxicology, or Public Health. The Cattergood Prize of £5 is awarded after examination in Midwifery.

Clinical Instruction.—THE LEEDS GENERAL INFIRMARY, in connexion with this medical faculty, has accommodation for 524 in-patients, including 96 beds at "semi-convalescent" homes in the country. During the last year 7137 in-patients and 48,635 out-patients were treated. Clinical teaching takes place daily in the wards, and Clinical lectures are given in Medicine and Surgery by the Physicians and Surgeons. There are Medical, Surgical, Ophthalmic, Aural, Electro-therapeutic, and Radiographic Departments, in each of which special instruction is imparted to students. A Gynæcological and Extern Obstetric Department, in which there were 501 confinements, together with Laryngeal and Skin Clinics, are in operation. Several valuable prizes are given at the end of each session. The following appointments at the Infirmary are annually open to students (for some of them, however, a registered legal qualification is required): Non-resident: clinical pathologist, £300; assistant clinical pathologist, £150; senior anæsthetist, £50; 5 anæsthetists, £25. Resident: medical officer, £150; surgical officer, £150; casualty officer, £125; ophthalmic, £100; ophthalmic house surgeon, £50. These appointments are made annually and holders are eligible for re-election. Resident medical officer to the Ida Hospital, for six months; honorarium £30. Obstetric officer, for six months; six house physicians, for six months; 7 house surgeons, for six and 12 months; 24 physicians' clerks, for six months; 24 surgeons' dressers, for six months; 16 ophthalmic and aural surgeons' dressers, for three months; 12 gynæcological ward clerks, for three months; 16 gynæcological out-patient clerks, for three months; 24 maternity clerks, for one month; 24 assistant physicians' clerks, for three months; 8 dermatological clerks, for three months; 8 laryngological clerks, for three months; 24 assistant surgeons' dressers, for three months; 8 assistant ophthalmic surgeons' dressers, for three months; 24 dressers in the casualty-room, for three months; 24 post-mortem room clerks, for three months; 8 laboratory assistants, for three months. There are appointments open to students in other medical institutions in the town and also in the West Riding (Lunatic) Asylum.

The Public Dispensary, the Hospital for Women and Children, the Fever Hospital, the Maternity Home, and the West Riding Lunatic Asylum are other medical institutions which are made use of by the Leeds students. The buildings of the Medical School are placed close to the Infirmary and contain complete accommodation for the training of medical students upon the most approved modern methods. A very fine dissecting-room, extensive laboratories for Physiology and Pathology, with the most recent improvements in fittings and apparatus, ample lecture-room accommodation, a large Library, and separate Museums for Pathology and Anatomy are some of the most striking features of the buildings. Provision for the convenience of students, in the shape of a common room, a refectory, &c., are made. The classes in Systematic and Practical Chemistry, Physics, Botany, and Zoology are held in the Science and Arts Department of the University, in College-road. Two Entrance Scholarships are offered: one, of the value of £73 2*s.* 6*d.*, covering admission to all requisite lectures; and the other, of the value of 40 guineas, covering the cost of admission to the medical and surgical practice of the infirmary.

Staff of Leeds General Infirmary.—Consulting Physicians: Sir Thomas Clifford Allbutt, K.C.B., Dr. John E. Eddison, and Dr. Charles M. Chadwick. Consulting Surgeons: Mr. Thomas Pridgin Teale, Mr. A. W. Mayo Robson, and Mr. Edward Ward. Consulting Eye and Ear Surgeon: Mr John Albert Nunneley. Consulting Obstetric Physician: Dr. James Braithwaite. Consulting Dental Surgeon: Mr. T. S. Carter. Physicians: Dr. Thomas Churton, Dr. Alfred George Barrs, and Dr. T. Wardrop Griffith. Surgeons: Mr. Harry Littlewood, Mr. R. Lawford Knaggs, Mr. B. G. A. Moynihan, and Mr. Walter Thompson. Surgeons to the Eye and Ear Department: Mr. H. Secker Walker and Mr. A. L. Whitehead. Obstetric Physician: Dr. J. B. Hellier. Physician with Charge of Out-patients: Dr. E. F. Trevelyan. Assistant Physician: Dr. W. H. Maxwell Telling. Assistant Surgeons: Mr. J. Faulkner Dobson, Mr. H. Collinson, Mr. L. R. Braithwaite, and Mr. A. Coupland. Assistant Surgeon to the Eye and Ear Department: Mr. G. Constable Hayes. Pathologist: Dr. Albert S Grünbaum. Dental Surgeon: Mr. J. B. Hordern. Medical Officer in Charge of the Electro-Therapeutic Department: Mr. L. A Rowden. Clinical Pathologist: Mr. M. J. Stewart. Assistant Clinical Pathologist: Miss C. Eglington. Medical Registrar: Dr. George W. Watson. Anæsthetists: Dr. Douglas Seaton, Mr. J. Nicholson, Dr. T. P. Rowling, Dr. G. E. St. Clair Stockwell, Dr. G. Huntley Legge, and Dr. Frank Dobson.

UNIVERSITY OF SHEFFIELD.

Candidates for a medical degree shall have matriculated in the University or have passed such other examination as may be recognised for this purpose by the University and sanctioned by the Joint Matriculation Board. The subjects required by the General Medical Council must be included

in the Matriculation Examination or its recognised substitute.

The Degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

Degrees of Bachelor of Medicine and Bachelor of Surgery.—A candidate for the degrees of M.B., Ch.B., shall produce certificates that he will have attained the age of 21 years on the day of graduation; that he has pursued the courses of study required by the University regulations during a period of not less than five years subsequently to the date of his registration as a medical student by the General Medical Council, three of such years at least having been passed in the University and one year at least having been passed in the University subsequently to the date of passing the First Examination.

The First Examination.—The subjects of examination are chemistry, physics, and biology. The examination is divided into two parts: Part I., A (chemistry and physics) and B (biology); and Part II.: Organic Chemistry. Candidates may pass in each part separately. The Intermediate B.Sc. Examination in these subjects will, on payment of the required additional fee, be accepted instead of Part I. of this examination. Candidates must, after matriculation and registration as a medical student, have attended courses of instruction (lectures and laboratory work) in chemistry, physics, and biology for one year each, and special organic chemistry for one term.

The Second Examination.—The subjects of examination are anatomy, physiology, materia medica, and pharmacy. The examination is divided into two parts, A (anatomy and physiology) and B (materia medica and pharmacy), and candidates may pass in either part separately. Candidates must have completed the third winter session of professional study, must have passed the first examination, and must have attended (1) lectures on anatomy and dissections during two winter sessions and one summer session; (2) lectures on physiology during two winter sessions, practical physiology during two winter sessions, and histology during one summer session; and (3) materia medica and pharmacy for three months.

The Third or Final Examination.—The subjects of examination are divided into two parts—namely, A (forensic medicine and toxicology, public health, and pathology and morbid anatomy) and B (medicine, including pharmacology and therapeutics, mental diseases, and diseases of children, surgery, obstetrics, and gynæcology). Candidates may present themselves for examination in both parts on the same occasion or separately, but Part A may not be passed before the completion of the fourth year of study. Candidates for the whole examination or for Part B must have completed the fifth year of study.

Degree of Doctor of Medicine.—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, must present a thesis embodying observations in some subject approved by the professor of medicine, and must pass an examination in the Principles and Practice of Medicine.

Degree of Master of Surgery.—Candidates for the degree of Ch.M. must have passed the examination for the degrees of M.B., Ch.B. at least one year previously and must, since taking the degrees of M.B., Ch.B., have held for not less than six months a surgical appointment in a public hospital or other public institution, affording full opportunity for the study of Practical Surgery.

The subjects of examination are Systematic, Clinical, and Operative Surgery, Surgical Anatomy, Surgical Pathology and Bacteriology.

Professors—Physics: W. M. Hicks, Sc.D., F.R.S. Chemistry: W. Palmer Wynne, D.Sc., F.R.S. Biology: Alfred Denny, M.Sc., F.L.S. Anatomy: C. J. Patten, M.A., M.D., Sc.D. Physiology: J. S. Macdonald, B.A., L.R.C.S., L.R.C.P. Medicine: D. Burgess, M.A., M.B., F.R.C.P. Materia Medica, &c.: W. T. Cocking, M.D. Surgery: R. J. Pye-Smith, Ch.M., F.R.C.S. Pathology: J. M. Beattie, M.A., M.D. Midwifery: R. Favell, Ch.M., M.R.C.S. Public Health: Ralph P. Williams, M.D., B.S., D.P.H.

At this University there are 11 scholarships and a Town Trust Fellowship. The Entrance Scholarship, value £122, is awarded after examination, but the candidate must read for a Degree in Medicine. There are three Special (1910) Scholarships, one of them for women only. All three are awarded on the results of the Joint Board Matriculation Examination and the candidates must read for a Degree in Medicine of the University of Sheffield. That for women is of the value of £100, and those for men or women are of the values of 150 guineas and 100 guineas respectively. There are four Town Trust scholarships, obtainable by a special examination open to boys or girls, who must have been educated in Sheffield, which are of the value of £50 each per annum. The Kaye Scholarship in Anatomy and Physiology, £22 10s. for one year, is awarded after special examination of students who have completed the second Winter Session. The candidates must be natives of Sheffield. The Mechanics' Institute Scholarship of £50 per annum for one year (renewable to a second) is a post-graduate Scholarship. The Frederick Clifford Scholarship of £50 per annum for two years is available for graduates of the University residing within 40 miles. The Senate considers each application for these two latter, as also that of the Town Trust Fellowship, value £75 per annum for one year, open to graduates of the University. Full particulars as to curriculum, scholarships &c., may be had on application to the Registrar or to the Dean of the Medical Faculty.

Public Health.—The regulations with regard to the degree in Sanitary Science will be found on p. 682.

The Medical School.—The new buildings of the University opened in 1905 are situated at the west end of the city adjoining Weston Park, and the Medical department occupies the entire north wing of the University quadrangle. The various athletic and other students' societies are under the management of a Students' Representative Council, elected annually. There are large and comfortable common rooms both for men and women students. A refectory is open daily at the University where students may obtain refreshments, lunch, dinner, &c., at extremely moderate prices. The University journal *Floreamus*, edited by a committee of staff and students, is published each term. The University Hostel, Ashgate-road, is recognised by the Senate as a residence for women students, full particulars of which may be obtained of the tutor for women students. Other societies of interest to the medical student are the Biological, Chemical, and Clinical and Pathological Societies.

Clinical Instruction.—The University is within easy reach of the various hospitals with which it is connected for clinical purposes. These are as follows: The Royal Infirmary, containing 255 beds, with an annual average number of over 3800 in-patients, over 11,000 out-patients, and over 23,000 casualties; the Royal Hospital, with 172 beds, and an annual number of 3000 in-patients, over 15,000 out-patients and over 17,000 casualties; and the Jessop Hospital for Diseases of Women, with 80 beds, nearly 500 in-patients and over 2000 out-patients; also a Maternity department with over 250 in-patients per annum and over 700 out-patient cases attended. Special courses on Fevers are held at the City Fever Hospitals (547 beds) and on Mental Diseases at the South Yorkshire Asylum (1610 beds). For purposes of clinical practice the practices of the Royal Infirmary and Royal Hospital are amalgamated, giving a total of 427 beds for the treatment of medical, surgical, and special cases. There are special departments for the treatment of Diseases of the Eye at each institution, with wards assigned to them. In addition to these the Royal Infirmary has special departments for the treatment of Diseases of the Skin and Ear with beds assigned to them, whilst at the Royal Hospital there are special out-patient departments for Diseases of the Throat, Ear, Skin, Orthopædics, and Mental Diseases. During the last year over 6000 patients passed through the wards of the two institutions, while those attending as out-patients numbered over 45,000. The medical and surgical staffs attend daily and give clinical instruction in the wards and out-patient rooms at stated times. Clinical lectures in Medicine and Surgery are given weekly at stated times. Instruction in the practical administration of anæsthetics is given at either institution by the Anæsthetists. The laboratories and lecture rooms connected with the subjects of the first and second examinations—namely, chemistry, physics, biology, anatomy, and physiology—which are in the University buildings are, both as regards structural arrangements and scientific equipment, on the most modern and complete lines. No expense has been spared in the matter of apparatus for teaching or research work and the facilities for practical study in these subjects are second to none. The department of Pathology and Bacteriology in the University is replete with every requirement for the most advanced work in these subjects. There is a large Pathological Museum in the department open daily to students. The post-mortem room

of the Royal Infirmary and Royal Hospital are under the charge of the Professor of Pathology and afford ample material for demonstrations. In connexion with the University there is a complete dental department, fully recognised by the various examining bodies, at the Sheffield Royal Hospital. A list of the various Scholarships and Fellowships will be found in another column.

Students who have passed their examination in anatomy and physiology can hold the usual dresserships and clerkships, the appointments being for a period of three months except in the case of casualty dresserships, which last two months. All students beginning hospital practice in Sheffield will be required to hold the post of casualty dresser before being eligible for any other of the above appointments. In addition to the laboratories above mentioned the Medical department of the University contains lecture rooms for the various subjects of the curriculum, a complete materia medica museum, and the large library and reading-room of the Medico-Chirurgical Society which is open daily to students for purposes of study.

Fees.—Composition fee of £80, payable in three instalments—viz., £24 at commencement of first year of study, £28 at commencement of second year of study, and £28 at commencement of third year of study. A composition fee of £80 entitles the student to attendance on all the courses of lectures and practical classes except pharmacy, vaccination, and instruction in anæsthetics required for a degree course in the University or for the ordinary qualifications in medicine and surgery of the Examining Boards. The composition fee does not include medical and surgical hospital practice, clinical lectures, practical instruction in mental diseases, diseases of women, and infectious diseases, the fee for the full period of both medical and surgical hospital practice required by the Examining Boards being £42 if paid in one sum at commencement of hospital practice; or £43 1*s.* if paid in two sums of 21 guineas and 20 guineas, one on beginning hospital practice, the other twelve months later.

Staff of the Royal Infirmary, Sheffield.—Physicians: Dr. W. Dyson, B.A., Dr. W. S. Porter, and Dr. W. Tusting Cocking. Surgeons: Dr. Sinclair White, Mr. Arthur Connell, and Mr. Archibald Cuff. Medical Officer to the Skin Department: Dr. W. Tusting Cocking. Pathologist: Professor J. M. Beattie. Medical Officer to the Ear and Throat Department: Mr. W. S. Kerr. Ophthalmic Surgeon: Mr. G. H. Pooley. Medical Officer in Charge of Electrical Department: Dr. A. Rupert Hallam. Anæsthetists: Mr. H. T. Wightman, Mr. J. Wilfred Stokes, and Dr. A. Rupert Hallam. Honorary Secretary to the Medical Staff: Dr. W. S Kerr.

Staff of the Sheffield Royal Hospital.—Physicians: Dr. Duncan Burgess and Dr. Arthur Hall. Surgeons: Mr. H. Lockwood and Mr. Graham Simpson. Ophthalmic Surgeon: Dr. S. Riseley. Aural Surgeon: Dr. George Wilkinson. Physician for Mental Diseases: Mr. G. E. Mould. Assistant Surgeons: Mr. A. Garrick Wilson and Mr. F. A. Hadley. Assistant Physicians for Out-patients: Dr. A. E. Naish and Dr. Herbert Henry. Anæsthetists: Mr. H. Hallam, Mr. N. Milner, and Dr. C. G. Murray. Medical Officer to the Electrical and X Ray Department: Dr. W. H. Nutt. Pathologist: Professor J. M. Beattie. Honorary Secretary to the Medical and Surgical Staff: Dr. S. Riseley. Dental Surgeons: Mr. F. G. Mordaunt, Mr. F. Harrison, Mr. D. Dathl Davies, Mr. H. J. Morris, and Mr. C. C Drabble. Assistant Dental Surgeons: Mr. P. Southwell Stokes, Mr. W. J. Law, Mr. H. J. Stoner, and Mr. R. C. Webster.

There are other institutions at which the students of the University of Sheffield can receive clinical instruction. These are the City Fever Hospitals (Medical Superintendent, Dr. Egerton H Williams), the South Yorkshire Asylum (Medical Superintendent, Dr. W. S. Kay), and the Jessop Hospital for Women, Gell-street, Sheffield. The hospital contains 56 beds for gynæcological cases and 24 for obstetric cases. A staff of midwives connected with the hospital attend lying-in women at their own homes, and, in case of need, are assisted by the members of the medical staff. A 12 weeks' course of instruction (theoretical and practical) is also provided for resident pupil midwives, the institution being approved by the Central Midwives Board as a training centre. Medical Officers: Mr. Richard Favell, Dr. J. W. Martin, and Mr Percival E. Barber. Assistant Medical Officer: Mr. M. H. Phillips. Honorary Secretary to the Staff: Mr. Percival E. Barber.

UNIVERSITY OF BRISTOL.

FACULTY OF MEDICINE.—The University of Bristol is the most recent of the English Universities, having been incorporated by Royal Charter in 1909 to replace University College, Bristol.

Courses of Lectures.—Medicine: Professor F. H. Edgeworth and Professor J. Michell Clarke. Surgery: Professor C. A. Morton and Professor James Swain. Anatomy: Professor Edward Fawcett. Practical Anatomy: Demonstrators: Mr. J. L Annan, Mr. E. W. Hey Groves, Mr. W. S. Vernon Stock, and Mr. W. H. A. Elliott. Physiology and Histology: Professor A. F. Stanley Kent. Demonstrators: Mr. W. Burridge and Dr. A. R. Short. Chemistry and Practical Chemistry: Professor Francis Francis. Public Health: Dr. D. S. Davies. Obstetrics: Professor W. C. Swayne. Demonstrator: Mr. W. S. Vernon Stock. Forensic Medicine and Toxicology: Dr. R. Eager and Dr. G. Parker. Pathology and Bacteriology: Professor I. Walker Hall. Operative Surgery: Mr. J. Paul Bush. Practical Surgery: Dr. R. G. Poole Lansdown. Practical Midwifery: Mr. D. C. Rayner. Materia Medica and Practical Pharmacy: Mr. O. C. M. Davis. Pharmacology and Therapeutics: Dr. Newman Neild. Dental Anatomy and Physiology and Dental Histology: Mr. E. A. G. Dowling. Demonstrator: (vacant). Dental Bacteriology: Professor I. Walker Hall. Dental Surgery and Practical Dental Surgery: Mr. W. R. Ackland. Dental Mechanics and Dental Metallurgy and Practical Dental Metallurgy: Dr. C. A. Hayman. For the whole course (including Dental Surgical Practice), 140 guineas; for Mechanical Dentistry only, 75 guineas; for the curriculum subsequent to Mechanical Dentistry, 63 guineas; and for Dental Surgical Practice, 12 guineas. Special six months' course for Diploma in Public Health. 1. Lectures on Public Health: Dr. D. S. Davies. 2. Bacteriology: Professor I. Walker Hall. 3. Laboratory Course of Hygienic Chemistry: Mr. F. W. Stoddart. 4. Demonstrations on the Various Acts, Orders, By-laws, &c.: Mr. J. C. Heaven. 5. Practical Outdoor Sanitary Work: Dr. D. S. Davies. Fee for the entire course 25 guineas. Full information can be obtained on application to the Dean, Professor Edward Fawcett, University of Bristol.

Professors—Chemistry: F. Francis, D.Sc. Experimental Physics: (vacant). Medicine: F. H. Edgeworth, M.D., and J. Michell Clarke, M.D. Surgery: C. A. Morton, F.R.C.S., and J. Swain, F.R.C.S. Anatomy: E. Fawcett, M.D. Physiology and Histology: A. F. Stanley Kent, M.A. Obstetrics: W. C. Swayne, M.D. Pathology: I. Walker Hall.

Scholarships and Prizes.—At the Bristol Royal Infirmary there are five prizes, which are restricted to perpetual students who have done the necessary qualifying work at the Infirmary. They are the Suple Medical Prize and the Suple Surgical Prize, each consisting of a gold medal of the value of 5 guineas and 7 guineas in money. The one is awarded after competitive examination in Medicine of students of the fourth and fifth years and the other after competitive examination in Surgery of students of the third and fourth years. The Henry Clark Prize, value 11 guineas is awarded for the class work of third-year students. The Crosby Leonard Prize, value 7 guineas, is awarded after examination in Clinical Surgery, and the Augustin Prichard Prize, value 6 guineas, is awarded after examination in Surgical Anatomy.

At the Bristol General Hospital there are two scholarships and a prize, which are restricted to perpetual students who have done the necessary qualifying work at the Hospital. The Sanders Scholarship, value £22 10*s.*, is awarded after competitive examination in Medicine, Surgery, and Midwifery of fourth-year students. The Clarke Scholarship of £15 is awarded after competitive examination in surgery among students of the fourth year. The Marshall Prize, value £12, is awarded to the best surgical dresser of the fourth year.

The Tibbits Surgical Prize of £9 9*s.* is awarded for proficiency in Practical Surgery. The Martyn Memorial Pathological Prizes of £10 each, of which there are two annually, are awarded after competitive examination in Pathology and Morbid Anatomy. A gold medal and a silver medal are given by the committees of the two institutions to the most distinguished students of the fifth year. These prizes and medals can be competed for by perpetual students of the Faculty of Medicine, University of Bristol.

Clinical Instruction.—Students of the Faculty of Medicine are admitted to the Clinical Practice of the Bristol Royal Infirmary and the Bristol General Hospital conjointly, and consequently both these institutions are open to all students, men and women alike. The Infirmary and the Hospital comprise between them a total of 470 beds; and both have very extensive out-patient departments, special departments for the Diseases of Women and Children, and of the Eye, Ear, and Throat, besides large outdoor Maternity Departments and Dental Departments. Students may also attend the practice of the Bristol Royal Hospital for Sick Children and Women, containing 104 beds, and that of the Bristol Eye Hospital, with 40 beds. The total number of beds available for clinical instruction is 614. Very exceptional facilities are thus offered to students for obtaining a wide and thorough acquaintance with all branches of Medical and Surgical work. Each student has the opportunity of personally studying a large number of cases and of acquiring practical skill in diagnosis and treatment.

THE ROYAL INFIRMARY, BRISTOL, has 270 beds, the number of in-patients is 3819, and the number of out-patients 50,195 annually. There are separate wards for diseases of children, eye cases, diseases of women, and diseases of throat and nose. The Pathological and Bacteriological Departments are under the direction of the pathologist. In clinical pathology a special room is set apart for the exclusive use of students and research workers, and post-graduate courses may be taken over by arrangement with the pathologist. In the Pharmaceutical Department special classes are held by the pharmacist. Clinical appointments: All students must undergo before holding Clinical appointments preliminary instruction for three months in pathological, medical, surgical, and dental methods of diagnosis, &c. Pathological Clerkship for three months. Surgical Dresser for six months: the dressers reside in the Infirmary free of expense in rotation a week at a time, taking a part in the whole daily routine of surgical work. Medical Clerk for six months; Obstetric Clerk for three months; Ophthalmic Clerk for three months. In other special departments attendance is made during the fifth year of study. A convenient students' room is provided. Resident appointments: The posts of House Surgeon, House Physician, Obstetric and Ophthalmic House Surgeon, Throat, Nose, and Ear House Surgeon, second House Surgeon, second House Physician, and Casualty Officer are all salaried. The senior post is usually held for two or more years, other posts held for 12 months, and the Casualty Officer's post tenable for six months. Honorary and Consulting Physicians: Dr. R. Shingleton Smith, Dr. H. Waldo, and Dr. J. E. Shaw. Honorary and Consulting Surgeons: Mr. E. C. Board, Mr. W. H. Harsant, Mr. A. W. Prichard, and Mr. Munro Smith. Honorary and Consulting Ophthalmic Surgeon: Mr. F. Richardson Cross. Honorary Physicians: Dr. A. B. Prowse, Dr. F. H. Edgeworth, Dr. J. A. Nixon, and Dr. J. R Charles. Honorary Surgeons: Mr. J. Paul Bush, Mr. H. F. Mole, Dr. J. Swain, and Mr. T. Carwardine. Honorary Ophthalmic Surgeon: Dr. Ogilvy. Honorary Obstetric Physician: Dr. Walter Swayne. Honorary Dental Surgeon: Mr. W. R. Ackland. Honorary Physician to the Throat and Nose Department: Dr. P. Watson Williams. Honorary Assistant Dental Surgeon: Mr F. C. Nichols. Honorary Assistant Physicians: Dr. J. M. Fortescue-Brickdale. Honorary Assistant Surgeons: Mr. C. F Walters and Mr. E. H. E. Stack. Pathologist: Dr. I. Walker Hall. Honorary Demonstrator of Morbid Anatomy: Dr. J. J. S. Lucas. Honorary Anæsthetist: Mr. A. L. Fleming. Honorary Assistant Anæsthetists: Mr. S. V. Stock and Mr. Leonard A. Moore. Honorary Skiagraphist: Mr. James Taylor. House Surgeon and Senior Resident Medical Officer: Mr. Hubert Chitty.

BRISTOL GENERAL HOSPITAL.—Number of beds 200; number of in-patients over 2000; number of out-patients about 40,000 annually. The arrangements are practically similar to those at the Royal Infirmary. Honorary and Consulting Physician: Dr. A. J. Harrison. Honorary and Consulting Physician to Throat and Nose Department: Dr. Barclay J. Baron. Honorary and Consulting Surgeons: Mr. Robert W. Coe, Dr. George F. Atchley, Mr. Nelson C. Dobson, Mr. F. Poole Lansdown, and Mr. Chas. F. Pickering. Physicians: Dr. J. Michell Clarke, Dr. George Parker, and Dr. J. O. Symes. Surgeons: Mr. C. A. Morton, Dr. R. G. Poole Lansdown, Dr. J. Lacy Firth, and Dr. H. Greville Kyle. Physician Accoucheur: Dr. W. H. C. Newnham. Physician to Department for Diseases of the Skin: Dr. W. Kenneth Wills. Surgeon to the Throat and Nose: Dr. J. Lacy Firth. Ophthalmic Surgeon: Mr. Cyril H. Walker. Assistant Physicians: Dr. Newman Neild and Dr. Carey F. Coombs. Assistant Surgeon: Mr. E. W. H. Groves. Assistant Physician Accoucheur: Mr. D. C. Rayner. Anæsthetists: Dr. J. Freeman and Dr. Hedley Hill. Dental Surgeon: Mr. E. A. G. Dowling. Pathologist: Dr. Emrys-Roberts. Curator of Museum: Dr. W. J. H. Pinniger. Skiagraphist: Mr. J. Ellington Jones.

Resident Appointments.—There are five resident appointments in the Hospital, and the Dressers reside in rotation, free of expense. The Maternity students also have rooms provided in the institutions.

Fees.—Medical Practice: three months, 4 guineas; six months, 7 guineas; one year, 12 guineas; perpetual, 20 guineas. Surgical Practice: three months, 4 guineas; six months, 7 guineas; one year, 12 guineas; perpetual, 20 guineas. Medical and Surgical Practice together in one payment: six months, 12 guineas; one year, 20 guineas; perpetual, 35 guineas. Dental Surgical Practice: one year, 7 guineas; perpetual, 12 guineas. The above fees include Clinical Lectures. Clinical Clerkship: 5 guineas for six months. Dressership: 5 guineas for six months. Museum fee: 3 guineas (composition on entrance), or 1 guinea annually. Dispensing Fee: 2 guineas. Students from other schools or qualified medical men wishing to attend Clinical Practice for short periods and not requiring certificates for such attendance may do so for the following fees:—Medical and Surgical Practice conjointly: one month, 2 guineas; two months, 3 guineas; three months, 4 guineas; and six months, 7 guineas.

Further information may be obtained on application to the Dean of the Faculty.

UNIVERSITY OF WALES.

This University has now the privilege of granting degrees in Medicine and Diplomas in Public Health. At the three constituent Colleges of Aberystwyth, Bangor, and Cardiff there are Professors of Chemistry, Botany, Zoology, and Physics, so that the students of the University can obtain proper instruction in the ancillary subjects. The foundation of a Medical Faculty has been laid at University College, Cardiff, where there is a recognised school of medicine.

University College, Cardiff: School of Medicine.—All classes are open to both men and women students who may spend three or four out of their five years of medical study at Cardiff. The courses of study are recognised as qualifying for the Preliminary Scientific and Intermediate Examination in Medicine in the University of London and for the corresponding examinations in the other Universities. Students who are preparing for these examinations may compound for their courses by paying a fee of £57 10*s.*, while a composition fee of £41 10*s.* includes all the necessary courses for the first and second examinations for the Diploma of the Conjoint Board. In all cases the composition fees may be paid by instalments. Hospital instruction is given at the Cardiff Infirmary. The attention of students about to matriculate is drawn to the numerous entrance scholarships and exhibitions, varying in value from £10 to £35 per annum, offered for competition at University College, Cardiff, in April next, most of which may be held by medical students. Full particulars of the examination for these may be obtained by application to the Registrar. In the department of Public Health established in 1899 instruction is given qualifying for the D.P.H. examinations. The Council of the College has appointed a Professor of Pathology and Bacteriology. Further information may be obtained from the Dean of the Faculty of Medicine.

Lecturers.—Physics: Professor A. L. Selby. Chemistry: Professor C. M. Thompson. Zoology: Professor W. N. Parker. Botany: Professor A. H. Trow. Anatomy: Professor David Hepburn. Physiology: Professor J. B. Haycraft. Materia Medica and Therapeutics: Dr. W. Mitchell Stevens. Pathology and Bacteriology: Professor Emrys-Roberts. Hygienic Chemistry: Mr. Sugden. Public Health and Hygiene: Dr. E. Walford and Dr. W. Williams. Midwifery (for Midwives): Dr. E. J. Maclean.

Clinical Instruction.—Students can attend the practice of the Cardiff Infirmary, which contains 196 beds.

CARDIFF INFIRMARY.—Founded 1837. 196 beds. Consulting Physicians: Dr. W. T. Edwards, Dr. W. Taylor, and Dr. C. T. Vachell. Consulting Surgeon: Dr. T. Wallace. Consulting Ophthalmic Surgeon: Mr. J. T. Thompson. Consulting Dental Surgeon: Mr. John C. Oliver. Physicians: Dr. H. R. Vachell and Dr. A. E. Taylor. Surgeons: Mr. P. Rhys Griffiths, Mr. William Sheen, and Mr. J. Lynn Thomas. Assistant Physicians: Dr. W. Mitchell Stevens, Dr. Cyril Lewis, and Dr. Alfred Howell. Assistant Surgeons: Mr. H. G. Cook, Mr. Cornelius A. Griffiths, and Mr. William Martin. Ear, Throat, and Nose Surgeon: Dr. D. R. Paterson. Ophthalmic Surgeons: Mr. H. C. Ensor and Mr. F P. S. Cresswell. Assistant Ophthalmic Surgeon: Mr. D. Leighton Davies. Gynæcologists: Dr. Ewen J. Maclean and Dr. E. Tenison Collins. Pathologist: Dr. H. A. Schölberg. Sanitary Adviser: Dr. E. Walford. Anæsthetists: Dr. Fredk. W. S. Davies and Dr. Alex. Brownlee. Dental Surgeons: Mr. W. Kittow and Mr. Thomas Quinlan. Medical Officer Electrical Department: Dr. Owen L. Rhys. Resident Medical Officer: Dr. John Wallace.

SWANSEA GENERAL AND EYE HOSPITAL AND SWANSEA HOSPITAL CONVALESCENT HOME.—Hospital established 1817, Home 1903. Hospital 141, Convalescent Home built for 20 beds and one cot. Consulting Physicians: Dr. D. A. Davies, Dr. John A. Rawlings, Dr. F. Knight, and Dr. J. S. H. Roberts. Consulting Surgeons: Mr. J. Thomas and Mr. H. A. Latimer. Physicians: Dr. E. Le C. Lancaster and Dr. D. E. Evans. Surgeons: Mr. W. F. Brook and Mr. R. C. Elsworth. Obstetric Physician: Mr. R. N. Jones. Ophthalmic Surgeon: Dr. Frank G. Thomas. Surgeon to the Throat, Nose, and Ear Department: Dr. A. F. Blagdon-Richards. Assistant Physicians: Dr. A. W. Cameron and Dr. C. L. Isaac. Assistant Surgeon: Mr. E. Reid. Medical Officers for Outdoor Patients: Mr. E. Reid, Dr. A. W. Cameron, and Dr. C. L. Isaac. Surgeon-Dentist: Mr. H. J. Thomas. Honorary Pathologist and Electro-Therapeutic Officer: Mr. D R. Edwards. Anæsthetists: Dr. W. L. Griffiths, Mr. Alban Evans, and Dr. A. Clarke Begg. Resident Medical Officers—House Physician: Mr. A. Dunn. House Surgeons: Mr. F. R. Thornton and Mr. Alex. Gibson. Secretary-Superintendent: W. D. Hughes.

ENGLISH MEDICAL CORPORATIONS GRANTING DIPLOMAS.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Under this heading we give the regulations for the examinations enforced by the Conjoint Examining Board of the Royal Colleges of Physicians of London and Surgeons of England and of the Society of Apothecaries upon students desiring their respective diplomas of qualification. We do not give any list of schools recognised by these bodies as eligible to prepare students for their examinations beyond mentioning that all the schools which we have already described (under the heading of the Universities to which they are attached) are recognised as suitable places of instruction by the corporations granting medical diplomas. The courses of study at the principal colonial medical schools are also recognised as qualifying for the examinations of these corporations.

Any candidate who desires to obtain both the Licence of the Royal College of Physicians of London and the diploma of Member of the Royal College of Surgeons of England is required to complete five years of professional study at recognised Medical Schools and Hospitals and to comply with the following regulations and to pass the examinations hereinafter set forth. Six months of the curriculum may be spent in an Institution recognised by the Board for instruction in Chemistry, Physics, Practical Chemistry, and Biology.

Professional Examinations.—There are three Examinations, called herein the First Examination, the Second Examination, and the Third or Final Examination, each being partly written, partly oral, and partly practical. These examinations will be held in the months of January, April, July, and October, unless otherwise appointed. Every candidate intending to present himself for examination is required to give notice in writing to Mr. F. G. Hallett, secretary of the Examining Board, Examination Hall, Victoria Embankment, W.C., 14 clear days before the day on which the examination commences, transmitting at the same time the required certificates.

The subjects of the *First Examination* are—Chemistry, Physics, Elementary Biology, and Practical Pharmacy. A candidate may take this examination in three parts at different times (Chemistry and Physics must be taken together until the required standard is reached in both or in one of these subjects, but a candidate will not be allowed to pass in one without obtaining at the same time at least half the number of marks required to pass in the other). A candidate will be admitted to examination in Chemistry and Physics, in Practical Pharmacy, and Elementary Biology on producing evidence of having passed the required Preliminary Examination and of having received instruction in these subjects at a recognised institution, but he may take Pharmacy at any time during the curriculum. Certificates must be produced of 180 hours' instruction and laboratory work in chemistry; 120 hours' instruction and laboratory work in physics; and 120 hours' instruction and laboratory work in biology. These courses need not be completed within one year, nor need they run concurrently, and they may be commenced or attended before the candidate passes the required preliminary examination in general education. Synopses of the subjects of examination may be obtained on application. A candidate rejected in one part or more of the First Examination will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection, and he will be re-examined in the subject or subjects in which he has been rejected. If referred in Chemistry, Physics, or Biology he must produce evidence of further instruction at a recognised Institution. Any candidate who shall produce satisfactory evidence of having passed an examination for a degree in Medicine on any of the subjects of this examination conducted at a university in the United Kingdom, in India, or in a British colony will be exempt from examination in those subjects in which he has passed.

The fees for admission to the *First Examination* are as follows: For the whole examination, £10 10*s.*; for re-examination after rejection in Parts I. and II., £3 3*s.*; and for re-examination in each of the other parts, £2 2*s.*

The subjects of the *Second Examination* are Anatomy and Physiology. Candidates will be required to pass in both subjects at one and the same time. Candidates will be admissible to the Second Examination on production of the required certificates of professional study. The study of Anatomy and Physiology before passing in two of first three parts of the First Professional Examination is not recognised.

A candidate referred on the *Second Examination* will be required, before being admitted to re-examination, to produce a certificate that he has pursued, to the satisfaction of his teachers, in a recognised place of study, his Anatomical and Physiological studies during a period of not less than three months subsequently to the date of his reference.

The fees for admission to the *Second Examination* are: £10 10*s.* for the whole examination and £6 6*s.* for re-examination after rejection.

The subjects of the *Third* or *Final Examination* are: Part I. Medicine, including Medical Anatomy, Pathology, Practical Pharmacy, Therapeutics, Forensic Medicine, and Public Health. Candidates who have passed in Practical Pharmacy at the First Examination will not be re-examined in that subject at the Third Examination. Part II. Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances. Part III. Midwifery and Diseases Peculiar to Women. Candidates may present themselves for examination in Midwifery and Diseases of Women at any time after the completion of the fourth year of professional study at a Medical School and Hospital, not less than one year after passing the Second Examination, on production of the required certificates. Candidates may present themselves for examination in Medicine and Surgery at the completion of the five years' curriculum, not less than two years from the date of passing the Second Examination, on production of the required certificates. Candidates may take this examination in three parts at different times, or they may present themselves for the whole examination at one time. They will be required

to produce the following evidence before being admitted to the several parts of the *Third* or *Final Examination*—viz., in Medicine, of having attended Lectures on Medicine, Pathology including Bacteriology, Pharmacology, and Therapeutics, Forensic Medicine, and Public Health; Practical Instruction in Medicine; Medical Hospital Practice during two winter and two summer sessions; Demonstrations in the Post-mortem Room during 12 months; Clinical Lectures on Medicine during nine months; of having discharged the duties of Medical Clinical Clerk; Instruction in the Administration of Anæsthetics; Practice of a Fever Hospital and Clinical Demonstrations at a recognised Lunatic Asylum; in Surgery, of having attended Lectures on Surgery and Pathology including Bacteriology; Practical Instruction in Surgery; of having performed operations upon the Dead Subject; Surgical Hospital Practice during two winter and two summer sessions; Demonstrations in the Post-mortem Room during 12 months; Clinical Lectures on Surgery during nine months; of having discharged the duties of Surgical Dresser; Instruction in the Administration of Anæsthetics; and Clinical Instruction in Ophthalmology; in Midwifery of having attended Lectures on Midwifery; Practical Instruction in Midwifery; Clinical or other Lectures, with Practical Instruction in Diseases Peculiar to Women; of having discharged the duties of Clinical Clerk in the Gynæcological Wards or Out-patient Department; and of having conducted 20 Labours.

The fees for admission to the *Third* or *Final Examination* are as follows: For the whole examination, £21. Part I. For re-examination in Medicine, including Medical Anatomy, Pathology, Therapeutics, Forensic Medicine, and Public Health, £5 5*s*.; for re-examination in Practical Pharmacy (if taken at this examination), £2 2*s*. Part II. For re-examination in Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances, £5 5*s*. Part III. For re-examination in Midwifery and Diseases Peculiar to Women, £3 3*s*.

A candidate referred on the *Third* or *Final Examination* will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection and will be required, before being admitted to re-examination, to produce a certificate, in regard to Medicine and Surgery, of having attended the Medical and Surgical Practice, or the Medical or Surgical Practice, as the case may be, during the period of his reference; and in regard to Midwifery and Diseases Peculiar to Women a certificate of having received, subsequently to the date of his reference, not less than three months' instruction in that subject by a recognised teacher.

Students of recognised universities in England, Scotland, and Ireland, who have passed examinations for a degree in Medicine at their universities in the subjects of the First and Second Examinations of the Examining Board, may enter for the Final Examination at the expiration of two years from the date of passing in Anatomy and Physiology, on production of the required certificates.

Graduates in Medicine of certain recognised Indian, Colonial, and Foreign universities may present themselves for the Final examination under special conditions which can be ascertained on application to the Secretary.

ROYAL COLLEGE OF PHYSICIANS OF LONDON: THE MEMBERSHIP AND FELLOWSHIP.

In addition to the diplomas granted by the English Conjoint Board, the Royal College of Physicians of London and the Royal College of Surgeons of England grant honour diplomas, which no longer give the right to practise professionally if held separately. The Royal College of Physicians of London has two such diplomas, the *Fellowship* which is a purely honorary distinction and the *Membership* which is obtained by examination.

Membership.—Every candidate for the Membership of the College must furnish proof of having attained the age of 25 years. Candidates must not be engaged in trade, dispense medicine, make any engagement with a chemist, or any other person for the supply of medicine, or practise medicine or surgery in partnership, by deed or otherwise. Any candidate being already registered or having passed a qualifying examination in accordance with the Medical Act of 1886, who has obtained the degree of Doctor or Bachelor of Medicine at a University in the United Kingdom, in India, or a British colony, or who has obtained a foreign qualification entitling him or her to practise medicine or surgery in the country where such qualification has been conferred, wherein the courses of study and the examinations to be undergone previously to graduation have been adjudged by the Censors' Board to be satisfactory, will (if the Censors think fit) be admitted to the Pass Examination. The nature and extent of this examination will, in the case of each candidate, be determined by the Censors' Board. All other candidates must produce proof of having passed the examinations required for the Licence of the College. The examination is directed partly to pathology and partly to the practice of medicine and may be modified in circumstances to be ascertained by application to the Registrar. For example, candidates under 40 years of age are examined in an ancient or modern language, a test from which their seniors are exempt. The fee for admission as a Member of the College is 40 guineas, except when the candidate for Membership is a Licentiate of the College, in which case the fee already paid for the Licence shall be deducted from the 40 guineas. The fee for the examination is £6 6*s*.

Fellowship.—The *Fellows* are selected annually from the ranks of the *Members*.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: THE FELLOWSHIP.

The Royal College of Surgeons of England confers its diploma of Fellow upon a few distinguished persons in an honorary capacity. Two Members of long standing may also be elected to the Fellowship annually. But the bulk of the Fellows obtain the diploma as the result of examination.

Fellowship.—The examination for the Fellowship is divided into two parts—viz., the First Examination and the Second Examination. The subjects of the First Examination are Anatomy and Physiology and the questions on these subjects may require an elementary acquaintance with Comparative Anatomy and Physiology. The examination is partly written and partly *vivâ voce*. The subjects of the Second Examination are Surgery, including Surgical Anatomy and Pathology. The examination is partly written and partly *vivâ voce* and includes the examination of patients and the performance of operations on the dead body. The examinations are held during the months of May and November of each year.

The fees for examination are:—First Examination, each admission, five guineas. Second Examination, each admission, 12 guineas. Of such examination fees 17 guineas will be reckoned as part of the fee payable upon admission to the Fellowship. The fee to be paid upon admission to the Fellowship is 30 guineas, except when the candidate is a Member of the College, in which case the fee is 20 guineas.

A Member of the College is admissible to the First Examination at any time after receiving his Diploma of Membership. A candidate who is not a member of the College is admissible to the first Professional Examination for the Fellowship on the production of evidence of having passed the First and Second Examinations of the Examining Board in England by the Royal College of Physicians of London and the Royal College of Surgeons of England (or, if a member of a University recognised by the College for the purpose, of having passed the Examinations in his University equivalent to the First and Second Examinations of the Board) and on the production of certificates of attendance upon certain courses of study described in the Regulations.

A Member of the College is admissible to the Second Examination at any time after having passed the First Examination, on producing satisfactory evidence of having been engaged not less than six years in the study (or study and practice) of the profession.

A candidate who is not a Member of the College must possess the registrable surgical and medical degrees recognised by the Council and must have been engaged in the study (or study and practice) of the profession for not less than four years subsequent to the date of obtaining the recognised qualification, one year of which shall have been spent in attendance on the Surgical Practice of a recognised hospital. The diploma of Fellow is not conferred upon successful candidates until they have attained the age of 25 years.

The Regulations may be obtained on application to the Secretary of the Examining Board, Examination Hall, Victoria Embankment, London, W.C.

SOCIETY OF APOTHECARIES OF LONDON.

There are two examinations—Primary and Final. The Final examination is divided into Section I. and Section II. The Primary examination is held quarterly. Final examinations are held monthly. No examinations are held in the month of September.

The Primary examination consists of two parts. Part I. Elementary Biology; Chemistry, Chemical Physics, including the Elementary Mechanics of Solids and Fluids, Heat, Light, and Electricity; Practical Chemistry; and Materia Medica and Pharmacy. A synopsis indicating the range of the subjects in the examination will be sent with the regulations on application. Evidence of instruction in these subjects must be produced prior to examination. Part II. includes Anatomy, Physiology, and Histology. This examination cannot be passed before the completion of twelve months' Practical Anatomy with Demonstrations, and these subjects cannot be taken separately except in the event of the candidate having previously passed in one. Evidence must be produced of the candidate's course of study. A schedule for the Primary examination, to be obtained of the Secretary, must be signed by the Dean of the Medical School or other authority. Section I. of the Final examination consists of three parts. Part I. includes the Principles and Practice of Surgery, Surgical Pathology, and Surgical Anatomy, Operative Manipulation, Instruments, and Appliances. Part II. includes the Principles and Practice of Medicine, Pharmacology, Pathology, and Morbid Histology; Forensic Medicine, Hygiene, Theory and Practice of Vaccination; and Mental Diseases. Part III. includes Midwifery, Gynæcology, and Diseases of New-born Children and the Use of Obstetric Instruments and Appliances. Section I. of the Final examination cannot be passed before the expiration of 45 months after registration as a medical student, during which time not less than three winter sessions and two summer sessions must have been passed at one or more of the medical schools connected with a general hospital recognised by the Society. Section II. of the Final examination consists of two Parts. Part I. Clinical Surgery; Part II. Clinical Medicine and Medical Anatomy. Section II. cannot be passed before the end of the fifth year.

The course of study for the *Primary examination* is as follows:—Elementary Biology, not less than three months; Chemistry and Chemical Physics, six months; Practical Chemistry, three months; Pharmacy and Dispensing, three months; Anatomy, six months; Practical Anatomy with Demonstrations, 12 months; Physiology, six months; Histology with Demonstrations, three months. The study of these subjects must be pursued at a Medical School recognised by the Society. Instruction in Pharmacy and Dispensing must be given by a registered medical practitioner or by a member of the Pharmaceutical Society by examination or in a public hospital, infirmary, or dispensary.

The course of study for the *Final examination, Section I.*, includes attendance on the Surgical and Medical Practice (with Post-mortem Examinations) at a hospital connected with a medical school for a period of one winter and one summer session; lectures on the Principles and Practice of Surgery, six months; Practical Surgery, three months; Clinical Surgical Lectures, nine months; Dressership, six months; Performance of Surgical Operations on the Dead Body; lectures on Principles and Practice of Medicine, six months; Pathology, three months; Clinical Medical Lectures, nine months; Clinical Clerkship, six months; Forensic Medicine, Hygiene, and Insanity, three months; Midwifery and Gynæcology, three months; Clinical Instruction in the same, three months; a course of Practical Midwifery; attendance on 20 Midwifery cases. The course of medical study must extend over the above-mentioned period of 45 months and the offices of dresser or clinical clerk must be held at a hospital, or other institution recognised by the Society.

The course of study for the *Final examination, Section II.*, includes either attendance on the Practice of Medicine and Surgery at a hospital or other institution recognised by the Society for a further period of 12 months, or six months as above and six months as a pupil of a registered practitioner holding a public medical or surgical appointment, or attendance at two special hospitals for six months (three months at each hospital), and for six months at a general hospital, all such hospitals to be recognised by the Society. Evidence shall also be given of practical instruction in Infectious Diseases and in Mental Diseases (at a lunatic asylum or in the wards of an institution containing a special ward set apart for the treatment of mental diseases), and in any two of the following subjects: Ophthalmic Surgery, Laryngology with Rhinology and Otology, Dermatology, and Diseases of Children. No candidate is eligible for the Final examination who has not completed the curriculum prescribed by the Society, in evidence of which a schedule, to be obtained of the Secretary, must be produced, signed by the Dean of the Medical School or other authority. Prior to Section II. of the Final examination the candidate must produce certificates: (1) of being 21 years of age; (2) of moral character; (3) of the course of medical study; (4) of proficiency in vaccination signed by a teacher authorised by the Local Government Board; and (5) of instruction in the administration of anæsthetics. Candidates intending to present themselves for examination are required to give 14 days' notice. A form for this purpose will be sent on application.

Licentiates are eligible for the Membership of the Society of Apothecaries. Particulars may be obtained on application to the clerk

The fee for the Licence is 20 guineas. The examination offices are open from 10 A.M. to 4 P.M.; on Saturdays from 10 A.M. to 1 P.M. All letters should be addressed to the Secretary, Court of Examiners, Society of Apothecaries of London, Blackfriars, E.C.

METROPOLITAN ANCILLARY SCHOOLS AND HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

THE institutions which follow provide to the medical student and medical graduate facilities for different forms of instruction and clinical observation. In each case further information can be obtained from the secretary of the hospital.

THE SEAMEN'S HOSPITAL SOCIETY possesses two hospitals—the *Dreadnought* Hospital at Greenwich, 250 beds, and the Branch Hospital in the Royal Victoria and Albert Docks, E., 50 beds. It has also two Dispensaries—one in the East India Dock-road and the other at Gravesend—from which the patients are transferred to the hospitals. The London School of Clinical Medicine is attached to the *Dreadnought* Hospital and the medical staff is as follows:—Physicians: Sir Dyce Duckworth, Bart., Dr. F. Taylor, Dr. J. Rose Bradford, Dr. Guthrie Rankin, and Dr. S. Russell Wells. Surgeons: Sir William Bennett, K.C.V.O., Mr. W. Turner, and Mr. L. H. McGavin. Ophthalmic Surgeon: Mr. L. V. Cargill. Surgeon for Diseases of the Skin: Sir Malcolm Morris, K.C.V.O. Surgeon for Diseases of the Throat, Nose, and Ear: Mr. Richard Lake. Physician in charge of the Electrical Department: Dr. M. D. Sale Barker. Assistant Physicians: Dr. Fredk. Langmead, Dr. G. M. Holmes, and Dr. Charles Singer. Assistant Surgeons: Mr. E. Rock Carling and Mr. C. C. Choyce and Mr. H. Curtis. Assistant Physician for Diseases of the Skin: Dr. Wilfrid Fox. Assistant Ophthalmic Surgeon: Dr. R. Bickerton. Assistant Surgeon for Diseases of the Throat, Nose, and Ear: Mr. G. N. Biggs. Director of Pathology: Professor R. Tanner Hewlett. Anæsthetists: Dr. M. Horne, Dr. C. Hughes, and Dr. R. E. Delbruck. Dean: Mr. C. C. Choyce. Medical Superintendent: Dr. R. D O'Leary. The London School of Tropical Medicine is attached to the Albert Dock Hospital of the Society and the medical staff is as follows:—Physicians: Sir Patrick Manson, K.C.M.G., and Dr. Andrew Duncan. Surgeons: Mr. J. Cantlie and Mr. C. C. Choyce. Assistant Physicians: Dr. F. M. Sandwith and Dr. C. W. Daniels. Ophthalmic Surgeon: Mr. L. V. Cargill. Dental Surgeon: Mr. K W. Goadby. Director: Mr. H. B. Newham. Medical Officer East India Dock-road Dispensary: Mr. W. H. F Oxley. Surgeon Gravesend Dispensary: Mr. C. E. Robbs. Secretary: Mr. P. J Michelli, C.M.G.

WEST LONDON HOSPITAL, Hammersmith-road, W.—This hospital has 160 beds, all of which are constantly in use. About 2600 in-patients and 37,000 out-patients, whose attendances number 100,000, are treated annually. Attached to the hospital is the West London Post-Graduate College. The practice of the hospital is reserved exclusively for qualified men, no junior students being admitted. Instruction is given in the medical and surgical out-patient rooms and demonstrations are

given in the wards daily. Post-graduate lectures and demonstrations are given daily except Saturdays; notice of the commencement of each course is advertised in the medical journals. Special Classes are held in Diseases of the Throat and Nose, Skin, and Eye, and in Gynæcology, Medical Electricity, Operative Surgery, Bacteriology, Anæsthetics, Intestinal Surgery, Surface Anatomy, Blood and Urine, Clinical Microscopy, Tropical Medicine, Cystoscopy, Venereal Diseases, and Operative Ophthalmology. The accommodation for post-graduates consists of a large lecture room, together with reading and writing rooms, &c. The hospital has a fully equipped pathological laboratory at which instruction is given in elementary bacteriology, a class being held every month. The fees for hospital practice, including lectures, are £6 6s. for three months or £15 15s. for one year. The certificate of the hospital is accepted by the Admiralty, War Office, Colonial Office, and India Office in cases of study leave. Further information can be obtained on application to the Dean, Mr. L. A. Bidwell, at the hospital. Physicians: Dr. Seymour Taylor, Dr. A. P. Beddard, and Dr. E. A. Saunders. Physician for Diseases of Women: Dr. Drummond Robinson. Surgeons: Mr. F. Swinford Edwards, Mr. L. A. Bidwell, and Mr. A. Baldwin. Surgeon for Diseases of the Eye: Mr. H. P. Dunn. Assistant Surgeon for Diseases of the Eye: Mr. Bishop Harman. Assistant Physicians: Dr. H. Davis, Dr. H. Pritchard, and Dr. Grainger Stewart. Assistant Surgeons: Mr. Donald Armour, Mr. John Pardoe, and Mr. Etherington Smith. Surgeon-Dentist: Mr. H. Lloyd Williams. Physician in charge of Throat and Nose and Aural Department: Dr. H. J. Davis. Physician in charge of Children's Department: Dr. E. A. Saunders. Surgeon in charge of Orthopædic Department: Mr. A. Baldwin. Pathologist: Dr. Bernstein. Dermatologist: Dr. P. S. Abraham. Administrators of Anæsthetics: Messrs. T. Gunton Alderton, Rickard W. Lloyd, E. W. Lewis, and G. P. Shuter. Assistant Anæsthetists: Dr. Austin Cooper, Dr. H. M. Page, and Dr. J. D. Mortimer. Electrician: Mr. E. D. MacDougal. X Ray Department: Dr. R. Morton. Medical Registrar: Dr. A. Elliot. Surgical Registrar: Mr. O. Addison. Secretary of the Hospital: Mr. R. J. Gilbert.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—This hospital is recognised by the Examining Board in England of the Royal Colleges of Physicians and Surgeons as a place of study during the fifth year of the medical curriculum. Besides the Honorary Staff there are two resident House Physicians, three resident House Surgeons, five Anæsthetists, Pathologist, and Resident Medical Officer. The hospital contains 182 beds which are now fully occupied. A ward for children under five years of age has been added this year. The large rectangular and circular wards, each of which contains 24 beds, the observation wards, the two operation theatres, general and special out-patient and pathological departments, are specially designed with a view of offering the greatest facilities for clinical work. An electrical department is also provided. Medical practitioners are cordially invited to see the general and special practice of the hospital. Demonstrations are given daily in the wards and out-patient departments and during the coming winter session there will be a weekly clinical lecture. Clinical assistants (qualified), clinical clerks, and pathological clerks are appointed in the general and special departments and may receive certificates at the end of their terms of office. Further particulars from the Secretary of the Medical Committee at the Hospital. Consulting Physicians: Sir S. Wilks, Bart., Sir R. W. Burnet, and Dr. E. C. Beale. Physicians: Dr. A. Morison, Dr. T. J. Horder, Dr. Symes Thompson, Dr. Hinds Howell, Dr. H. W. Wiltshire, and Dr. F. W. Price. Obstetric Physicians: Dr. G. F. Blacker and Dr. Cuthbert Lockyer. Physician for Skin: Dr. A. Whitfield. Surgeons: Mr. P. T. B. Beale, Mr. G. B. M. White, Mr. E. C. Stabb, Mr. V. W. Low, and Mr. Arthur Edmunds. Ophthalmic Surgeons: Mr. A. S. Morton and Mr. Geo. Coats. Throat and Ear Surgeons: Mr. J. Gay French and Mr. H. T. Mant. Dental Surgeon: Mr. C. Peyton Baly.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—This general hospital is in the midst of a densely populated neighbourhood of more than half a million inhabitants. It contains medical, surgical, gynæcological, and children's wards, having in all 125 beds. There are special departments for gynæcological cases, diseases of the eye, ear, throat, and nose, skin diseases, medical electricity and radiography, and dentistry. Operations are performed every afternoon of the week (except Saturday) at 2.30 P.M. Clinical instruction, laboratory classes, and lectures are given daily in the wards and out-patient departments, laboratories, and lecture hall in connexion with the North-East London Post-Graduate College attached. There are four Resident Medical Officers, and Clinical Assistants are appointed under certain conditions. Further particulars in regard to the hospital may be obtained from Mr. H. W. Carson, Secretary to the Medical Committee, 26, Welbeck-street, W.; or from Dr. A. J. Whiting, Dean of the North-East London Post-Graduate College, 142, Harley-street, W. Consulting Physicians: Sir James Reid, Bart., and Dr. Percy Kidd. Consulting Surgeons: Mr. J. Langton and Mr. Hooper May. Physicians: Dr. R. Murray Leslie, Dr. G. P. Chappel, and Dr. A. J. Whiting. Assistant Physicians: Dr. A. G. Auld and Dr. T. R. Whipham. Surgeons: Mr. Walter Edmunds and Mr. H. W. Carson. Assistant Surgeon: Mr. J. Howell Evans. Gynæcologist: Dr. A. E. Giles. Surgeon to Ear, Nose, and Throat Department: Mr. H. W. Carson. Ophthalmic Surgeon: Mr. R. P. Brooks. Physician for Skin Diseases: Dr. G. Norman Meachen. Physican in charge of the X Ray and Electrical Departments: Dr. A. H. Pirie. Dental Surgeon: Mr. W. Donston. Anæsthetists: Mr. A. De Prenderville, Mr. F. Herbert Wallace, Dr. C. F. Hadfield, and Mr. J. F. Trewby. Pathologist: Dr. G. Macdonald. Medical Registrar: Dr. Kenneth Kellie. Surgical Registrar: Mr. E. Gillespie. Secretary: Mr. F. W. Drewett.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W. (Established 1873).—Physicians: Dr. Fenwick, Dr. Parkinson, and Dr. Addinsell. Assistant Physician: Dr. Kevin Byrne. Surgeon: Sir William J. Collins. Assistant Surgeon: Mr. H. J. Paterson. Assistant Ophthalmic Surgeon: Mr. J. Stroud Hosford. Dental Surgeon: Mr. A. Alexander. The hospital contains 100 beds. The in-patients in 1909 were 1279, and the out-patients and casualties numbered 27,566 new cases. The medical and surgical practice of the hospital is open to students and practitioners. Operations: Mondays and Thursdays, 3.30 P.M.

AMALGAMATED HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITALS.—The North-West London Hospital (Kentish Town-road) and the Hampstead General Hospital have now been amalgamated. The out-patients of both hospitals attend exclusively at the North-West London Hospital, where there is a Resident Medical Officer as well as resident nurses. The Hampstead General Hospital accommodates the in-patients from the districts hitherto served by the North-West London Hospital. We append below the present staff of the Amalgamated Hospital so far as the appointments have been made. Consulting Physician: Sir Samuel Wilks, Bart. Physicians to In-patients: Dr. G. A. Sutherland and Sir John F. H. Broadbent, Bart. Surgeons to In-patients: Mr. J. Jackson Clarke and Mr. W. H. Clayton-Greene. Physicians to Out-patients: Dr. C. O. Hawthorne, Dr. A. Manuel, and Dr. Oliver K. Williamson. Surgeons to Out-patients: Mr. J. W. Thomson Walker, Mr. W. Fedde Fedden, and Mr. G. E. Waugh. Physician for Diseases of the Skin: Dr. S. E. Dore. Gynæcologist: Dr. F. E. Taylor. Ophthalmic Surgeon to In-patients: Sir William J. Collins. Ophthalmic Surgeon to Out-patients: Mr. Malcolm L. Hepburn. Throat and Ear: Mr H. S Barwell. Dental Surgeon: Mr. C. H. J. Acret. Anæsthetists: Dr. G. A. H. Barton and Mr. Hedley C. Visick. Pathologist: Dr. J. A. Torrens. Medical Officer, Roentgen Ray Department: Mr. S. Gilbert Scott. Further particulars from the secretary at the hospital.

NEW HOSPITAL FOR WOMEN, 144, Euston-road, N.W.—Physicians for In-patients: Miss Cock, M.D., and Miss Walker, M.D. Surgeons for In-patients: Miss Aldrich-Blake, M.D., M.S., and Miss Chadburn, M.D., B.S. Physicians and Surgeons for Out-patients: Miss Macdonald, M.B., Miss Anderson, M.D., B.S., Miss Woodcock, M.D., B.S., and Miss Bolton, M.D., B.S. Children's Department: Mrs. Flemming, M.D. Ophthalmic Surgeon: Miss Sheppard, M.B. Assistant Physicians for Out-patients: Miss Fraser, M.B., Miss Stoney, M.D., Miss N. Payne, M.D., and Miss Hamilton, M.D., B.S. Obstetrician: Miss Turnbull, M.D. Anæsthetists: Miss Browne, L.S.A., Miss Turnbull, M.D., and Miss Payne, M.D. A considerable number of the students hold posts in the New Hospital under the visiting staff, and in return for much valued clinical teaching they do the work assigned to students in the wards of a general hospital. Secretary: Miss M. M. Bagster.

FRENCH HOSPITAL AND DISPENSARY, Shaftesbury-avenue, W.C.—This hospital, which was founded in 1867 to afford medical treatment for poor foreigners who speak the French language, has 73 beds. It has a convalescent home at Brighton with accommodation for 61 patients, including a pavilion for the preventive treatment of consumption. Physicians: Dr. G. Ogilvie and Dr. L. Williams. Physicians to the Out-patients: Dr. L. Vintras, Dr. H. Dardenne, and Dr. Alex. Manuel. Surgeons: Mr. E. Owen, Mr. H. de Méric, and Mr. W. H. Clayton-Greene. Obstetric Physician: Dr. S. Sunderland. Ophthalmic Surgeons: Mr. C. Higgens and Mr. G. W. Thompson. Dental Surgeon: Mr. M. Thomson. Honorary Anæsthetist: Mr. Walter Tyrrell. Anæsthetist: Dr. Percy Bott.

GERMAN HOSPITAL, Dalston, N.E.—This hospital was founded in 1845 with the object of supplying medical aid to poor people speaking the German language and for cases of emergency and of accident. It has 130 beds, including a sanatorium with six beds and a convalescent home at Hitchin with 25 beds. Consulting Physician: Sir H. Weber. Consulting Surgeon: Mr. R. W. Parker. Physicians: Dr. F. P. Weber, Dr. K. Fürth, and Dr. D. O'C. Finigan. Surgeons: Mr. E. Michels, Mr. J. P. zum Busch, and Mr. G. J. Jenkins. Ophthalmic Surgeons: Mr. R. Gruber and Mr. C. Markus. Anæsthetist: (vacant). Radiographer: Mr. N. S. Finzi. Dental Surgeon: Mr. W. West. Resident Medical Officers: Mr. G. Dorner, Mr. A. Oberstadt, Mr. H. von Salis, and Mr. G. Leopold.

ITALIAN HOSPITAL.—This institution was established in 1884 for the maintenance and medical treatment of Italian and Italian-speaking people, irrespective of their religious and political opinions, who may be suffering from sickness or bodily infirmity, but the sick poor of any nationality are also admitted for treatment. The institution also provides surgical and medical relief to Italians and others not being inmates of the hospital. It has 50 beds. Honorary Consulting Physician: Sir Dyce Duckworth. Honorary Consulting Surgeon: Sir Frederick Treves. Physicians: Cav. Uff. Dr. F. Melandri, and Dr. Vincent Dickinson. Assistant Physicians: Dr. Edwin L. Ash and Dr. Philip Green. Surgeon: Mr. George Lenthal Cheatle, C.B. Assistant Surgeon: Mr. T. P. Legg. Throat and Ear Department: Cav. J. Donelan. Ophthalmic Surgeon: Mr. Stanford Morton. Consulting Dental Surgeon: Cav. J. FitzGerald. Assistant Dental Surgeon: Mr. E. Whishaw Wallis. Anæsthetists: Dr. Hugh Richard Phillips and Mr. G. H. Longton.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Albany Memorial), Queen-square, Bloomsbury.—The hospital, with the Finchley branch, contains 200 beds and cots. The physicians attend every Monday, Tuesday, Wednesday, and Friday at 2 P.M. In- and out-patient practice and electrical-room treatment at that hour. Consulting Physicians: Dr. Hughlings Jackson, Dr. Buzzard, Dr. Bastian, Dr. D. Ferrier, and Sir William Gowers. Physicians: Dr. Ormerod, Dr. Tooth, Dr. James Taylor, and Dr. J. S. Risien Russell. Physicians for Out-patients: Dr. Aldren Turner, Dr. Batten, Dr. J. S. Collier, and Dr. F. Buzzard. Assistant Physicians: Dr. Grainger Stewart and Dr. Gordon Holmes. Surgeons: Sir Victor Horsley, Mr. Donald J. Armour, and Mr. Percy W. G. Sargent. Ophthalmic Surgeon: Mr. Leslie Paton. Laryngologist and Otologist: Mr. Sydney Scott. Gynæcologist: Dr. Walter Tate. Anæsthetist: Dr. Llewelyn Powell. Clinical clerks are appointed under the in-patient physicians. Lectures are given on Tuesdays and Fridays at 3.30. The hospital is a school of the University of London and has been recognised by the Conjoint Board for England as a place where part of the fifth year may be devoted to clinical work. All communications concerning clinical appointments, lectures, and hospital practice should be addressed to the Secretary at the hospital.

BETHLEM ROYAL HOSPITAL.—This hospital is open for the admission of two Resident House Physicians who have recently obtained their diplomas to practise Medicine and Surgery. They are permitted to reside in the hospital for a term generally not exceeding six months, commencing Jan. 1st and July 1st, and are provided with apartments, complete board, attendance, washing and a salary at the rate of £100 per annum. They are under the direction of the Resident Physician and are elected by the Committee from candidates whose testimonials appear to be most satisfactory. The students of certain specified London Medical Schools receive Clinical Instruction in the wards of the hospital and qualified practitioners and other students may attend for a period of three months on payment of a fee of £3 3s. Lectures are also given in connexion with the London School of Clinical Medicine and the London Polyclinic. Resident Physician: Dr. T. B. Hyslop. Senior Assistant Physician: Dr. W. H. B. Stoddart. Junior Assistant Physician: Dr. J. G. Phillips.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton (333 beds).—The Sanatorium at Frimley contains 100 beds and 50 beds for paying patients. Six House Physicians reside in the hospital for a term of six months, whose duties include attendance in the out-patient department. Pupils are admitted to the practice of the hospital: terms, £1 1s. for one month; three months, £2 2s.; perpetual, £5 5s. Lectures and Clinical Demonstrations are given throughout the year by members of the medical staff. The next course will commence in October. Courses of instruction are given in laboratories for one month (£5 5s.). Qualified medical men are received as clinical assistants in the out-patient department without fee. Clinical Assistants are appointed to the Assistant Physician in the out-patient department and Clinical Clerks to the Physician in the wards. The hospital has been recognised by the Conjoint Board for England as a place where six months of the fifth year may be spent in clinical work. The medical practice of the hospital is also recognised by the University of London, the Apothecaries' Society, and the Army and Navy and Indian Medical Boards. The hospital contains 333 beds in the two buildings. Consulting Physicians: Dr. J. E. Pollock, Sir Richard Douglas Powell, Dr. F. T. Roberts, Dr. C. T. Williams, Dr. J. M. Bruce, Dr. T. H. Green, Dr. J. K. Fowler, Dr. T. D. Acland, and Dr. P. Kidd. Physicians: Dr. R. Maguire, Dr. H. W. G. Mackenzie, Dr. S. H. Habershon, Dr. F. J. Wethered, Dr. P. Horton-Smith Hartley, and Dr. J. J. Perkins. Assistant Physicians: Dr. H. Batty Shaw, Dr. W. C. Bosanquet, Dr. R. A. Young, Dr. C. Wall, Dr. W. J. Fenton, and Dr. A. J. Jex-Blake. Consulting Surgeons: Lord Lister and Mr. R. J. Godlee. Surgeon: Mr. S. Boyd. Dental Surgeon: Mr. G. L. Bates. Surgeon to Throat and Ear Department: Dr. Dundas Grant. Superintendent of Laboratories: Dr. A. C. Inman; X-ray Department: Dr. A. H. Greg. Resident Medical Officer: Dr. MacNalty.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—During the past year 1086 in-patients have been treated in the wards, and the large number of 41,979 cases since the opening of the wards in 1855. The number of out-patients treated during 1909 was 10,786 and 762,466 since the commencement of the institution in 1848. Information as to medical instruction can be obtained on application to the Secretary of the Clinical Sub-committee at the hospital. Consulting Physicians: Dr. J. C. Thorowgood, Dr. Eustace Smith, Dr. Vincent D. Harris, Sir William S. Church, Bart., Dr. E. Clifford Beale, Dr. Harrington Sainsbury, and Dr. G. A. Heron. Consulting Surgeon: Lord Lister. Physicians: Dr. T. Glover Lyon, Sir Hugh Beevor, Bart., Dr. W. J. Hadley, Dr. E. H. Colbeck, Dr. Arnold Chaplin, and Dr. Hugh Walsham. Surgeon: Mr. G. Lenthal Cheatle. Physicians to Out-patients: Dr. Oliver K. Williamson, Dr. Clive Riviere, Dr. O. F. F. Grünbaum, Dr. T. Lewis, Dr. Eric Pritchard, and Dr. A. H. Miller. Surgeon Dentist: Mr. Evelyn C. Sprawson. Secretary: Mr. George Watts. Secretary of the Medical Committee: Dr. T. Lewis.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road. (80 beds.)—This hospital provides accommodation for 80 in-patients. Expenditure for 1909 £6586; income £6852. The attendance of out-patients averages 26,000 annually. Consulting Physicians: Dr. Horace Dobell, Dr. P. J. Hensley, and Professor D. W. Finlay. Physicians: Dr. W. H. White, Dr. A. Davies, Dr. J. Calvert, Dr. M. Leslie, Dr. J. H. Drysdale, and Dr. A. G. Phear. Assistant Physicians: Dr. H. E. Symes-Thompson, Dr. J. Graham Forbes, and Dr. Kenneth Kellie. Consulting Surgeons: Sir Jonathan Hutchinson and Mr. Pearce Gould. Surgeon: Mr. W. Turner. Anæsthetist: Dr. G. H. Longton, Clinical Pathologist: Dr. Percy B. Ridge. Dental Surgeon: Mr. G. H. Curtis. Radiographer: Dr. A. C. Jordan. Resident Medical Officer: Dr. W. N. A. Paley. House Physician: Dr. A. W. Stott. Secretary: Mr. A. T. Mays.

THE MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, HAMPSTEAD AND NORTHWOOD, CENTRAL OUT-PATIENT DEPARTMENT, Fitzroy-square, W.—

The Hospitals contain 230 beds. Number of in-patients, 1410; out-patients, 2684. Resident Medical Staff. Lectures and Clinical Demonstrations are given by the Visiting Medical Staff at the Hospital at Hampstead and the Out-patient department. The next course begins in October, at the out-patient department. Clinical assistants are appointed to physicians in the wards, and in the out-patient department. Consulting Physicians: Sir Hermann Weber and Sir T. Clifford Allbutt, K.C.B. Consulting Surgeon: Sir W. Watson Cheyne, Bart. Physicians: Dr. J. Edward Squire, C.B., Dr. F. W. Tunnicliffe, Dr. George Johnston, Dr. F. Parkes Weber, Dr. T. N. Kelynack, Dr. T. D. Lister, Dr. A. Latham, Dr. E. W. Price, Dr. A. J. Whiting, and Dr. James Mackenzie. Pathologist: Dr. F. W. Price. Surgeon: Mr. James Berry. Laryngologist: Mr. Seccombe Hett. Anæsthetist: Dr. Herbert Scharlieb, C.M.G. Dental Surgeon: Mr. H. C. Colyer. Secretary: W. J. Morton. Offices: 7, Fitzroy-square, W.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL AND MIDWIFERY TRAINING SCHOOL, Marylebone-road, N.W.—This hospital receives over 1800 patients annually, besides having a large out-patient department. Medical pupils are received at all times of the year. Pupils have unusual opportunities of seeing obstetric complications and operative midwifery, on account of the very large number of primiparous cases—nearly one-half of the total admissions. Clinical instruction is given on the more important cases which present themselves. Certificates of attendance at this hospital are recognised by all the Universities, Colleges, and licensing bodies. Pupil midwives and monthly nurses are received and specially trained. Fees: Medical Students, £8 8*s*. for four weeks; Qualified Medical Practitioners, £8 8*s*. for four weeks. Pupil Midwives (including board and lodging), £35 for five months (trained nurses £25 for four months); Pupil Nurses (including board and lodging), £24 for sixteen weeks (trained nurses £18 for 12 weeks). The new Residential College provides accommodation for 16 men at a time, students and qualified practitioners, and is opposite the hospital, with which it is in telephonic communication. Terms for residence and full board, 30*s*. per week. For further particulars application should be made to Mr. Arthur Watts, Secretary, at the hospital. Students join preferably on the first Monday in each month. Arrangements have been made whereby 14 Medical Students can now be admitted per month (168 per annum) to the practice of the hospital in order to receive preliminary instruction in Practical Midwifery in accordance with the recommendations of the General Medical Council. This instruction will include: (1) Practical instruction in the methods of examination of pregnant women; (2) delivery of women in labour under the direct supervision of a Medical Officer of the hospital; (3) practical instruction in the treatment of the mother and child during the puerperium, including clinics held our times weekly by the Visiting Medical Staff; and (4) instruction in the Clinical Laboratory of the hospital. The fee for hospital practice will be £5 5*s*. per calendar month. Students will be accommodated at the Residential College adjoining the hospital. Terms for residence and full board, 30*s*. per week. Consulting Physicians: Dr. George B. Brodie and Dr. W. S. A. Griffith. Consulting Surgeon: Mr. Alfred Willett. Physicians to In-patients: Dr. W. J. Gow, Dr. T. W. Eden, Dr. A. F. Stabb, and Dr. C. Hubert Roberts. Physicians to Out-patients: Dr. Thomas G. Stevens and Dr. R. D. Maxwell.

THE HOSPITAL FOR WOMEN, Soho-square, W.—In connexion with the out-patient department there has been for some years a well-organised Clinical Department. Gentlemen are appointed to act as clinical assistants to the gynæcologists to out-patients. The appointments are open to qualified medical men and women. They are entitled to receive notice of all operations performed within the hospital, and every facility is afforded them by the gynæcologists in the out-patient department of obtaining experience in diagnosis and treatment and the practical use of instruments. Fee for one month £2 2*s*.; for each subsequent month the same. The hospital contains 67 beds. In the out-patient department there were over 4000 new cases during the past year, the total number of out-patient attendances being 14,500. This large number affords exceptional opportunities for examining and studying most of the varieties of the diseases of women. Applications should be made to the Dean. Consulting Physicians: Dr. C. H. Carter, Dr. E. Holland, and Dr. Richard T. Smith. Consulting Surgeon: Mr. H. A. Reeves. Consulting Surgeon Dentist: Mr. Canton. Gynæcologists: Dr. J. A. Mansell-Moullin, Dr. Bedford Fenwick, Dr. James Oliver, Dr. J. H. Dauber, Dr. T. G. Stevens, and Dr. H. J. F. Simson. Surgeon: Mr. D. Drew. Assistant Surgeon: Mr. L. H. McGavin. Surgeon Dentist: Mr. W. J. May. Anæsthetists: Mr. C. J. Ogle and Dr. M. Horne. Registrar: Dr. W. A. Milligan.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—The hospital maintains 120 cots, and on an average 245 out-patients are seen daily. Clinical instruction is given by the physicians and surgeons to the hospital, which is recognised by the Conjoint Board for England as a school of medical teaching for students in the fifth year of the curriculum. All particulars may be obtained on application to the Secretary. Two clinical clerkships for qualified or unqualified students are open every three months, subject to reappointment if desired. Clinical assistants (qualified men only) are from time to time appointed in the out-patient department. Any additional information may be obtained on applying to Mr. W. M. Wilcox, the Secretary, at the hospital. Physicians: Dr. Eustace Smith, Dr. J. A. Coutts, Dr. Morley Fletcher, Dr. E. Graham Little, and Dr. A. M. Gossage. Surgeons: Mr. W. Trotter and Mr. R. Warren. Assistant Physicians: Dr. Clive Riviere, Dr. O. K. Williamson, and Dr. T. Fisher. Assistant Surgeons: Mr. J. E. Adams and Mr. S. Hastings. Ophthalmic Surgeon: Mr. F. Juler. Dental Surgeon: Mr. E. S. Pierrepont. Medical Officer for the Electrical Department: Dr. H. Manders. Medical Officer for the Casualty Department: Dr. G. L. J. Wilson. Resident Medical Officer: Dr. H. B. Carlyle. House Physician: Mr. F. G. Caley. House Surgeon: Mr. W. F. Sutcliffe. Secretary: Mr. W. M. Wilcox

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C., contains 222 beds, divided into 95 medical, 105 surgical, and 22 for special and infectious cases, besides 30 beds at the convalescent branch, Highgate. The hospital having been recognised by the Conjoint Board for England as a place where, under the new curriculum, six months of the fifth year may be spent in clinical work, the practice is arranged to meet this need and is open to students who have completed four years of medical study and also to qualified medical men. The medical staff are recognised by the University of London as teachers in Diseases of Children. Appointments are made every three months to six medical clerkships, which are open to students of the hospital. Lectures or demonstrations are given once every week during both winter and summer sessions, which qualified practitioners are invited to attend free of charge. There is a museum in connexion with the hospital. The sessions are of ten weeks' duration, and begin in October, January, and March. Fees for hospital practice, one month, £2 2*s*; three months, 5 guineas; perpetual ticket, 10 guineas. Clinical Clerks, 1 guinea for three months. Consulting Physicians: Dr. W. H. Dickinson, Sir Thomas Barlow, Bart., Dr. D. B. Lees, and Dr. F. G. Penrose. Physicians: Dr. A. E. Garrod, Dr. A. F. Voelcker, Dr. W. S. Colman, and Dr. F. E. Batten. Physicians to Out-patients: Dr. G. F. Still, Dr. F. J. Poynton, Dr. Robert Hutchison, Dr. H. Thursfield, and Dr. T. Thompson. Consulting Surgeons: Mr. Howard Marsh, Mr. Edmund Owen, Mr. John H. Morgan, C.V.O., and Mr. Bernard Pitts. Surgeons: Mr. W. Arbuthnot Lane, Mr. Thomas H. Kellock, Mr. H. Stansfield Collier, and Mr. Edred M. Corner. Surgeons to Out-patients: Mr. G. E. Waugh, Mr. H. A. T. Fairbank, and Mr. O. L. Addison. Ophthalmic Surgeon: Mr. J. Herbert Parsons. Aural Surgeon: Mr. G. E. Waugh. Dental Surgeon: Mr. W. Warwick James. Radiographer: Dr. Ironside Bruce. Local Medical Officer for Cromwell House: Dr. A. M. Henderson. Medical Registrar: Mr. R. S. Frew. Clinical Pathologist and Bacteriologist: Dr. Graham Forbes. Anæsthetists: Mr. Graham Scott, Mr. E. E. Argles, Dr. H. S. Singlton, and Mr. R. Apperley. Resident Medical Superintendent: Mr. E. M. Huggins. Secretary: Mr. Stewart Johnston.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark-bridge-road, S.E.—This hospital contains 76 cots and a very extensive Out-patient Department. About ten clinical assistants, to work with the Honorary Medical Staff for Out-patients, are appointed quarterly for a period

of three months; there is no salary attached to these posts; but, on the other hand, no fees are charged. Consulting Physicians: Dr. J. F. Goodhart, Dr. Frederick Taylor, and Dr. Nestor Tirard. Physicians: Dr. J. Charlton Briscoe, Dr. T. R. Whipham, and Dr. D. Forsyth. Physicians in charge of Out-patients: Dr. H. C. Mann and Dr. Otto May. Physician in charge of Skin Department: Dr. S. Ernest Dore. Consulting Surgeons: Sir H. G. Howse, Mr. R. Clement Lucas, Mr. G. H. Makins, Mr. F. S. Eve, Mr. F. C. Abbott, Mr. A. H. Tubby, and Mr. C. H. Fagge. Surgeons: Mr. H. S. Clogg and Mr. W. M. Mollison. Surgeons in charge of Out-patients: Mr. C. A. R. Nitch and Mr. P. Maynard Heath. Dental Surgeon: Mr. G. G. Packe. Ophthalmic Surgeon: Mr. R. E. Bickerton. Aural Surgeon: Mr. G. N. Biggs. Anæsthetist: Mr. F. D. S. Jackson. Radiographer: Mr. R. H. Cooper. House Physicians: Mr. E. T. Rogers and Mr. F. D. Saner. House Surgeon: Mr. Douglas Wood. Secretary: H. C. Staniland Smith.

VICTORIA HOSPITAL FOR CHILDREN, Chelsea, S.W.—The hospital contains 104 beds and has a large out-patient department (over 1200 weekly); the home at Broadstairs has 50 beds. Consulting Physicians: Sir Francis Laking, Sir Wm. Henry Allchin, and Dr. Ridge Jones. Consulting Surgeons: Mr. Cowell, Mr. Pickering Pick, and Mr. D'Arcy Power. Physicians: Dr. Walter Carr, Dr. Humphry D. Rolleston, Dr. Edmund Ivens Spriggs, Dr. Charles Miller, Dr. Reginald Jewesbury, and Dr. Alexander Manuel. Physician to Skin Department: Dr. J. M. H. MacLeod. Surgeons: Mr. H. F. Waterhouse, Mr. Joseph Cunning, and Mr. Fedde Fedden. Surgeons to the Out-patients: Mr. S. Maynard Smith, Mr. Ralph Thompson, and Mr. Harold W. Wilson. Ophthalmic Surgeon: Mr. C. Devereux Marshall. Dental Surgeon: Mr. Francis R. Smyth. Anæsthetists: Dr. Randolph Grosvenor, Dr. W. B. Grandage, and Dr. F. Stanley Hewett. Electro-Therapeutic and Radiographic Department: Mr. E. S. Worrall. Resident Medical Officer: Mr. A. C. D. Firth. House Surgeon: Mr. W. Foulkes-Jones. House Physician: Mr. Norman H. Pattersall. Secretary: Mr. H. G. Evered. Out-patients are seen as under:—Diseases of the Eye: Wednesday, 2 P.M. Diseases of the Skin: Wednesday, 1.30 P.M. Whooping-cough Cases: Friday, 2.30 P.M. Medical and Surgical Cases: Mornings at 9.30. Dental Cases: Thursday, 1.30 P.M. Accidents and urgent cases are admitted at any time.

THE QUEEN'S HOSPITAL FOR CHILDREN (*late North Eastern Hospital for Children*), Hackney-road, Bethnal Green, E. (Telephone 305 Dalston. Telegrams: "Neh," London). For the sick children of the poor under 12 years of age. Established 1867. 134 beds.—During the past year 1941 in-patients and 33,616 out-patients (representing 87,679 attendances and including 16,767 casualty cases) were relieved, 788 of the in-patients being under two years of age. Consulting Physicians: Dr. W. Cayley, Dr. W. Pasteur, Dr. W. A. Wills, and Dr. James Taylor. Consulting Surgeons: Sir Jonathan Hutchinson, Mr. Waren Tay, Mr. R. J. Godlee, Mr. Bilton Pollard, and Mr. H. Percy Dean. Physicians: Dr. J. Porter Parkinson, Dr. Charles Bolton, and Dr. Sheffield Neave. Assistant Physicians: Dr. R. A. Chisolm, Dr. Eric Pritchard, and Dr. Eric Bellingham-Smith. Surgeons: Mr. Douglas Drew and Mr. Ewen C. Stabb. Assistant Surgeons: Mr. P. Lockhart Mummery and Mr. J. M. G. Swainson. Ophthalmic Surgeon: Mr. Sydney Stephenson (Thursday, 2.30 P.M.). Physician in charge of Skin Department: Dr. J. L. Bunch. (Wednesday, 1.30 P.M.). Surgeon in charge of the Ear, Nose, and Throat Department: Mr. W. G. Howarth (Monday, 10 A.M., and Thursday, 9 A.M.). Dental Surgeon: Mr. S. F. Rose (Tuesday, 9.30 A.M., and Friday, 2.30 P.M.). Medical Radiographer: Dr. William Hampson. Pathologist and Registrar: Dr. A. W. G. Woodforde. Resident Medical Officer: Mr. A. H. Platt. Four other resident medical men (appointed half yearly)—viz., two House Physicians and two House Surgeons. Matron: Miss Bushby. Secretary: Mr. T. Glenton-Kerr. The surgeons attend on Wednesdays at 2 P.M. and Fridays and Saturdays at 9.30 A.M.; the physicians daily at 2 P.M., except Saturday, 9.30 A.M., and Wednesday, 9.30 A.M., as well as 2 P.M. Applications for permission to attend the practice of the hospital should be addressed to the secretary.

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields, 1804–1899), City-road, E.C. 138 beds.—This hospital, known as Moorfields Eye Hospital, was moved in 1899 to larger buildings in City-road. In 1909 there were 2391 in-patients, the new out-patients were 49,107, and the attendances were 116,178. Operations are performed daily from 10 A.M. to 1 P.M. and four surgeons attend on each day. Students are admitted to the practice of the hospital. Fee for six months, £3 3*s.*; perpetual, £5 5*s.* Courses of instruction on the following subjects are given at the hospital periodically: (1) examination of the eye; (2) the use of the ophthalmoscope; (3) errors of refraction; (4) external diseases of the eye; (5) surgical anatomy of the eye; (6) motor anomalies; (7) pathology of the eye; (8) practical pathology; (9) bacteriology; (10) operative surgery; (11) X ray work; and (12) clinical lectures. A composition fee of £10 10*s.* will entitle students of the hospital to a perpetual ticket and will admit them once to all the above lectures and demonstrations except the classes on practical pathology, bacteriology, operative surgery, and X ray work. Students of the hospital are eligible for the offices of house surgeon or clinical and junior assistants. Junior assistants are appointed every three months. Any further information will be furnished by Mr. Robert J. Bland, Secretary. Consulting Surgeons: Sir Jonathan Hutchinson, Mr. J. Couper, Mr. E. Nettleship, Sir John Tweedy, Mr. W. Tay, and Mr. A. S. Morton. Physician: Dr. J. Taylor. Surgeons: Mr. W. Lang, Mr. J. B. Lawford, Mr. E. T. Collins, Mr. W. T. H. Spicer, Mr. P. Flemming, Mr. J. H. Fisher, Mr. A. Lawson, Mr. C. D. Marshall, and Mr. J. H. Parsons. Assistant Surgeons: Mr. C. Worth, Mr. G. Coats, and Mr. M. L. Hepburn. Medical Officer to the X Ray Department: Mr. J. M. Davidson. Curator and Librarian: Mr. A. C. Hudson. Bacteriologist: Mr S. H. Browning. Senior House Surgeon: Mr. W. Ward. Second House Surgeon: Mr. H C Snell. Third House Surgeon: Mr. A. B. Cluckie. Refraction Assistants: Mr. T. Phillips, Mrs. Warner, and Mr. G. T. Mould.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand.—The hospital contains 40 free beds. Patients, who number over 14,000 annually, are seen at 1 P.M., and operations performed daily at about 2 P.M. The following are the days of attendance of the surgeons: Mr. Grimsdale and Mr. Brewerton, Mondays and Thursdays; Mr. Roll and Mr. McMullen, Tuesdays and Fridays; and Mr. Dodd and Mr. Cruise, Wednesdays and Saturdays. The practice of the hospital is open to practitioners and students. Fees for six months, £3 3*s.*; perpetual, £5 5*s.* Students of the hospital are eligible for the posts of house surgeon, assistant house surgeon, pathologist, and clinical assistants. Special demonstrations and lectures will be given during the session, commencing early in October; for details see weekly journals. Clinical Assistants (who must be duly qualified) to the Surgical Staff are appointed for periods of six months. Secretary: Mr. John Hy. Johnson.

ROYAL EYE HOSPITAL, St. George's-circus, Southwark, S.E.—There are 40 beds and 2 cots. There were 67,458 attendances in the Out-patient Department last year and the new patients numbered 21,125. Operations are performed, and out-patients are seen daily at 9 A.M. and 2 P.M. The following are the days of attendance:—Afternoons: Sir William J. Collins, Wednesdays; Mr. L. V. Cargill, Tuesdays; Mr. J. Stroud Hosford, Mondays and Fridays; and Mr. E. Brooksbank James, Mondays and Thursdays. Mornings: Dr. H. Willoughby Lyle, Tuesdays and Fridays; and Mr. A. D. Griffith, Mondays, Thursdays, and Saturdays. Qualified practitioners and students are admitted to the practice of the hospital upon the recommendation of the medical staff. Courses of instruction in Ophthalmology will be given, commencing October, January, and May. In addition special lectures and clinical demonstrations will be given by the hospital staff on dates to be announced. Fee for the course, including three months' hospital practice, £3 3*s.* Tutorial classes for the various examinations arranged as far as possible to suit candidates. Clinical assistantships are open to fully qualified practitioners who have received a course of instruction at the hospital. Further particulars may be obtained from the honorary secretary, Dr. H. Willoughby Lyle.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—This hospital has 26 beds and possesses facilities for clinical teaching daily. Last year there were 452 in- and 13,718 out-patients (entailing 31,650 attendances). Classes of instruction in the various branches of

Ophthalmology will be held during the winter session, commencing in October. The out-patient work begins at 1 o'clock and operations are performed daily between 1 and 4. Consulting Physician: Sir Dyce Duckworth, Bart. Surgeons: Mr. T. Brittin Archer, Mr. Ernest Clarke, and Mr. A. P. L. Wells. Assistant Surgeons: Mr. Stephen Mayou, Mr. A. C. Hudson, and Mr. J. F. Cunningham. Physician: Mr. Charles O. Hawthorne. Pathologist: Mr. Stephen Mayou. House Surgeon: Mr. W. J. Chambers. Dentist: Mr. E. P. May. Secretary: Mr. H. R. S. Druce.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—In addition to the new In-patient Department and operation theatre the hospital has a very extensive out-patient department, which is open to all medical practitioners and students for the purpose of clinical demonstration and instruction during the hours of the surgeons' visits. During the past year 10,752 out-patients (involving 49,932 attendances) and 700 in-patients were treated. The fee for three months' attendance, 5 guineas; for six months, 8 guineas. The post-graduate teaching consists of successive series of practical demonstrations by the members of the staff delivered twice weekly during the winter and summer sessions. They are so arranged that practitioners joining at any part of the course are enabled to complete the group of subjects. A special Operative Surgery class is held at intervals. The fee for each course is 2 guineas, with daily attendance at the out-patient department during the period of the course. Details of subjects, &c., will be afforded by the Dean. Considerable attention is given to scientific work, particularly with regard to Bacteriology of the ear and respiratory passages. Operation days: in-patients, Monday, Tuesday, Wednesday, Thursday, and Friday, at 2 P.M.; out-patients, daily at 9 A.M. Consulting Physicians: Dr. Arthur Orwin and Dr. Purves Stewart. Consulting Surgeon: Sir Watson Cheyne, Bart. Consulting Ophthalmic Surgeon: Mr. Stanford Morton. Surgeons: Dr. Dundas Grant, Dr. Percy Jakins, Mr. Chichele Nourse, Dr. Abercrombie, Mr. Stuart-Low, and Dr. Andrew Wylie. Assistant Surgeons: Dr. Atkinson, Dr. McKenzie, and Mr. Gay French. Pathologist: Dr. Wyatt Wingrave. Dental Surgeon: Mr. Whishaw Wallis. Assistant Dental Surgeon: Mr. Henning James. Anæsthetists: Mr. W. Hotten George and Dr. Beresford Kingsford. Assistant Anæsthetists: Dr. Mortimer and Dr. Crampton. In addition the following appointments are open to qualified members of the profession:—Six Registrars, tenable for twelve months; and sixteen Clinical Assistants, tenable for three or six months. Dean: Dr. Wyatt Wingrave. Secretary: Mr. Richard Kershaw.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Clinical Demonstrations on the Diseases of the Throat, Nose, and Ear are given daily at 2 P.M. and on Tuesday and Friday evenings at 6 P.M. Operations are performed daily at 9.30 A.M. Individual instruction is given in the examination of cases to students attending the hospital. Fees: one month's attendance, £1 1*s.*; three months, £2 2*s.*; perpetual, £5 5*s.* Detailed information may be obtained from the Hon. Secretary of the Medical Committee. Surgeons: Mr. Claud Woakes, Dr. G. Cathcart, Dr. W. H. Kelson, and Mr. Atwood Thorne. Assistant Surgeons: Mr. Sommerville Hastings, Dr. Irwin Moore, and Mr. Francis Muecke.

THE METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL.—The hospital was founded in 1838 and is situated in Grafton-street, Tottenham-court-road. The out-patient department is opened daily at 2.30 P.M. to all medical practitioners and senior students for acquiring clinical instruction and technical knowledge. Operations upon in-patients are performed on Tuesdays, Wednesdays, Thursdays, and Fridays at 9.30 A.M. Fee for one month's attendance at the hospital £1 1*s.*, and for three months £2 2*s.* During the forthcoming session practical demonstrations will be given by members of the staff on the diagnosis and treatment of diseases of the ear and respiratory passages. Each course may commence at any time. Consulting Surgeons: Mr. G. Saunders and Mr. J. Pickett. Surgeons: Mr. H. Pegler, Mr. F. Spicer, Mr. W. J. Horne, and Mr. J. C. Potter. Assistant Surgeons: Mr. B. Jones, Mr. A. L. Murison, and Mr. E. W. Bain. Anæsthetists: Mr. C. Looseley, Mr. D. J. Munro, Mr. J. D. Mortimer, and Mr. R. Pollard. Dentist: Mr. J. A. Bowes.

ROYAL EAR HOSPITAL, Dean-street, Soho. (Founded 1816.)—Courses of instruction of a practical character in Diseases of the Ear and Nose are given by the members of the staff throughout the year. Clinical assistants are also appointed. Students may join at any time. For information address the Honorary Secretary of the Medical Board, Royal Ear Hospital, Dean-street, Soho. Surgeons: Mr. M. Yearsley, Mr. Richard Lake, Mr. W. H. Bowen, Mr. R. S. Cocke, Mr. E. A. Peters, and Mr. A. Evans. Anæsthetists: Dr. Harold Sington, Dr. Lawson, Dr. Maclean, and Mr. P. P. Cole. Ophthalmic Surgeon: Mr. H. W. Lyle. Dental Surgeon: Mr. F. W. Barrett.

ST. PETER'S HOSPITAL FOR STONE AND OTHER URINARY DISEASES, Henrietta-street, Covent Garden. Established 1860. New Hospital opened 1882.—Honorary Surgeons: Mr. F. Swinford Edwards and Mr. P. J. Freyer. Assistant Surgeons: Mr. John Pardoe, Mr. J. W. Thomson Walker, and Mr. J. Swift Jolly. The hospital contains 30 beds for men and 2 beds for women and children. Consultations are held and operations are performed each Wednesday and Friday at 2 P.M. Medical practitioners and students are invited to the clinical instructions which are given in the wards and out-patient department daily, and to the operations in the theatre on Wednesdays and Fridays at 2 P.M. Average beds occupied daily, 29; average out-patients seen daily, 125.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN Leicester-square, W.C. Rebuilt 1905.—The in-patient department, 40 beds, is at 262, Uxbridge-road, W. The out-patient practice is open to the medical profession at the following times: Every day, from 2 to 4 P.M., and every evening (except Saturday) 6 to 8. At the afternoon clinics specially selected Clinical Demonstrations, also demonstrations on the different diseases presenting themselves in the out-patient department, will be given. The X ray department is in operation every afternoon except Saturday. The Chesterfield Lectures by Dr. Morgan Dockrell are given on Thursdays at 6 P.M., October to March, in the lecture room at 49, Leicester-square. At the end of the course the Chesterfield silver medal may be competed for by those who have attended three-fourths of the lectures. Physicians: Dr. Morgan Dockrell, Dr. Alfred Eddowes, Dr. Agnes Savill, and W. Griffith. Surgeons: Mr. M. K. Hargreaves and Mr. G. W. Dawson. Assistant Physicians: Dr. J. L. Bunch, Dr. Knowsley Sibley, Dr. V. H. Rutherford, and Dr. Louis F. Knuthsen. There is a well-equipped laboratory where special courses in Pathology and Bacteriology of the Skin may be arranged for.

LONDON LOCK HOSPITAL AND RESCUE HOME.—This institution consists of a hospital for females in the Harrow-road and a hospital for males in Dean-street, Soho. At the latter branch an out-patient department is attached and both sexes receive treatment. In the female branch there are 138 beds and 352 patients were admitted in 1909. In the male branch there are 27 beds which during 1909 accommodated 214 patients. 32,278 out-patients were treated. Patients are seen at Dean-street on Mondays from 1 to 2 P.M. and from 6 to 8 P.M.; on Tuesdays and Wednesdays from 6 to 8 P.M.; on Fridays from 2 to 3 P.M. (female patients); and on Saturdays from 2 to 4 P.M. Consulting Surgeons: Mr. Buxton Shillitoe and Mr. J. A. Bloxam. Consulting Ophthalmic Surgeon: Mr. Henry Edward Juler. Physician: Dr. Sidney Phillips. Surgeons: Mr. J. Ernest Lane, Mr. Arthur Shillitoe, and Mr. Charles Gibbs. Surgeons to Out-patients: Mr. Charles Gibbs, Mr. Arthur Shillitoe, Mr. Charles Ryall, Mr. Herbert J. Paterson, and Mr. J. E. R. McDonagh. House Surgeon at the Female Hospital: Mr. Washington E. Wilks. House Surgeon at the Male Hospital and Out-patients' Department: Mr. A. Forster.

COOKE'S SCHOOL OF ANATOMY, PHYSIOLOGY, AND OPERATIVE SURGERY, London.—The school is prepared to admit to its supplementary work all who may wish to join the same, but in regard to its curriculum work it does not receive more than half-a-dozen students in the course of the year; these have special advantages both as regards Anatomy and Physiology. Charges are but slightly in excess of current charges and particulars are forwarded on application. By the decision of various examining bodies gentlemen rejected at their Anatomical and Physiological Examinations can get signed up for the supplementary work they are required to put in before re-examination. The operations of surgery are performed on the dead body and the courses are recognised for army promotion. The school possesses a good collection of physiological and chemical apparatus, and candidates for the higher examinations receive special instruction in the more difficult subjects.

ENGLISH PROVINCIAL ANCILLARY SCHOOLS AND HOSPITALS.

Under this heading we include all the hospitals which are recognised by the English Royal Colleges for a part of the required attendance on medical and surgical practice, for medical clerkships, and surgical dresserships. The list includes nearly every hospital of a general character in the country having more than 150 beds, though occasionally a large hospital is omitted because equally good opportunities are afforded to students at other institutions in its neighbourhood, while a small hospital may be included because no such facilities for study are present elsewhere. The list is arranged alphabetically as to the town where the hospital is located.

BATH ROYAL UNITED HOSPITAL, Bath.—This hospital contains 130 beds. Consulting Physician: Dr. A. E. W. Fox. Consulting Surgeons: Mr. R. J. H. Scott, Mr. F. K. Green, and Mr. T. D. Ransford. Physicians: Dr. G. A. Bannatyne, Dr. T. W. Smith, and Dr. E. J. Cave. Assistant Physicans: Dr. G. E. Bowker, Dr. L. H. Walsh, and Dr. R. Waterhouse. Surgeons: Mr. H. G. Terry, Mr. F. Lace, and Mr. F. Fraser. Assistant Surgeons: Mr. W. S. Melsome, Mr. E. L. Fuller, and Mr. W. G. Mumford. Physician to Electrical Department: Dr. P. King. Pathologist and Curator of Museum: Dr. R. Waterhouse. Anæsthetist: Mr. A de V. Blathwayt. Assistant Anæsthetist: Dr. F. G. Thomson. Dental Surgeon: Mr. W. J. Royal. Assistant Dental Surgeon: Mr. S. Carter. Secretary: Mr. J. M. Sheppard. House Surgeon: Dr. A. J. Bruce-Leckie. House Physician: Dr. N. W. Steinberg.

BEDFORD COUNTY HOSPITAL, Bedford.—This hospital has 100 beds. Consulting Physician: Dr. G. P. Goldsmith. Consulting Surgeons: Mr. E. C. Sharpin and Mr. R. H. Kinsey. Physicians: Dr. R. Coombs and Dr. W. Phillips. Surgeons: Mr W. Gifford Nash and Mr. Henry Skelding. Ophthalmic Surgeon: Dr. H. Goldsmith. Assistant Physicians: Dr. A. C. Perram and Dr. G. T. Birks. Assistant Surgeons: Dr. S. J. Ross and Mr. Walter Sharpin. Dental Surgeon: Mr. F. W. Williams. Secretary: Mr. W. F. Morley.

BRADFORD ROYAL INFIRMARY, Bradford.—This hospital contains 210 beds. Consulting Physicians: Dr. Reginald G. Alexander, Dr. Herbert C. Major, and Dr. David Goyder. Physicians: Dr. Henry J. Campbell, Mr. Thomas Wilmot, Dr. Richard Honeyburne, and Dr. F. W. Eurich. Consulting Surgeons: Mr. Philip E. Miall and Mr. Harry Meade Surgeons: Mr. William H. Horrocks, Mr. Charles F. M. Althorp, Dr. Thomas J. Wood, and Mr. John B. Hall. Gynæcologist: Dr. A. C. F. Rabagliati. Laryngologist: Dr. Adolph Bronner. Electrical Department: Mr. William Mitchell. Assistant Surgeons: Mr. James Phillips and Mr. Francis W. Goyder. Assistant Physicians: Dr. John B. Dunlop and Dr. William Wrangham. Dental Surgeon: Mr. Arthur A. Matthews.

SUSSEX COUNTY HOSPITAL, Brighton (196 beds).—This hospital affords ample facilities for students, possessing a large out-patient department, a library, and a well-appointed clinical research and bacteriological department. The hospital does not take resident pupils, but out-pupils may attend the practice of the hospital for any period not exceeding two years on payment in advance of such a fee, not exceeding 20 guineas, as the Committee of Management shall direct. Consulting Physicians: Dr. Rutter, Dr. Hollis, and Dr. Branfoot. Physicians: Dr. J. F. G. Dill, Dr. Hobhouse, and Dr. Maynard. Assistant Physicians: Dr. W. Broadbent, Dr. Hall, and Dr. Bailey. Consulting Surgeons: Mr. H. P. Blaker, Mr. W. Furner, and Mr. T. J. Verrall. Surgeons: Mr. R. F. Jowers, Mr. F. J. Paley, and Mr. A. H. Buck. Assistant Surgeons: Mr. T. H. Ionides, Mr. W. A. Bowring, and Mr H W. Fletcher. Honorary Medical Clinical Assistant: Dr. C H. Benham. Honorary Surgical Clinical Assistant: Mr A G. Bate.

KENT AND CANTERBURY GENERAL HOSPITAL, Canterbury.—The hospital contains 104 beds. Pupils of the staff are admitted to the practice of the hospital and have the use of the library of the East Kent and Canterbury Medical Society for £7 7s. Operation day, Thursday, 11 A.M. Physicians: Dr. Harold Wacher and Dr. M. T. Williams. Consulting Surgeons: Mr. James Reid and Mr. Frank Wacher. Surgeons: Mr. J. Greasley, Mr. Sidney Wacher, Mr. Z. Prentice, and Dr. T. Whitehead Reid. Dentist: Mr. R. S. N. Faro. Secretary: Mr. Arthur J. Lancaster.

DERBYSHIRE ROYAL INFIRMARY, Derby.—This hospital contains 259 beds. Consulting Physicians: Dr. Charles A. Greaves, Dr. Winfred Benthall, and Dr. G. Rice. Physicians: Dr. Edmund Vaudrey, Dr. Maurice Parry-Jones, and Dr. Hugh Barber. Consulting Surgeons: Mr. John A. Sharp, Mr. Charles H. Hough, and Mr. John L. Wright. Surgeons: Dr. Richard H. Luce, Mr. John A. Southern, Mr. Francis L. A. Greaves, and Mr. John E. Kilvert. Ophthalmic Surgeon: Mr. Edwin Collier Green. Gynæcologist: Mr. Henry T. Hicks. Anæsthetists: Mr. W. St. A. St. John, Dr. J. D. C. Allen, and Dr. J. W. King. Pathologist: Dr. Hugh Barber. Dental Surgeons: Mr. Charles J. Allin and Mr. J. Montague Murphy.

ROYAL DEVON AND EXETER HOSPITAL, Exeter.—Medical and Surgical Staff: Consulting Physician: Dr. Drake. Physicians: Dr. H. Davy and Dr. William Gordon. Surgeons: Mr. J. D. Harris, Mr. E. J Domville, Mr. Charles E. Bell, and Mr. A. C. Roper. Medical Registrar and Pathologist: Mr. Reginald V. Solly. Surgeon Dentist: Mr. J. M. Ackland. Anæsthetists: Mr. Henry Andrew and Mr. J. Shirley Steele-Perkins. The hospital contains 200 beds (including special children's wards) and has a good library, museum, dissecting room, and post-mortem room. Attendance on the practice of this hospital qualifies for all the examining boards. Arrangements can be made by which students can attend Midwifery on application to the House Surgeon. There is also a Private Nursing Staff attached to the hospital. For particulars as to fees, &c., apply to the Matron. A new wing was added in 1897. Arrangements may be made by which gentlemen in practice desiring to increase their qualifications may have the use of the museum and library and other facilities and by which students may attend midwifery. A new Operating Theatre was opened in 1906 (the gift of Mrs. Nosworthy of Newlands, Dawlish, Devon). An Electrical Treatment Department (the gift of Mrs. M. A. Sanders) was opened in 1907 by Lady Duckworth-King.

WEST OF ENGLAND EYE INFIRMARY, Exeter.—Physician: Dr. William Gordon. Surgical Staff: Mr. A. C. Roper and Mr. Ransom Pickard. Assistant Surgeon: Mr. G. P. Hawker. Secretary: Mr. Sidney E. Whitton. The infirmary contains 64 beds. Students of the Exeter Hospital can attend the practice of the Eye Infirmary. Patients for the year ending Michaelmas, 1909, 3224.

THE GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION, Gloucester.—This hospital, which was granted the title of "Royal" on the occasion of King Edward VII.'s visit to Gloucester in the year 1909, has 140 beds. Consulting Surgeons: Mr J. P. Wilton, Mr. T. S Ellis, Mr. R. M. Cole, and Mr H E. Waddy. Physicians: Dr. O W. Clark and Dr. W. W. Grosvenor. Assistant Physician: Dr. D. E. Finlay Surgeons: Mr. E. D. Bower, Mr. W. Washbourn, and Mr. G W. Ancrum. Ophthalmic Surgeon: Mr E. D. Bower. Assistant Surgeon: Mr C. V. Knight. Secretary: H. P. Pike. In patients, 1462; out-patients, 8833.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill, Stoke-on-Trent.—The New Infirmary, opened in 1869, is built on the pavilion plan, has accommodation for over 200 patients, including Children's wards, and a special department for the treatment of Diseases of the Eye, so that there are excellent facilities for acquiring a practical knowledge of the profession. An appeal has just been issued, and great efforts are being made to raise the sum of £35,000, with the object of carrying out certain alterations and additions to the buildings—notably a new Out-patient Department, new wards to the Children's Pavilion, and other improvements. A new laundry is on the verge of completion at a cost of about £4500. Physicians: Dr. H. Nicholls and Dr. S. King Alcock. Surgeons: Dr. G. Stokes Hatton and Dr. Wheelton Hind. Assistant Physicians: Mr. John Russell and Dr. W. E. L. Horner. Assistant Surgeons: Mr. Reginald Alcock and Dr. W. C. Allardice. Ophthalmic Surgeon: Mr. Herbert H. Folker. Assistant Ophthalmic Surgeon: Mr. R. H. Dickson. Medical Officer in Charge of the Electrical Department: Dr. G. H. List. Dental Surgeon: Mr. A. Baines. Secretary and House Governor: Dr. T. Basil Rhodes.

HULL ROYAL INFIRMARY, Hull.—This hospital contains 249 beds. Consulting Physician: Dr. Edward O. Daley. Consulting Surgeons: Sir John Sherburn, Mr. Thomas M. Evans, and Mr. Robert H. B. Nicholson. Consulting Ophthalmic Surgeon: Dr. W. C. Rockliffe. Physicians: Dr.

Frank Nicholson, Dr. Frank C. Eve, and Dr. Edward Turton. Surgeons: Mr. Edmund H. Howlett, Mr. Alfred G. Francis, Mr. Henry W. Pigeon, and Mr. Edward Harrison. Ophthalmic Surgeon: Mr. A. Legge Roe. Assistant Ophthalmic Surgeon: Dr. Duncan A. Mackay. Assistant Surgeons: Mr Harold Upcott, Mr. Edward M. Hainworth, Mr. Robert Grieve, and Mr. Guy B. Nicholson. Dental Surgeon: Mr. John C. Storey. Assistant Dental Surgeon: Mr. Arthur W. Turton. Anæsthetists: Mr. Harry L. Evans and Dr. A. T. Sissons.

LEICESTER INFIRMARY, Leicester.—Instruction in the infirmary for first-year students is duly recognised by the various examining bodies. At the General Infirmary there are 230 beds, and at the Children's Hospital in connexion 42; total 272. A new wing containing 100 beds was recently opened by H.R.H. the Duchess of Argyll. A new Nurses' Home containing separate accommodation for 100 nurses has lately been opened. A reconstruction scheme has recently been carried out, and £100,000 spent on bringing the accommodation of the institution to a modern standard of efficiency. This scheme has included the provision of two modern operating theatres, as well as a self-contained out-patients' department. There are eight resident medical officers. Consulting Surgeon: Mr. George C. Franklin. Physicians: Dr. Frank M. Pope, Dr. Reginald Pratt, and Dr. Astley V. Clarke. Surgeons: Mr. Charles J. Bond, Mr. Claude Douglas, Mr. Henry J. Blakesley, and Mr. Cecil E. Marriott. Ophthalmic Surgeon: Mr. Nicholas C. Ridley. Aural Surgeon: Dr. Frederick W. Bennett. Assistant Physicians: Dr. Robert Sevestre and Dr. T. Villiers Crosby. Assistant Surgeons: Mr. John S. Sloane and Mr. F. Bolton Carter. House Governor and Secretary: Mr. Harry Johnson.

NORTHAMPTON GENERAL HOSPITAL, Northampton.—Two new wings were opened in 1904 and the old buildings entirely renovated and re-arranged. The number of beds is 166. Non-resident pupils are received and have every opportunity of acquiring a practical knowledge of their profession. The fee is £10 10*s*. Pupils can be received at any time. Physicians: Dr. Frank Buszard and Dr. Peverell S. Hichens. Surgeons: Mr. George H. Percival and Dr. R. A. Milligan. Ophthalmic Surgeon: Mr. E. Harries Jones. Assistant Physician: Dr. W. M. Robson. Assistant Surgeon: Mr. N. Blake Odgers. Dental Surgeon: Mr. E. Rogers Bull.

NORFOLK AND NORWICH HOSPITAL, Norwich.—This hospital has 210 beds. Non-resident pupils admitted. Fees: For three months, £3 3*s*.; for six months, £5 5*s*.; as permanent pupil, £8 8*s*. Consulting Physician: Sir P. Eade. Consulting Surgeons: Dr. Beverley and Mr. H. S. Robinson. Physicians: Dr. Barton, Dr. Burton-Fanning, and Dr. Long. Surgeons: Mr. S. H. Burton, Mr. D. D. Day, and Mr. H. A. Ballance. Assistant Physician: Dr. A. J. Cleveland. Assistant Surgeons: Mr. E. W. Everett and Mr. A. J. Blaxland. Dental Surgeon: Mr. H. F. White. Electro-Therapeutist: Dr. A. J. Cleveland. Secretary: Mr. F. G. Hazell.

NOTTINGHAM GENERAL HOSPITAL.—This hospital contains 241 beds. Consulting Physician: Dr. Henry Handford. Physicians: Dr. Charles H. Cattle, Dr. Frank H. Jacob, and Dr. William T. Rowe. Assistant Physician: Dr. James C. Buckley. Consulting Surgeons: Mr. Thomas Wright and Mr. R. C. Chicken. Surgeons: Dr. H. Owen Taylor, Mr. Alexander R. Anderson, Mr. Joseph Thompson, and Mr. Robert G. Hogarth. Assistant Surgeons: Mr. W. Morley Willis and Mr Charles H. Allen. Dental Surgeon: Mr. George W. Harris.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, Plymouth.—This hospital contains 155 beds. Consulting Physician: Dr. R. H. Clay. Physicians: Dr. E. L. Fox and Dr. A. B. Soltau. Consulting Surgeon: Mr. P. Swain. Surgeons: Mr. W. L. Woollcombe Mr. R. H. Lucy, and Mr. H. W. Webber. Assistant Surgeons: Mr. C. E. R. Rendle, Mr. G. F. Aldous, and Mr. W. Crosbie Hamilton. Pathologist: Dr. W. L. Pethybridge. Physician in charge of X Ray and Finsen Light Department: Dr. W. Cheyne Wilson. Anæsthetists: Mr. C. H. Whiteford, Mr. E. G. Smith, and Mr. G. C. F. Robinson. Registrar and Emergency Anæsthetist: Mr. G. E. Earl. Dental Surgeon: Mr. G. R. Brittan.

THE ROYAL HOSPITAL, Portsmouth (founded 1847).—The number of beds is 146. Honorary Physicians: Dr. John Phillips and Dr. C. C. Claremont. Surgeons: Mr. C. J. Childe, Mr. T. A. M. Forde, and Mr. A. B. Wright. Honorary Anæsthetist: Dr. W. J. Essery. Honorary Assistant Physicians: Dr. W. P. McEldowney, Dr. J. T. Leon, and Dr. E. J. Davis Taylor. Honorary Assistant Surgeons: Mr. L. Cole Baker, Mr. C. A. Scott Ridout, and Mr. H. Burrow. The hospital is a preparatory School of Medicine and Surgery; the attendance of pupils at this hospital is recognised by the Examining Boards. Particulars of the Secretary at the hospital.

ROYAL BERKSHIRE HOSPITAL, Reading.—This hospital contains 168 beds. Consulting Surgeon: Mr. James H. Walters. Physicians: Dr. Charles W. Marriott and Dr. Francis H. Hawkins. Assistant Physicians: Dr. William T. Freeman and Dr. George S. Abram. Surgeons: Mr. William J. Maurice and Dr. J. A. P. Price. Assistant Surgeons: Dr. Lansdown M. Guilding and Mr. William J. Foster. Aural Surgeon: Mr. Arthur Roberts. Ophthalmic Surgeon: Mr. Richard P. Brooks. Consulting Dental Surgeon: Mr. Allan L. Goadby.

SALISBURY GENERAL INFIRMARY, Salisbury.—This hospital contains 120 beds. Consulting Physician: Dr. G. C. Morrice. Physicians: Dr. W. W. Ord and Dr. E. T. Fison. Surgeons: Mr. L. S. Luckham, Dr. C. G. B. Kempe, and Mr. H. L. E. Wilks. Surgeon Dentist: Mr. H. L. Fare brother. Secretary: Mr. S. B. Smith. In-patients, 7 weekly; average out-patients, 1051; attendances on casuals 2748; dental cases, 564. Assistant Secretary: Mr. G. H. Henbest.

SALOP INFIRMARY, Shrewsbury.—This hospital has 12 beds. Consulting Physicians: Dr. E. Burd, Dr. R. W. C. Withers, and Dr. E. Lycett Burd. Physicians: Dr. H. W. Gardner, Dr. R. H. Urwick, and Dr. C. V. Bulstrode. Consulting Surgeon: Mr. W. Eddowes. Surgeons: Mr. A. Jackson, Mr. H. H. B. MacLeod, and Mr. L. J. Godson. Ophthalmic Surgeon: Mr. C. G. Russ Wood. Pathologist: Dr. T. L. Webb. Radiographer: Mr. W. F. Buckle. Dental Surgeon: Mr. W. E. Harding. Secretary: Mr. Joseph Jenks. In-patients, 1304; out-patients, 2640; out-patient attendances for the year, 23,727.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL, Southampton.—This hospital contains 130 beds. Physicians: Dr. J. L. Thomas and Dr. N. E. Aldridge. Assistant Physicians: Dr. H. P. Ward, Dr. J. H. P. Fraser, and Dr. B. N. Tebbs. Surgeons Extraordinary: Mr. W. Sims and Mr. A. B. Wade. Surgeons: Mr. H. W. Shettle, Mr. J. H. Keele, and Mr. W. P. Purvis. Assistant Surgeon: Mr. G. H. Cowen. Throat and Ear Surgeon: Mr. W. P. Purvis. Dental Surgeon: Mr. A. Saunders. Electro-Therapeutic Department: Dr. N. E. Aldridge. Secretary: Mr. T. A. Fisher-Hall. In-patients, 2025; out-patients, 9374.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—This hospital has 77 beds. Honorary Consulting Physician: Dr. G. Reid. Physicians: Dr. C. Reid and Dr. L. Gray. Surgeons: Mr. F. M. Blumer and Mr. F. H. Marson. Assistant Honorary Surgeon: Mr. F. N. Cookson. Ophthalmic Surgeon: Mr. A. B. Cridland. Surgeon Dentist: Mr. W. H. Ridge. Secretary: Mr. R. Battle. In-patients 1017; out-patients, 4278.

ROYAL HANTS COUNTY HOSPITAL, Winchester.—This hospital has 108 beds. Honorary Consulting Physicians: Dr. W. M. Harman and Dr. H. E. Wingfield. Physicians: Dr. G. F. A. England, Dr. A. E. Bodington, and Dr. G. A. Tullis. Surgeons: Mr. C. Wace, Mr. H. J. Godwin, and Mr. F. J. Child. Honorary Ophthalmic Surgeon: Mr. J. F. Bullar. Honorary Dental Surgeon: Mr. L. M. Balding. Acting Secretary: Mr. A. D. White.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL, Wolverhampton.—There are 200 beds. Special departments for Children, Gynæcology, Ear, Throat, and Nose Diseases, Electro-therapeutic and X ray departments. There is an excellent library. The resident officers are a resident surgical officer, a resident medical officer, and two house surgeons. Pupils are allowed to witness the whole of the practice of the hospital and to be present at operations and have every opportunity of acquiring a practical knowledge of their profession. Fees: £3 3*s*. a quarter, £10 10*s*. the first year, and £5 5*s*. subsequent years. A course of Practical Pharmacy is given by the dispenser. Fee £3 3*s* for three months. Applications should be made to the Secretary of the Medical Committee.

Staff.—Consulting Physician: Dr. W. Millington. Consulting Surgeon: Mr. W. H. T. Winter. Physicians: Dr. H. Malet and Dr. J. A. Codd. Surgeons: Mr. E. Deanesly, Mr. A. H. Hunt, and Mr. W. F. Cholmeley. Assistant Physicians: Dr. A. H. Carter, Dr. E. H. Coleman, and Dr. T. H. Galbraith. Assistant Surgeons: Mr. H. Dent and Mr. C. A. Stidston. Anæsthetists: Dr. E. W. Strange and Mr. David Mann.

WORCESTER GENERAL INFIRMARY, Worcester.—This hospital has 132 beds. Consulting Physician: Dr. E. H. W. Swete. Physicians: Dr. G. W. Crowe, Dr. M. Read, and Dr. H. A. Watson. Consulting Surgeons: Mr. G. E. Hyde and Mr. T. Bates. Surgeons: Mr. T. P. Gostling, Mr. C. Pollard, and Mr. T. Bates, jun. Secretary: Mr. W. Stallard. In-patients, 1268; out-patients, 6596.

YORK COUNTY HOSPITAL, York.—This hospital contains 150 beds. Consulting Physician: Dr. Richard Petch. Physicians: Dr. Richard Turner, Dr. William A. Evelyn, and Dr. J. S. Gayner. Consulting Surgeon: Mr. Frederick Shann. Surgeons: Mr. William H. Jalland, Mr. G. Wilfred Gostling, Dr. Noel L. Hood, and Mr. Gerald S. Hughes. Consulting Ophthalmic Surgeon: Dr. Tempest Anderson. Ophthalmic Surgeon: Dr. Peter Macdonald. Electrotherapeutic Department: Mr. Hinton E. Bateman. Anæsthetist: Mr. Robert Fell. Dental Surgeons: Mr. Walter Glaisby and Mr. Leonard A. Glaisby.

II.—SCOTLAND.

THE UNIVERSITIES.

UNIVERSITY OF EDINBURGH.

Four Degrees in Medicine and Surgery are conferred by the University of Edinburgh—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.). The degree of Bachelor of Surgery cannot be conferred on any person who does not at the same time obtain the degree of Bachelor of Medicine, and similarly the degree of Bachelor of Medicine is not conferred on any person who does not at the same time obtain the degree of Bachelor of Surgery.

A diploma in Tropical Medicine and Hygiene (D.T.M. and H.) is granted to graduates in Medicine and Surgery of the University of not less than six months' standing. The course of study includes (1) Practical Bacteriology; (2) Diseases of Tropical Climates; (3) Tropical Hygiene; (4) a Practical Course in Medical Entomology and Protozoology and Venomous Animals; and (5) a Course of Clinical Instruction in Tropical Diseases. Any two of these courses may be taken under Extra-academical Teachers and exemption from the latter course may be granted to those graduates who have been engaged for a period of at least 12 months in the treatment of Tropical Diseases in any tropical or subtropical country. The examinations for the diploma, which will embrace all the foregoing subjects, are held in December and July of each year.

Before commencing his medical studies each student must pass a preliminary examination in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek or French or German: provided always that, in the case of a candidate whose native language is not English, an examination in the native language of the candidate may be substituted for one in either French or German, and an examination in any other classical language for one in Latin or Greek.

No one is admitted to the degrees of *Bachelor of Medicine* and *Bachelor of Surgery* who has not been engaged in Medical and Surgical study for five years. No course of lectures will be allowed to qualify unless the lecturer certifies that it has embraced at least 100 lectures, or 50 lectures, as may be required by the regulations, and that the student has also duly performed the work of the class.

Candidates for the degrees of M.B. and Ch.B. must have attended for at least three academic years the medical and surgical practice either of the Royal Infirmary, Edinburgh, or of a general hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons. They must have attended Clinical Surgery during a course or courses extending over not less than nine months. These courses may be conducted by the professor of clinical surgery, or by professors or lecturers appointed for the purpose by the University Court, or by the ordinary surgeons of the Royal Infirmary, Edinburgh, or of a general hospital defined and recognised as hereinbefore provided, and shall consist of regular instruction at the bedside, along with clinical lectures. A similar course of clinical medicine during a course or courses extending over not less than nine months is required. The candidate must have attended a course of instruction in Mental Diseases given by the University Lecturer, or by a recognised Teacher, consisting of not less than six Class-room meetings for lectures and demonstrations and ten meetings in the Wards of a recognised Asylum for the insane. The candidate must have attended a course of 25 meetings on Practical Pharmacy in a university or recognised school of medicine, or have dispensed drugs for a period of three months in a hospital or dispensary, or in an establishment recognised by the Pharmaceutical Society. The candidate must have attended for at least six months, by apprenticeship or otherwise, the out-practice of a hospital, or the practice of a dispensary, or of a physician or surgeon, or of a member of the London or Dublin Society of Apothecaries. He must have acted as clerk in the medical wards and dresser in the surgical wards of a public hospital for a period of six months in each case; and must also have availed himself, to such an extent as may be required by the Senatus, with the approval of the University Court, of opportunities of studying at a hospital or dispensary, Post-mortem Examinations, Fevers, Diseases of the Eye, Operative Surgery, Practical Anæsthetics, and one of the three following —viz.: Diseases of Children; Diseases of the Larynx, Ear, and Nose; and Diseases of the Skin, or such other special departments as may from time to time be determined. The candidate must have attended, under the superintendence of a registered medical practitioner, 25 cases of labour, or such additional number as the Senatus, with the sanction of the University Court, may from time to time determine; or have attended for three months the practice of a lying-in hospital, or of the maternity department of a general hospital or other public charitable institution and have conducted personally 12 or such an additional number of cases of labour as the Senatus, with the approval of the University Court, may from time to time determine. The candidate must have been properly instructed in Vaccination at a public vaccination station, by a public vaccinator, authorised by the proper Government authority to grant certificates of proficiency in vaccination.

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations have effect:—Two of the five years of medical study must be spent in the University of Edinburgh. The remaining three years may be spent in any University of the United Kingdom, or in any Indian, Colonial, or Foreign university recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court. Of the subjects of study, 16 in number—viz., Anatomy, Practical Anatomy, Chemistry, Practical Chemistry, Materia Medica, Physiology, Practical Physiology, Practice of Medicine, Surgery, Midwifery and Diseases of Women, Pathology, Practical Pathology, Physics, Botany, Zoology, Medical Jurisprudence, and Public Health—not less than eight must be taken in the University of Edinburgh, which corresponds to the two years above referred to.

Women are admitted to graduation in medicine under practically the same conditions as men, excepting that, until provision is made in the University for instruction of women in all subjects of the medical curriculum, the regulations as to places of study contained in the foregoing paragraph do not apply to them. Women who study in Edinburgh receive their instruction from recognised Extra-Academical Teachers, who are Lecturers in the School of Medicine for Women, Surgeons' Hall.

Each candidate is examined, both in writing and orally, and clinically where the nature of the subject admits:—First, in Chemistry, Zoology, Botany, and Physics; second, in Anatomy and Physiology; third, in Materia Medica and Therapeutics and Pathology; and fourth, in Surgery, Medicine, Midwifery, Forensic Medicine, and Public Health, and clinically in Medicine, Surgery, and Gynæcology in a hospital. The examinations are conducted, as far as possible, by demonstrations of objects placed before the candidates. Candidates who profess themselves ready to submit to an examination in the first division of these subjects may be admitted to examination therein at

the first period of examination after they have completed their attendance on the necessary classes. Candidates who have passed their examination in the first division of these subjects may be admitted to examination in the second division at the end of their third winter session. Candidates who have passed their examinations in the subjects comprised in the first and second divisions may be admitted to examination in the third division at the end of the fourth winter session. Candidates who have passed their examinations in the subjects comprised in the first, second, and third divisions may be admitted to examination in the fourth or final division when they have completed the fifth year of study.

Under a new medical ordinance it is provided that candidates may pass all or any of the subjects of the first division —viz., Botany, Zoology, Physics, or Chemistry—at a university in the United Kingdom or at any other university approved by the Senate for this purpose, when such subjects qualify for a degree in arts or science. In the second division the examination in Physiology may be taken at any time and in Anatomy at any time after the first half session of the third winter session. In the third division the examination in Pathology may be taken at any time after the end of the third summer session in the case of students who begin the medical curriculum in October and at the end of the fourth summer session in the case of students who begin their medical curriculum in May. In Materia Medica the examination may be taken at any time after the end of the fourth winter session. Candidates may be admitted to examination in Practical Pharmacy and in the physical, chemical, and botanical characters of medicinal substances at any examination held after they have completed the qualifying course of study, but not later than the examination in Materia Medica. In the fourth division a student, after taking the prescribed courses of study, may be examined in Forensic Medicine and Public Health at any time, in Midwifery, Practice of Medicine, and Surgery at any time after the end of the fifth winter session, and in Clinical Medicine (including the subject of Diseases Peculiar to Women) and Clinical Surgery at the end of the fifth year of study. This new ordinance applies to students who entered the University at or after the beginning of the winter session 1907, but students who entered before that date have the option of finishing their course under the existing regulations or of taking advantage of the new ordinance.

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery is £23 2*s.*, and the proportion of this sum to be paid by a candidate at each division of the examination shall be as follows—viz.: For the First Division of the Examination (Botany, Zoology, Physics, and Chemistry), £6 6*s.*; for the Second Division (Anatomy, and Physiology), £5 5*s.*; for the Third Division (Pathology and Materia Medica and Therapeutics), £4 4*s.*; and for the Final Division (Surgery and Clinical Surgery, Medicine and Clinical Medicine, Midwifery, Clinical Gynæcology, and Forensic Medicine and Public Health), £7 7*s.*

Bachelors of Medicine and *Bachelors of Surgery* may proceed to the degrees of *Doctor of Medicine* and *Master of Surgery* after they have spent one year in the medical or surgical wards respectively of a hospital, or the Military or Naval Medical Services, or in scientific work bearing directly on their profession, or two years in practice. In each case an examination must be passed and a thesis submitted for approval of the Faculty. The fee to be paid for the degree of M.D. is £10 10*s.*, and the fee to be paid for the degree of Ch.M. is £10 10*s.*

Professors—Chemistry: James Walker, D.Sc., F.R.S. Zoology: J. Cossar Ewart, M.D. Botany: I. Bayley Balfour, M.D. Physiology: E. A. Schäfer, F.R.S. Anatomy: Arthur Robinson, M.D. Pathology: William Smith Greenfield, M.D. Materia Medica: Sir Thomas R. Fraser, M.D., F.R.S. Forensic Medicine: Harvey Littlejohn, M.B., F.R.C.S.E. Public Health: C. Hunter Stewart, M.B., D.Sc. Midwifery: Sir John Halliday Croom, M.D. Surgery: Alexis Thomson, M.D., F.R.C.S.E. Medicine: John Wyllie, M.D. Clinical Surgery: F. M. Caird, M.B., F.R.C.S. Clinical Medicine: Sir Thomas R. Fraser, W. S. Greenfield, M.D., and J. Wyllie, M.D.

Scholarships and Prizes.—In the University of Edinburgh many bursaries, scholarships, prizes, &c., are given, some of which, by the nature of the subject or by the conditions attached, are restricted to Medical Students, while others are open to Students in two or more Faculties, of which Medicine may be one. In the following list the money value, the subjects of examination, or other system of selection, and any special conditions that may be imposed, are placed in that order. As "continued study" is a condition in a considerable proportion of the cases it has not been thought necessary to repeat these words.

For Students entering on or in their First Year.—Sibbald Bursaries for entrants, one or two annually, tenable for three years, each £30 per annum, Preliminary Subjects; Heriot Bursaries for entrants, seven for men and one for women annually, tenable for three years, each £30 per annum, Preliminary Subjects; Thomson Bursary, £25 per annum, tenable for four years, Distinction in Medical Preliminary Examination; Grierson Bursary No. 1, £20, Distinction in Medical Preliminary Examination; Crichton Bursaries, six annually, tenable for four years, each £50 per annum, Distinction in Medical Preliminary Examination with extra subjects, birth in Scotland; Mackie Bursary No. 1, tenable for two years, £30 per annum, vote of Faculty, need of pecuniary aid; Junior J. A. Carlyle Bursary, £28, Class Examinations in Anatomy and Chemistry; Coldstream Memorial Scholarship for intending Medical Missionaries, tenable for five years, £25 per annum; three Vans Dunlop Scholarships, Nos. 1, 2, and 3, each tenable for three years, £100 per annum, one for first place in Medical Preliminary Examination, one for Chemistry and Physics, one for Botany and Zoology; Thomson Scholarship, tenable for four years, £40 per annum, Botany, Zoology, and Mechanics.

For Students entering on or in their Second Year.—Mackie Bursary No. 2, tenable for two years, £30 per annum, vote of Faculty, need of pecuniary aid; Grierson Bursary No. 2, £20, Chemistry, Botany, Zoology, and Physics; Senior J. A. Carlyle Bursary, £28, Class Examinations in Anatomy and Physiology; Sibbald Scholarship, tenable for three years, £40 per annum, Chemistry, Botany, Zoology, and Physics; Neil Arnott Prize, £37 10*s.*, Distinction in Natural Philosophy in the M.A. Examination.

For Students entering on or in their Third Year.—Grierson Bursary No. 3, £20, Anatomy and Physiology. Vans Dunlop Scholarships Nos. 4 and 5, tenable for three years, £100 per annum, one in Physiology and one in Anatomy.

For Students entering on their Fourth or Fifth Year or for Graduates.—Syme Surgical Fellowship, tenable for two years, £100 per annum, Thesis by M.B. of not more than three years' standing; Goodsir Memorial Fellowship, tenable for two years, £100 per annum, Thesis by M.B., &c., of not more than three years' standing; Leckie Mactier Fellowship, tenable for three years, £80 per annum, competition among M.B.'s of not more than three years' standing; Freeland Barbour Fellowship, £100, highest marks in Anatomy, Physiology, and Pathology in Professional Examinations, with one year's research in Midwifery as a condition; Allan Fellowship, about £55, Clinical Medicine and Clinical Surgery; three Vans Dunlop Scholarships, Nos. 6, 7, and 8, tenable for three years, £100 per annum, one in Pathology and Surgery, one in Materia Medica and Medicine, and one in Forensic Medicine, Public Health, and Midwifery; Murchison Memorial Scholarship, interest on £1000, Clinical Medicine; Stark Scholarship, £112, Clinical Medicine, with Research in Clinical Medicine as a condition; Buchanan Scholarship, £40, Midwifery and Gynæcology, with work in gynæcological ward as a condition; James Scott Scholarship, £32 10*s.*, Midwifery, with work in maternity hospital as a condition; Ettles Scholarship for the most distinguished M.B., Ch.B of the year, £31; Crichton Research Scholarships in Anatomy, Physiology, Materia Medica, and Pathology, tenable for one, two, or three years, £100 each per annum, competition among graduates; Mouat Scholarship, £55 and medal, Class and Degree Examinations in Practice of Physic; two Grierson Bursaries, Nos. 4 and 5, £10 each, one in Materia Medica and one in Pathology; McCosh Graduate's Bursary and McCosh Medical Bursary for Research, income of £5500, Distinction in Professional Subjects and Knowledge of Foreign Languages, with the condition of Study or Research in Medical Schools of Europe; Gunning Victoria Jubilee Prizes, four awarded annually, each £50, Thesis or Original Research in Anatomy, Physiology, Zoology, Botany, Chemistry, Materia Medica, Surgery, Practice of Physic, Pathology, Obstetrics, Medical Jurisprudence, and Public Health respectively; Theses Gold Medals for the best Theses for the M.D. degree; Conan Doyle Prize for the most distinguished Graduate of the year from South Africa, £32; Wightman Prize, £12, Clinical Reports on Medical Cases; Beaney Prize, £32 10*s.*, highest marks in Anatomy, Surgery, and Clinical Surgery, in M.B. and Ch.B.

Examinations; Annandale Gold Medal awarded to the best candidate in Clinical Surgery for the degrees of M.B., Ch.B.: Ellis Prize, £28, Essay on Animal or Vegetable Physiology; Cameron Prize, for the most valuable addition to Practical Therapeutics during the preceding five years, annual proceeds of £2000; Milner Fothergill Gold Medal, about £20, Essay on Pharmacological or Therapeutic subject; Mackay Smith Scholarship for Students in Chemistry, tenable for two years, £25 per annum; Houldsworth Scholarship for Students or Graduates, £40, Materia Medica, with the condition of Research in Pharmacology; Mackenzie Bursaries, two annually, £20, Practical Anatomy: Pattison Prize, about £11 7*s.* 6*d.*, Clinical Reports of Surgical Cases; Dobbie Smith Gold Medal for a Botanical Essay; Anderson Henry Prize for a Botanical Essay, proceeds of £300 accumulated for three years; Dorothy Gilfillan Memorial Prize for the most distinguished Woman Graduate of the year, about £10.

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, Edinburgh.—The number of students varies much in the classes and subjects. It is within the limit to say that about 1000 students avail themselves each session of the opportunity of attending the school. The lectures qualify for the University of Edinburgh and other Universities, the Royal Colleges of Physicians and Surgeons of London, Edinburgh, and Dublin, the Faculty of Physicians and Surgeons of Glasgow, and other Medical and Surgical and Public Boards. A post-graduate vacation course commences on August 31st.

The anatomy rooms and laboratories will open on Tuesday, Oct. 4th, and the lectures will commence on that date.

In accordance with the statutes of the University of Edinburgh one-half of the qualifying classes required for graduation may be attended in this school, in addition to the class of Practical Materia Medica and the classes of Clinical Medicine and Clinical Surgery. The regulations require that the fee for any class taken for graduation in Edinburgh shall be the same as that for the corresponding class in the University. The whole education required for graduation at the University of London may be taken in this school.

The appointment of Resident Physician to the wards in the Royal Infirmary under the care of the Ordinary Physicians is open to those members of their clinical class who have held the office of clerk in their wards for at least six months. Six Residentships are appointed for a period of six months each. Resident Surgeons are also appointed by the Ordinary Surgeons to the Hospital. In all respects the students are taught under regulations similar to those at the University of Edinburgh and the other Universities of Scotland, and they receive similar certificates at the close of each session. Moreover, the University and College authorities in Edinburgh and the Governing Board of the school call upon each recognised lecturer to supply them at the close of each session with a statement giving the number of students attending the class, the number of lectures or prelections delivered during the session, the class examinations held, and the general mode of conducting the class. The courses on special non-qualifying subjects have for the last quarter of a century formed a marked feature of the school. Indeed, such medical subjects could be studied in Edinburgh only in this school until lately, when the University of Edinburgh appointed from the school lecturers on Diseases of the Eye, Insanity, and Diseases of Children to take charge of classes intra-murally. A list of the classes and lecturers will be found below. Special courses of instruction for dental students and for women are also included in the curriculum of this school. The classes of the school are conducted in several separate buildings, such as at Surgeons' Hall, Minto House, Nicolson-square, and the New School, Bristo-street.

Lecturers and Fees.—Winter Session: Anatomy, Practical Anatomy, and Demonstrations, Dr. Ryland Whitaker (£3 5*s.* and £4 4*s.*); Chemistry (Practical, &c.), Mr. Gemmell and Dr. T. W. Drinkwater*; Physiology (Institutes of Medicine), Dr. Alex. Goodall (£3 5*s.*); General Pathology, &c., Dr. Shennan and Dr. James Miller (£3 5*s.*); Biology, Mr. Malcolm Laurie (£3 5*s.*); Zoology, Mr. Malcolm Laurie; Physics, Dr. Dawson Turner (£3 3*s.*); Meteorology, Dr. Dawson Turner (£2 2*s.*); Bacteriology, Dr. Taylor Grant, Dr. Theodore Shennan, and Dr. James Miller; Practice of Physic, Dr. Gibson, Dr. Bruce, Dr. Philip, Dr. R. A. Fleming, Dr. Lovell Gulland, Dr. W. Russell, and Dr. Harry Rainy (£3 5*s.*); Surgery, Mr. Scot Skirving, Mr. Dowden, Mr. Chiene, Mr. H. Wade, Mr. J. W. Struthers, Mr. W. J. Stuart, and Mr. L. Beesly (£3 5*s.*); Materia Medica, &c., Dr. Craig and Dr. F. D. Boyd† (£3 5*s.*); Midwifery, &c., Dr. Hart, Dr. Ballantyne, Dr. Haultain, Dr. Haig Ferguson, Dr. Fordyce, Dr. Lamond Lackie, Dr. Elsie Inglis, Dr. McGibbon, Dr. Barbour Simpson, and Dr. Davidson (£3 5*s.*); Medical Jurisprudence, &c., Dr. Aitchison Robertson and Dr. Macmillan (£3 5*s.*); Public Health, Dr. Aitchison Robertson, Dr. W. Robertson, and Dr. Macmillan: Hospital Practice (Edinburgh Royal Infirmary): Physicians, Dr. Bramwell, Dr. Gibson, Dr. Bruce, Dr. Philip, Mr. Wallace, and Dr. Brewis for Gynæcology; Surgeons, Mr. Cotterill, Mr. Cathcart, Mr. Hodsdon, and Mr. Miles (perpetual ticket, £12); Clinical Medicine, Dr. Byrom Bramwell, Dr. Gibson, Dr. Bruce, and Dr. Philip; Dr. Brewis for Gynæcology (£3 5*s.*); Clinical Surgery, Mr. Cotterill, Mr. Cathcart, Mr. Hodsdon, Mr. Wallace, and Mr. Miles (£3 5*s.*); Diseases of the Chest, Dr. Philip† and Dr. Lovell Gulland (£2 2*s.*); Vaccination, Dr. Buist† and Dr. W. G. A. Robertson (£1 1*s.*); Diseases of Ear, Nose, and Throat, Dr. J. Malcolm Farquharson and Dr. J. S. Fraser (£2 2*s.*); Diseases of the Eye, Dr. Sym† and Dr. J. V. Paterson (£2 2*s.*); Ophthalmoscopy, Dr. A. H. H. Sinclair (£2 2*s.*); Gynæcology, Dr. Haig Ferguson and Dr. Elsie M. Inglis (Systematic), Dr. Brewis and Dr. J. Haig Ferguson (Clinical), and Dr. J. W. Ballantyne (Advanced) (£2 2*s.*); Neurology, Dr. J. J. Graham Brown (£2 2*s.*); Clinical Methods, Dr. W. Russell (£2 5*s.*); Medical Electricity, Dr. Dawson Turner (£2 12*s.* 6*d.*); Tropical Diseases, Major D. G. Marshall, I.M.S. (£2 2*s.*). Summer Session: Practical Anatomy and Demonstrations, Dr. Ryland Whitaker (£2 2*s.*); Practical Physiology, Dr. Goodall (£3 3*s.*); Biology, Mr. M. Laurie‡ and Dr. Newbigin (£3 3*s.*); Practical Chemistry and Analytical Chemistry, Mr. Gemmell and Dr. Drinkwater §; Practical Bacteriology, Dr. Shennan, Dr. Taylor Grant, and Dr. James Miller; Materia Medica, Dr. Craig and Dr. F. D. Boyd; Diseases of the Eye, Dr. Sym and Dr. J. V. Paterson (£2 2*s.*); Medical Psychology and Insanity, Sir J. Batty Tuke and Dr. John Keay (£2 2*s.*); Medical Jurisprudence, Dr. Aitchison Robertson and Dr J. Macmillan; Public Health, Dr. Wm. Robertson (£2 2*s.*); Gynæcology, Dr. Brewis (£2 2*s.*); Midwifery Lectures, Dr. Ballantyne, Dr. Haig Ferguson, Dr. W. Fordyce, Dr. Lamond Lackie, Dr. Elsie Inglis, Dr. McGibbon, Dr. Barbour Simpson, and Dr. Davidson (£3 5*s.*); Operative Surgery, Mr. Dowden, Mr. Scot Skirving, Mr. Chiene, Mr. H. Wade, Mr. J. W. Struthers, Mr. W. J. Stuart, and Mr. L. Beesly (£3 3*s.*); Practical Pathology, Dr. Shennan and Dr. James Miller (£3 3*s.*); Physics, Dr. Turner‡ (£3 3*s.*); Practical Medicine and Physical Diagnosis, Dr. Fleming; Dr. Lovell Gulland, and Dr. Harry Rainy (£3 3*s.*); Clinical Medicine, Dr. Bramwell and Dr. Gibson (£2 2*s.*), Vaccination, Dr. Buist and Dr. W. G. A. Robertson (£1 1*s.*); Neurology, Dr. Bruce and Dr. Graham Brown; Diseases of Ear, Nose, and Throat, Dr. J. Malcolm Farquharson and Dr. J. S. Fraser (£2 2*s.*); Tropical Diseases, Major D. G. Marshall, I.M.S. (£2 2*s.*); Medical Electricity, Dr. Dawson Turner; Meteorology, Dr. Dawson Turner.

Special Classes or Women, Winter Session: Practical Anatomy and Demonstrations, Dr. Ryland Whitaker (£4 4*s.*); Chemistry (Lectures and Practical), Dr. T. W. Drinkwater (£3 5*s.* and £3 3*s.*); Practice of Physic, Dr. W. Russell (£3 5*s.*); Surgery, Mr. Beesly (£3 5*s.*); Midwifery and Diseases of Women, Dr. J. W. Ballantyne; General Pathology, Dr. James Miller (£3 5*s.*); Physiology (Institutes of Medicine), Dr. Goodall (£3 5*s.*); Materia Medica, &c., Dr. Craig (£3 5*s.*); Clinical Medicine, Dr. W. Russell, Royal Infirmary (£3 5*s.*); Clinical Surgery, Mr. Miles, Royal Infirmary (£3 5*s.*); Physics, Dr. Dawson Turner (£3 3*s.*); Vaccination, Dr. W. G. A. Robertson (£1 1*s.*); Practical Gynæcology, Dr. Brewis (£2 2*s.*); Diseases of the Eye, Dr. W. G. Sym; Bacteriology, Dr. J. Taylor Grant; Tropical Diseases, Major D. G. Marshall; Fevers, City Hospital. Summer Session: Practical Anatomy, Dr. Ryland Whitaker (£2 2*s.*); Practical Chemistry, Dr. T. W. Drinkwater (£3 3*s.*); Materia Medica, &c., Dr. Craig (£3 3*s.*); Operative Surgery and Surgical Anatomy, Mr. Beesly (£3 3*s.*); Materia Medica and Therapeutics, Dr. Wm. Craig (£3 3*s.*); Practical Materia Medica, Dr. Wm. Craig; Medical Jurisprudence and Public Health, Dr. Aitchison Robertson (£3 5*s.*); Public Health,

Dr. W. Robertson; Clinical Medicine, Dr. W. Russell; Clinical Surgery, Mr. Miles, Wallace, Royal Infirmary (£3 5s.); Practical Physiology and Histology, Dr. Goodall (£3 3s.); Practical Pathology, Dr. James Miller (£3 3s.); Biology, Dr. Newbigin (£3 3s.); Physics, Dr. Dawson Turner (£3 3s.); Ophthalmology, Dr. Sym (£2 2s.); Insanity, Sir J. Batty Tuke and Dr. John Keay (£2 2s.); Practical Gynæcology, Dr. J. W. Ballantyne (£2 2s.); Practical Medicine, Clinical Methods, Dr. W. Russell; Vaccination, Dr. W. G. A. Robertson; Tropical Diseases, Major Marshall; Medical Electricity, Dr. Dawson Turner.

The minimum cost of the education in this School of Medicine for the Triple Qualification of Physician and Surgeon from the Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, including the fees for the Joint Examinations, is about £115, payment of which is distributed over the period of study. There is no composition fee.

Further particulars regarding the school, also its calendar, may be had on application to the Dean of the School, 11, Bristo-place, Edinburgh.

* Lectures, £3 5s.; Practical, £3 3s.; Analytical, £2 a month, or £5 for three months. † Also in Summer Session. ‡ Also in Winter Session. § Practical, £3 3s.; Analytical, £2 a month, or £5 for three months.

N.B.—Where two or more lecturers appear as teaching the same subjects their lectures are not conjoined, but each gives an independent course.

THE EDINBURGH SCHOOL OF MEDICINE FOR WOMEN.—The Edinburgh School of Medicine for Women provides all the classes required for a complete curriculum. The classes qualify for the University Degree in Medicine, for the Diploma of the Royal Colleges, and for the Triple Qualification. The lecturers of the school are specially recognised by the Court of Edinburgh University for the education of women who propose taking the degree in medicine of the University of Edinburgh. Most of the classes are held in Surgeons' Hall. The office of the school and a sitting-room and other conveniences are provided in the same building for the use of the women students. The clinical instruction of the students is conducted in the wards of the Royal Infirmary, specially set apart for the purpose; in the Royal Hospital for Sick Children; in the City Hospital for Infectious Diseases; at Bangour Asylum; and at the various public dispensaries. The fees and the regulations as to the course of study are the same as for the male students. Further particulars can be obtained from the Dean of the School of Medicine for Women, Surgeons' Hall, Edinburgh.

Clinical Instruction.—ROYAL INFIRMARY, Edinburgh.—This hospital has over 900 beds and 60 cots for children, the average daily number of patients for 1909 being 845. Beds are set apart for clinical instruction by the professors of the University of Edinburgh. Courses of Clinical Medicine and Surgery are also given by the ordinary physicians and surgeons. Special instruction is given on Diseases of Women, Physical Diagnosis, Diseases of the Skin, Diseases of the Eye, the Ear, the Larynx, and the Teeth. Separate wards are devoted to Venereal Diseases, Diseases of Women, Diseases of the Eye, the Ear, Throat and Nose, and the Skin, and also to cases of Incidental Delirium or Insanity. There are also large and complete Medical-Electrical and X Ray and Bathing Departments. Three wards are specially set apart for Clinical Instruction to Women Students. Post-mortem examinations are conducted in the anatomical theatre by the pathologist and his assistants, who also give practical instruction in Pathological Anatomy and Histology. The fees for hospital attendance are as follows—viz: Perpetual ticket, in one payment, £12; annual ticket, £6 6s.; six months, £4 4s.; three months, £2 2s.; monthly, £1 1s. Separate payments amounting to £12 12s. entitle the student to a life ticket. No fees are paid for any medical or surgical appointment. The appointments are as follows:—1. Resident physicians and surgeons are appointed and live in the house free of charge. The appointment is for six months but may be renewed at the end of that period by special recommendation. 2. Non-resident house physicians and surgeons and clinical assistants are appointed for six months. The appointment may be renewed for a like period by special recommendation. 3. Clerks and dressers are appointed by the physicians and surgeons. These appointments are open to all students and junior practitioners holding hospital tickets. 4. Assistants in the Pathological Department are appointed by the pathologist.

Staff: Medical Department.—Consulting Physicians: Dr. J. O. Affleck, Dr. Andrew Smart, and Dr. Alexander James. Consulting Gynæcologists: Professor Sir J. Halliday Croom and Emeritus Professor Sir A. R. Simpson. Consulting Physician for Diseases of the Skin: Dr. W. Allan Jamieson. Professors of Clinical Medicine: Sir T. R. Fraser, Dr. W. S. Greenfield, and Dr. John Wyllie. Ordinary Physicians and Lecturers on Clinical Medicine: Dr. Byrom Bramwell, Dr. Geo. Gibson, Dr. Alex. Bruce, Dr. R. W. Philip, and Dr. W. Russell. Gynæcologists: Dr. A. H. F. Barbour and Mr. N. T. Brewis. Physician for Diseases of the Skin: Dr. Norman Walker. Assistant Physicians: Dr. G. Lovell Gulland, Dr. J. J. Graham Brown, Dr. Francis D. Boyd, Dr. R. A. Fleming, Dr. Harry Rainy, Dr. Chalmers Watson, Dr. Edwin Bramwell, and Dr. Edwin Matthew. Assistant Gynæcologists: Dr. J. Haig Ferguson and Dr. Wm. Fordyce. Assistant Physicians for Diseases of the Skin: Dr. Fred. Gardiner and Dr. R. Cranston Low. Medical Electrician: Dr. Dawson Turner. Assistant Medical Electrician: Dr. Hope Fowler.

Surgical Department.—Consulting Surgeons: Mr. Joseph Bell, Mr. A. G. Miller, Dr. P. H. Maclaren, Dr. C. W. MacGillivray, and Emeritus Professor John Chiene, C.B. Consulting Ophthalmic Surgeon: Mr. George A. Berry. Consulting Aural Surgeons: Dr. P. McBride and Dr. McKenzie Johnston. Consulting Dental Surgeon: Mr. William Guy. Regius Professor of Clinical Surgery: Mr. F. M. Caird. Professor of Surgery: Mr. Alexis Thomson. Ordinary Surgeons: Mr. J. M. Cotterill, Mr. C. W. Cathcart, Mr. J. W. B. Hodsdon, Mr. D. Wallace, and Mr. Alexander Miles. Ophthalmic Surgeons: Dr. George Mackay and Dr. Wm. G. Sym. Surgeons to Ear and Throat Department: Dr. A. Logan Turner and Dr. J. Malcolm Farquharson. Dental Surgeon: Mr. J. H. Gibbs. Assistant Surgeons: Mr. J. W. Dowden, Mr. A. A. Scot Skirving, Mr. Geo. L. Chiene, Mr. W. J. Stuart, Mr. J. W. Struthers, Mr. Henry Wade, and Mr. Scott Carmichael. Assistant Ophthalmic Surgeons: Dr. J. V. Paterson and Dr. A. H. H. Sinclair. Assistant Surgeons to the Ear and Throat Department: Dr. John S. Fraser and Dr. John D. Lithgow. Pathologist: Dr. Theodore Shennan. Assistant Pathologists: Dr. James Miller and Dr. Murray Drennan. Superintendent: Colonel W. P. Warburton, I.M.S. (retired), M.D., C.S.I.

ROYAL HOSPITAL FOR SICK CHILDREN, Sciennes-road, Edinburgh.—This hospital contains 120 beds, and is fitted with every modern improvement. A fully equipped out-patient department (medical and surgical) is conducted daily in a building adjoining the hospital. Systematic courses of instruction, which qualify for graduation in the Edinburgh University and elsewhere, are given from time to time throughout the year by the staff. Students may enter at any time. Full particulars can be obtained from the Registrar at the hospital.

Staff.—Consulting Physician: Dr. J. Carmichael. Consulting Surgeon: Dr. J. Bell. Consulting Surgeon-Dentist: (vacant). Pathologist: Dr. W. E. Carnegie Dickson. Ordinary Physicians: Dr. G. H. M. Dunlop, Dr. J. Thomson, and Dr. J. S. Fowler. Surgeon: Mr. H. J. Stiles. Ophthalmic Surgeon: Mr. G. A. Berry. Assistant Surgeon: Mr. C. Balfour Paul. Medical Electrician: Dr. J. W. Spence. Extra Physicians: Dr. W. B Drummond, Dr. J. W. Simpson, and Dr. Dingwall Fordyce. Anæsthetists: Dr. D. C. A. M'Allum and Dr. J. Politachi.

EYE, EAR, AND THROAT INFIRMARY OF EDINBURGH, 6, Cambridge-street, Lothian-road.—Clinical Lectures and Instruction are given in this institution, which is open at 1 o'clock daily for outdoor patients for Eye Diseases; Mondays, Thursdays, and Saturdays at 12 noon, and Tuesdays and Fridays at 4 P.M. for out-door Ear, Nose, and Throat Patients. Special Practical Ophthalmoscopic Classes by arrangement. Patients whose diseases require operations or more than ordinary care are accommodated in the house. Consulting Surgeons: Dr. Joseph Bell, Dr. Logan Turner (Ear, Nose, and Throat Department). Surgeons: Dr. William George Sym, Dr. Malcolm Farquharson, Dr. J. V. Paterson, Dr. E. M. Lithgow, Dr. W. G. Porter, and Dr. John M. Darling. Honorary Anæsthetist: Mr. J. H. Gibbs. Dental Surgeon: Mr. G. W. Watson. Treasurer and Secretary: Mr. J. P. Watson, W.S., 32, Charlotte-square.

UNIVERSITY OF GLASGOW.

The University of Glasgow is both a teaching and a degree-granting body, but admits to graduation only candidates whose preliminary examination and course of study conform to its own regulations. Within certain limits instruction given by recognised medical schools and teachers may be accepted, but eight of the subjects other than clinical must be taken in this or some other recognised university entitled to confer the degree of M.D., and at least two years of the course must be taken in Glasgow University. Under the new regulations six degrees, open both to men and women, are conferred: M.B. and Ch.B. (always conjointly), M.D. and Ch.M.; B.Sc. in Public Health; D.Sc. in Public Health; and B.Sc. in Pharmacy. A Preliminary Examination must be passed in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek, or French, or German, with possible options to students whose native language is not English in the case of the fourth subject. Candidates taking the University preliminary examination are not obliged to pass in all the four subjects at one examination but must do so at not more than two occasions.

For the degrees of M.B. and Ch.B. a curriculum of five years is required, in each of the first four of which the student must attend at least two five months' courses, or alternately one five months' course and two courses of two and a half months. The minimum of attendance in the first four years includes five months' courses in the following subjects:—Anatomy, Practical Anatomy (two courses), Chemistry, Materia Medica and Therapeutics, Physiology, Practice of Medicine, Surgery, Midwifery and Diseases of Women and Infants, and Pathology; and courses of two and a half months in the following: Practical Chemistry, Physics, Botany, Zoology, Practical Physiology, Practical Pathology, Medical Jurisprudence, and Public Health. Candidates must attend at least three years the Medical and Surgical Practice of a recognised hospital accommodating at least 80 patients and having a distinct staff of physicians and surgeons. At least nine months' hospital attendance is required on both Clinical Surgery and Clinical Medicine, and the student must have acted as clerk in medical and dresser in surgical wards, and must have had six months' outdoor practice; he must also have attended a course of Mental Diseases and of Practical Pharmacy (25 meetings), must have been properly instructed in Vaccination at a public vaccination station, and must have attended at least 20 cases of labour, or three months of the Practice of a Lying-in Hospital, six cases being personally conducted. The University also requires further study in Post-Mortem Examinations, Fevers, and Ophthalmology, and recommends study in other special subjects. If a candidate has completed in a University of the United Kingdom a course of study and passed an examination in Botany, Zoology, Physics, or Chemistry, qualifying for a degree in Science or in Arts, he is held to have passed the examinations in such subject or subjects.

There are four Professional Examinations, the first comprising Botany, Zoology, Physics, and Chemistry, to be taken after the completion of the included courses (candidates being at liberty to take two subjects at a time); the second comprising Anatomy, Physiology, and Materia Medica and Therapeutics, to be taken at the end of the third winter session; the third comprising Pathology, Medical Jurisprudence, and Public Health, to be taken at the end of the fourth winter session; and the fourth or final, comprising Surgery, Clinical Surgery, Practice of Medicine, Clinical Medicine, and Midwifery, to be taken on completion of the fifth year of study.

The degrees of M.D. (Doctor of Medicine) and Ch.M. (Master of Surgery) are higher degrees in Medicine and Surgery respectively, and candidates (not under 24 years of age) who have previously obtained the double bachelorship may be admitted to either M.D. or Ch.M. on completing the after course prescribed, including an examination in Clinical Medicine for M.D. and an examination in Surgical Anatomy, operations on the dead body, and Clinical Surgery for Ch.M.

Fees.—The Fees for M.B. and Ch.B. are £23 2*s*. The class fee in each subject of the curriculum for M.B. and Ch.B. is £2 2*s*., £3 3*s*., or £4 4*s*., and the present fees for hospital attendance are £10 10*s*. The fee for M.D. is £10 10*s*. (stamp duty being now abolished), and for Ch.M. £10 10*s*.

The great majority of the students take their hospital course at the Western Infirmary, where clinical instruction is given by professors of the University and others. Clinical instruction on Fevers is given at Ruchil and Belvidere Hospitals, while special courses, largely of a practical nature and embracing work in Hospital or Asylum wards, are conducted by University Lecturers on the Ear, the Throat and Nose, and Insanity. Queen Margaret College, hitherto conducted as a separate institution for the higher education of women, has now been made over to the University, and in it medical classes for women are conducted under University professors and other lecturers appointed by the University Court, whilst for clinical instruction female students are admitted to the Royal Infirmary.

Professors—Natural Philosophy: A. Gray, LL.D., F.R.S. Materia Medica: Ralph Stockman, M.D. Chemistry: John Fergusson, LL.D. Surgery: Sir William Macewen, M.D., F.R.S. Practice of Medicine: Samson Gemmell, M.D. Midwifery: Murdoch Cameron, M.D. Anatomy: Thomas H. Bryce, M.A., M.D. Zoology: John G. Kerr, M.A., F.R.S. Botany: F. O. Bower, D.Sc., F.R.S. Physiology: D. Noel Paton, M.D. Forensic Medicine: John Glaister, M.D. Pathology: Robert Muir, M.A., M.D.

In this University Bursaries and Prizes to the annual amount of over £1000 are appropriated to students in the Medical Faculty, and there are, moreover, several Scholarships and Fellowships which may be held by medical students who have gone through the Arts course. The designation, money value, subjects of examination or other method of selection, conditions of eligibility, &c., of the Bursaries and Prizes are as follows:—Two Highland Society Bursaries, tenable for five years, open to medical students of Highland descent, £25 each, awarded on results of Preliminary Examination; Mackintosh Mental Science Bursary, open to medical students of either sex attending the Lectures on Insanity, £31; Monteith Bursary, tenable for two years, awarded on results of Second Professional Examination, £21, Anatomy and Physiology; Dr. Thomas Gibson Bursary, tenable for four years, open to medical students preparing to be Missionaries, £36, competition at the First Professional Examination; Coats Scholarship, open to graduates in medicine of not more than three years' standing, holder to prosecute research in pathology, £80, Pathology; John Macfarlane Bursary and Lorimer Bursary, each tenable for three years and open to medical students entering on their second winter session, £40 and £24 respectively; two Armagh Bursaries, open to students of either sex presenting themselves for the Final Examination for the degree of M.A. and intending to study Medicine, £48 each, one tenable for three years awarded for honours in Mental Philosophy, one tenable for two years awarded for honours in Classics; Taylor Bursary, tenable for four years, open to students of either sex in any Faculty, £7, appointment by the Senate; William Gardiner Bursary, tenable for two years, open to medical students of either sex, £14, Physiology, Chemistry, and Physics of Professional Examinations; Rainy Bursary, tenable for two years, open to medical students entering on their fourth winter session, £20, Anatomy, Physiology, Chemistry, Botany, and Zoology; two Paterson Bursaries, tenable for four years, open to medical students of first or second session, £25 and £20 respectively, Mathematics and Dynamics; Brunton Memorial Prize, awarded annually to the most distinguished graduate in medicine of the year, £10; Dobbie Smith Gold Medal, awarded annually for an Essay on any Botanical subject; two Arnott Prizes, £20 and £15 respectively, Physiological Physics, &c.; Andrew and Bethia Stewart Bursary, tenable for three years, open to M.A. Graduates of the University, £50, Special Examination; Weir Bursary, awarded on result of Second and Third Professional Examinations, £16; McCunn Medical Research Scholarship, open to medical graduates of Scottish Universities, £100 (see University Calendar).

ANDERSON'S COLLEGE MEDICAL SCHOOL, Dumbarton-road, Glasgow, W.—This medical school took its rise as the Medical Department of Anderson's University, founded in 1795 by the will of Professor John Anderson, F.R.S., and has been active since 1799. It has given 13 professors to the University of Glasgow. The following courses are given, which qualify for all the licensing boards and for the Universities of London, Durham, Edinburgh, and Glasgow (the latter two under certain conditions):—In winter: Anatomy, Professor A. M. Buchanan;

Physics, Professor Peter Bennett; Chemistry, Professor J. Robertson Watson; Botany, Professor B. G. Cormack; Zoology, Professor Geo. Bell Todd; Physiology, Professor A. J. Ballantyne: Materia Medica, Professor John P. Duncan; Midwifery, Professor J. M. Munro Kerr: Surgery, Professor G. H. Edington; Practice of Medicine, Professor John Cowan; Ophthalmic Medicine and Surgery, Dr. A. Freeland Fergus; Aural Surgery, Dr. J. Galbraith Connal; Diseases of Throat and Nose, Dr. John Macintyre; Public Health (Laboratory Course), Professor Carstairs C. Douglas. In summer: Anatomy, Practical Anatomy, and Osteology; Practical Chemistry; Botany and Practical Botany; Zoology and Practical Zoology; Practical Physiology; Practical Materia Medica and Pharmacy; Medical Jurisprudence (Professor Carstairs C. Douglas); Diseases of Women and Children (Professor John Edgar); Operative Surgery; Ophthalmic Medicine and Surgery; Aural Surgery; Mental Diseases (Dr. John Carswell); and Public Health (Lecture Course and Laboratory Course). The Chemical Laboratory is open daily from 10 to 5. The Dissecting-room is open in winter from 9 A.M. to 6 P.M., and in summer from 6 A.M. to 6 P.M. The students are assisted in their dissections by the Professor and Demonstrators, by whom frequent examinations and demonstrations on the parts dissected are conducted. The supply of subjects for dissection is ample, and students are consequently provided with parts as soon as they may be ready for them. The Dissecting-room is provided with a complete series of dissected specimens, mounted in plaster of Paris, illustrating the anatomy of the human body. Candidates for the Licence in Dental Surgery can obtain the full medical curriculum in Anatomy, Chemistry, Physiology, Surgery, Practice of Medicine, and Materia Medica. The courses special to Dentistry are conducted at the Glasgow Dental Hospital and School.

The new buildings are situated in Dumbarton-road, immediately to the west of the entrance to the Western Infirmary, within two minutes' walk of it, and four minutes' walk of the University. Extensive accommodation is provided for Practical Anatomy, Practical Chemistry, Practical Botany, Practical Zoology, Practical Physiology, Practical Pharmacy, Operative Surgery, and Public Health. Ample provision has also been made for the comfort of students.

Class Fees.—For each course of Lectures (Anatomy, Ophthalmic Medicine and Surgery, Aural Surgery, Diseases of Throat and Nose, Mental Diseases, and Public Health excepted), first session, £2 2*s*; second session (in Anderson's College), £1 1*s*. For Practical Classes (except Anatomy, Chemistry, and Public Health)—namely, Botany, Zoology, Physiology, Pharmacy, and Operative Surgery—first session, £2 2*s*.; second session, £2 2*s*. Anatomy Class Fees: Winter, first session, Lectures and Practical Anatomy, £5 5*s*.; Practical Anatomy alone, £2 2*s*. Second session, Lectures and Practical Anatomy, £5 5*s*.; Practical Anatomy alone, £2 2*s*. Third session, Practical Anatomy, £1 1*s*. Summer, Lectures and Practical Anatomy, £2 12*s*. 6*d*.; Lectures alone, £1 11*s*. 6*d*.; Practical Anatomy alone, £1 11*s* 6*d*.; Osteology and Practical Anatomy, £2 12*s*. 6*d*.; Osteology alone, £1 11*s*. 6*d*.; Practical Anatomy alone, £1 11*s*. 6*d*.; Special Course of Demonstrations for Dental Students, £2 2*s*. Chemistry: Lectures, £2 2*s*.; Practical Chemistry, £3 3*s*. Botany and Zoology: Reduced fees for Lectures with Laboratory work in Botany or in Zoology, during same summer session, £3 3*s*.; for Lecture Class or Practical Class separately, in Botany or in Zoology, £2 2*s*. Ophthalmic Medicine and Surgery (including Hospital Practice), Aural Surgery, Diseases of Throat and Nose, and Mental Diseases, fee for each course, £1 1*s*. Public Health Laboratory, fee for six months' course, £12 12*s*. Matriculation Fees: For the year, 10*s*.; for one class in winter session alone, 5*s*.; for summer session alone, 5*s*.

Western Infirmary.—Fees: For Hospital Attendance, £10 10*s*.; afterwards free. For Clinical Instruction, winter, £3 3*s*.; summer, £2 2*s*. Pathology: systematic, £4 4*s*.; practical, £3 3*s*. Vaccination fee, £1 1*s*.

Royal Infirmary.—Fees: Hospital Practice and Clinical Instruction, first year, £10 10*s*.; second year, £10 10*s*.; afterwards free. Six months, £6 6*s*.; three months, £4 4*s* Pathology, both courses, £4 4*s*. Vaccination Fee, £1 1*s*.

Attendance at the dispensaries of the Western and Royal Infirmaries is included in the hospital fee.

Maternity and Women's Hospital.—Fee for six months, £3 3*s*.

Royal Hospital for Sick Children.—Fee for one year, £1 1*s*.

Eye Infirmary.—Fee: Hospital Practice and Clinical instruction, including Lectures at the College, six months, £1 1*s*.

Lock Hospital.—£1 1*s*.

Fever Hospital, Belvidere or Ruchill.—Fee, £1 1*s*.

Hospital for Skin Diseases.—Fee, £1 1*s*.

The Carnegie Trust extends its benefactions to students at Anderson's College Medical School. Full particulars may be obtained from Mr. W. S. McCormick, the Carnegie Trust Offices, Merchants' Hall, Edinburgh.

Certificates of attendance on the lectures at Anderson's College Medical School are received by the Universities of London, Durham, Edinburgh, and Glasgow (the latter two under certain conditions); by the Royal Colleges of Physicians of London and Edinburgh; by the Royal Colleges of Surgeons, England, Edinburgh, and Ireland; by the Royal College of Physicians of Ireland; by the Royal Faculty of Physicians and Surgeons of Glasgow; by the Society of Apothecaries, London; and by the Army, Navy, and East India Boards. The courses of Laboratory Instruction and Lectures in Public Health are recognised by the Royal Faculty and Scottish Colleges; by the Royal College of Physicians and the Royal College of Surgeons, Ireland; and by the University of Cambridge. Communications relating to the Medical School to be addressed to the Secretary of the Medical Faculty, Anderson's College Medical School, Glasgow, W. Communications relating to the Preliminary Examination in General Education to be addressed to Mr. Alexander Mackay, Educational Institute Office, 34, North Bridge-street, Edinburgh. Communications relating to the Triple Qualification to be addressed to Mr. Alexander Duncan, LL.D., Royal Faculty Hall, 242, St. Vincent-street, Glasgow. Communications relating to the Dental School to be addressed to Mr. D. M. Alexander, 97, West Regent-street, Glasgow.

The Malcolm Kerr Bursary in Anatomy (value about £10) is open to students of the Junior Anatomy Class during Winter Session 1910–11.

The Winter Session will be opened on Monday, Oct. 17th, 1910, and will be closed on Thursday, March 23rd, 1911.

The Summer Session will be opened on Tuesday, April 25th, 1911, and will be closed on Tuesday, July 4th, 1911.

ST. MUNGO'S COLLEGE AND GLASGOW ROYAL INFIRMARY.—This College was incorporated in 1889. The Glasgow Royal Infirmary was founded in 1791. The Faculty of Medicine of the College occupies buildings erected for the purposes of a medical school, adjoining and communicating with the Royal Infirmary. The Laboratories, Museums, and Lecture-rooms are equipped and adapted to modern scientific requirements. A complete electric light installation has been added and a powerful Educational Lantern has been provided for demonstration purposes. The Royal Infirmary, which is at the service of the College for the purpose of clinical and practical instruction, is one of the largest hospitals in the kingdom. The winter session will open on Monday, Oct. 17th.

Psychological Medicine.—Practical instruction is given in Woodilee Asylum, situated within a short distance of Glasgow and having accommodation for 850 patients. Eight resident clinical clerks are appointed annually. These clerkships are open to students attending St. Mungo's College.

Clinical Instruction in Fevers.—Classes are conducted by Dr. Johnston, Superintendent, at the City of Glasgow Fever Hospital, Belvidere, and Dr. Brownlee, Superintendent, at the City of Glasgow Fever Hospital, Ruchill.

Clinical Instruction in Midwifery.—The close proximity of the Maternity Hospital enables the Professor of Midwifery to conduct frequent clinical demonstrations there during the summer session.

The classes in St. Mungo's College qualify for the English, Scotch, and Irish Conjoint Boards and, under certain conditions, for the various universities, including the University of London. Students who have fulfilled the conditions of the Carnegie Trust as regards Scottish birth or extraction, age (16 years), and Preliminary Examination, are eligible for the benefits of this Trust

during the whole course of their studies at St. Mungo's College.

The fee for each class is £2 2*s*., except Zoology and Botany, joint fee £3 3*s*., Anatomy, Winter Session, £4 4*s*., Pathology, £4 4*s*., Physics, £2 4*s*. 6*d*., Public Health Laboratory, £12 12*s*., and certain extra classes for which the fee is £1 1*s*. The hospital fee (including clinical lectures) is £21 for a perpetual ticket.

The classes in St. Mungo's College are now open to male and female students equally.

The minimum fees for all the lectures, including hospital attendance, necessary for candidates for the Diplomas of the English or Scotch Colleges of Physicians and Surgeons amount to £65. Further particulars can be obtained from a syllabus which may be procured free on application to the Secretary of the Medical Faculty, 86, Castle-street, Glasgow.

GLASGOW WESTERN MEDICAL SCHOOL.—This School is situated in University-avenue, opposite the principal gate of the University and near the Western Infirmary. Lectures and Demonstrations are given on Chemistry, Anatomy, Medicine, Surgery, Midwifery and Gynæcology, Pathology, and Ophthalmology. Some of the classes qualify for graduation and for Scotch diplomas.

Class Fees.—For each course of Lectures the fee is £2 2*s*., or in some cases £1 1*s*. There is no matriculation fee.

Lecturers: Winter Session.—Chemistry: Dr. Neave; Anatomy: Dr. Wright Thomson, Tuesday, Wednesday, and Friday, at 4.15 P.M.; Surgery: Dr. A. Young, at 12 noon; Midwifery: Dr. Balfour Marshall, at 2 P.M.; Medicine: Dr. G. A. Allan, at 3 P.M.; The Eye: Dr. Hinshelwood, Monday and Thursday, at 4 P.M.

Summer Session.—Chemistry: Dr. Neave; Anatomy: Dr. Wright Thomson, Tuesday and Friday, at 3.15 P.M.; Operative Surgery: Dr. A. Young, Monday, Wednesday, and Friday, at 1 P.M.; Gynæcology: Dr. Balfour Marshall, at 2 P.M.; Medicine: Dr. G. A. Allan, Monday, Tuesday, and Friday, at 4 P.M.; Ophthalmology: Dr. Hinshelwood, Monday and Thursday, at 11 A.M. and 3 P.M. Some of the above hours are liable to alteration. Further particulars can be obtained from the Secretary, Mr. J. N. Morton, 58, Bath-street.

QUEEN MARGARET COLLEGE, University of Glasgow.—Queen Margaret College was founded in 1883 by the Glasgow Association for the Higher Education of Women (instituted in 1877), and handsome buildings and grounds near the University were presented to the College in 1884 by Mrs. John Elder. In 1890 a School of Medicine for women was added to its Arts Faculty. In 1892, when the Universities Commissioners issued an ordinance empowering the Scottish University Courts to make provision for the instruction of women, the Council of the College and Mrs. Elder transferred to the University the College, its buildings, grounds, and endowments, on condition that these should be devoted to the maintenance of University classes for women only. The College then became the women's department of the University of Glasgow; its classes are taught by professors of the University and other lecturers appointed by the University Court, and it is governed by the University Court and Senate. The curriculum, regulations, and fees are the same as those of the male students, and the University degrees are open to women on the same conditions as to men. They have access to the University Museum and can borrow books from the University Library, besides having a library of reference in Queen Margaret College. The number of students enrolled in session 1909–10 was 634, of whom about 80 were studying in the Faculty of Medicine and the rest in the Faculties of Arts, Science, or Theology. The School of Medicine is a special feature of the College, and gives full preparation for the medical degrees of the University. In July, 1894, for the first time in the history of any Scottish university, women students graduated in medicine in Glasgow University. 148 women have now taken the degree of M.B., C.M., or M.B., Ch.B. of the University of Glasgow and 16 the degree of M.D. The women students work in the University laboratories for Physics, Zoology, Botany, Physiology, Pathology, Medical Jurisprudence, and Public Health, and have special laboratories for Chemistry and Anatomy at Queen Margaret College. Excellent facilities for clinical work are given in the Royal Infirmary, in the New Maternity, and other hospitals. By a gift of £5000 granted for the purpose by the Bellahouston Trust the University Court was enabled to add to the College a large building for the study of Anatomy and other medical subjects which was opened in October, 1895. The Arthur Scholarship is open every third year to students of first year; other Bursaries are open in Arts and Medicine; and by an ordinance of the Universities Commissioners women are admitted to certain University bursaries, scholarships, and fellowships. A house of residence for the students of the College coming from a distance was opened by the Queen Margaret Hall Co., Limited, in October of 1894. The Winter Session will open on Oct. 17th.

Lecturers (other than University Professors).—Anatomy: Mr. W. K. Hutton. Chemistry: Dr. H. W. Bolam. Medicine: Dr. W. K. Hunter. Surgery: Mr. J. H. Pringle. On the Eye: Dr. A. M. Ramsay.

ROYAL INFIRMARY, Glasgow.—This infirmary, which is the largest in Glasgow, is situated in Cathedral-square, Castle-street, and has car communication with every part of the city. St. Mungo's College is in the infirmary grounds. The infirmary has, including the Ophthalmic Department, over 620 beds, the average number occupied in 1909 being 625. When the rebuilding of the infirmary, now in progress, is completed it will have about 700 beds. There are special beds and wards for diseases of women, of the throat, nose, and ear, skin, venereal diseases, burns, and septic cases. Wards are set apart for the teaching of Women Students. At the Out-door Department the attendances in 1909 numbered over 140 000. In addition to the large medical and surgical departments there are departments for special diseases—viz., diseases of women, of the throat and nose, of the ear, of the eye, of the skin, and of the teeth. Five house physicians and nine house surgeons, having a legal qualification in medicine and surgery, who board in the hospital free of charge, are appointed every six months. Clerks and dressers are appointed by the physicians and surgeons. As a large number of cases of acute diseases and accidents of a varied character are received these appointments are very valuable and desirable. There is a modern and fully equipped Electrical Pavilion and year by year the latest and most approved apparatus for diagnosis and treatment has been added. The fees for hospital attendance, including clinical lectures and tutorial instruction, attendance at the out-door department, at the pathological department, post-mortem examinations, and the use of the museum are as follows: For one year, £10 10*s*.; for six months, £6 6*s*.; for three months, £4 4*s*. Students who have paid fees to the amount of £21 to the Glasgow Royal Infirmary shall be permitted to attend in any subsequent year or years one winter and one summer course of instruction in the infirmary without further payment; and students who have paid to any other hospital in the United Kingdom fees, being not less than £21, in virtue of which they are entitled to attend without further payment, shall be admitted as students of the Royal Infirmary on payment of £3 3*s*. for six months or £1 11*s*. 6*d*. for three months.

Staff.—Visiting Physicians: Dr. G. S. Middleton, Dr. T. K. Monro, Dr. W. K. Hunter, Dr. J. M. Cowan, and Dr. J. B. Mackenzie Anderson. Visiting Surgeons: Mr. John Barlow, Mr. J. A. Adams, Mr. David Newman, Mr. J. H. Pringle, Mr. H. Rutherfurd, and Mr. P. Paterson. Consulting Surgeon for Diseases of the Eye: Dr. A. Maitland Ramsay. Consulting Medical Electrician: Dr. J. Macintyre. Surgeon for Diseases of the Throat and Nose: Dr. J. Macintyre. Gynæcologist: Dr. Balfour Marshall. Surgeon for Diseases of the Ear: Mr. J. Kerr Love. Physician for Diseases of the Skin: Dr. Alex. Morton. Pathologist and Curator of Museum: Dr. J. H. Teacher. Assistant Pathologists: Dr. A. M. Kennedy and Dr. E. S. Taylor. Bacteriologist: Mr. David McCrorie. Assistant Bacteriologists: Mr. J. A. Campbell and Dr. Elizabeth T. Fraser. Medical Electrician: Mr. J. R. Riddell. Assistant Medical Electricians: Dr. Samuel Capie and Dr. Katharine M. Chapman. Anæsthetists: Dr. John Donald, Dr. R. Bruce, and Dr. H. P. Fairlie. Vaccinator: Dr. H. H. Borland. Dispensary Physicians: Mr. David McCrorie, Dr. John Henderson, Dr. Campbell S. Marshall, Dr. James Scott, Dr. J. T. McLachlan, and Dr. A. W. Harrington. Extra Dispensary Physicians: Dr. Dugald McPhail, Dr. Wm. H. Brown, and Dr. E. A. Boxer. Dispensary Surgeons: Mr. A. N. McGregor, Mr. John Patrick, Mr. John A. C. Macewen, Mr. A. C. Faulds, Mr. Thomas Kay, and Mr. Robert Ramsey. Extra Dispensary Surgeons: Mr. James Battersby, Mr. Donald Duff, and Dr. Milne McIntyre. Dispensary Specialists:—Diseases of Women: Dr. Peter

McBryde, Dr. A. G. Banks, and Dr. E. G. Taylor; Diseases of the Ear: Dr. James Adam and Dr. R. S. McKim; Diseases of the Skin: Dr. Alexander Morton and Dr. G. McIntyre; Diseases of the Throat and Nose: Dr. R. Fullerton and Dr. Grant; Diseases of the Eye: Dr. J. Rowan, Dr. H. W. Thomson, and Dr. J. H. McIlroy; Diseases of the Teeth: Mr. W. Taylor and Mr. W. R. Taylor. Superintendent: Dr. J. Maxtone Thom.

GLASGOW WESTERN INFIRMARY.—This hospital adjoins the University of Glasgow. Number of beds upwards of 520. Special wards are set apart for Diseases of Women and for Affections of the Skin. In the out-patient department there are special cliniques for Diseases of Women and for Diseases of the Throat, Ear, and Teeth. The Clinical Courses are given by the physicians and surgeons, each of whom conducts a separate class, and students require to enter their names at the beginning of the session for the class which they propose to attend. Special instruction is given to junior students by tutors or assistants, and clinical clerks and dressers are selected from the members of the class. All the courses of clinical instruction are recognised by the University of Glasgow and the other boards in the kingdom. In the Pathological Department the course is both systematic and practical, also post-graduate courses, and extends through the winter and following summer; these are likewise recognised by the University for graduation. Fourteen resident assistants are appointed annually, without salary, from those who have completed their course. The fee for hospital attendance is £10 10*s.* and the fees for clinical instruction are £3 3*s.* for the Winter Session and £2 2*s.* for the Summer Session.

Staff.—Honorary Consulting Physician: Dr. G. P. Tennant. Honorary Consulting Gynæcologist: Dr. W. L. Reid. Visiting Physicians: Dr. Samson Gemmell, Dr. Ralph Stockman, Dr. Wm. MacLennan, and Dr. J. W. Nicol (Skin Department). Visiting Surgeons: Sir W. Macewen, Dr. J. C. Renton, Sir George T. Beatson, K.C.B., Dr. T. K. Dalziel, and Dr. James H. Nicoll. Gynæcologists: Dr. Murdoch Cameron and Dr. John M. Munro Kerr. Assistant Physicians: Dr. R. B. Ness, Dr. W. R. Jack, Dr. James Carslaw, and Dr. John S. M'Kendrick. Assistant Surgeons: Dr. Duncan Macartney, Dr. Robert Kennedy, Dr. Alfred A. Young, Dr. G. B. Buchanan, Dr. John Morton, and Dr. G. H. Edington. Dispensary Physicians: Dr. Robert Fullarton, Dr. John Gracie, Dr. Frank Charteris, Dr. A. B. Sloan, Dr. Leonard Findlay, and Dr. John P. Duncan. Dispensary Surgeons: Dr. Alex. MacLennan, Dr. Archd. Young, Dr. M. L. Taylor, Dr. W. W. Christie, Dr. C. C. Cuthbert, and Dr. Alex. H. Edwards Anæsthetists: Dr. James P. Boyd, Dr. R. Home Henderson, Dr. A. Dingwall Kennedy, and Dr. John W. Renton. Dispensary Gynæcologists: Dr. S. Cameron and Dr David Dickie. Extra Dispensary Physicians: Dr. Murray Ross Taylor, Dr. Geo. A. Allan, Dr. Jas. R. C. Greenlees, Dr. G. H. Clark, and Dr. D. R. Kilpatrick. Dispensary Physician for Diseases of the Skin: Dr. J. G. Tomkinson. Extra Dispensary Surgeons: Dr. A. H. Edwards, Dr. R. B. Carslaw, Dr. Wm. Rankin, Dr. J. Mill Renton, and Dr. Roy F. Young. Dispensary Surgeon for Diseases of the Ear: Dr. Thomas Barr. Assistant Dispensary Surgeon for Diseases of the Ear: Dr. J. Stoddart Barr. Honorary Consulting Ophthalmic Surgeon: Dr. Thomas Reid. Dispensary Surgeon for Diseases of the Throat and Nose: Dr. Walker Downie. Honorary Consulting Physician for Mental Disorders: Dr. L. R. Oswald. Consulting Medical Electrician: Dr. D. J. Mackintosh, M.V.O. Medical Electricians: Dr. J. G. Tomkinson, Dr. Archd. Hay, and Dr. W. F. Somerville. Pathologist: Dr. Robert Muir. Assistant Pathologists: Dr. S. Dunn and Dr. Carl H. Browning. Vaccinator: Dr. J. L. Carstairs. Dental Surgeon: Mr. W. D. Woodburn, L.D.S. Superintendent: Dr. Donald J. Mackintosh, M.V.O. Matron: Miss H. Gregory Smith. Secretary and Treasurer: Henry Johnston, 87, Union-street. Assistant Secretary: J. Matheson Johnston, C.A.

ROYAL HOSPITAL FOR SICK CHILDREN, Glasgow.—The Hospital at Garnethill was opened in December, 1882, and in June, 1903, a country branch consisting of two wards was opened at Drumchapel. The number of beds in the town hospital and country branch together is 100. A specially designed Dispensary, or Out-patient Department, was opened in October, 1888, in West Graham-street. A central site close to the University has been secured and a hospital of at least 200 beds to take the place of the one in Garnethill will be erected thereon shortly. The whole institution is for non-infectious cases and is available to medical students for clinical instruction in the diseases peculiar to childhood. Classes are formed both at Hospital and Dispensary at the beginning of the University session in October. Students may be enrolled at any time. Fee £1 1*s.* per annum, admitting to both Hospital and Dispensary. Further particulars on applying to the House Surgeon, 45, Scott-street, Garnethill, Glasgow. Physicians: Dr. R. Barclay Ness and Dr. George S. Middleton. Surgeons: Mr. T Kennedy Dalziel and Mr. R. H. Parry.

GLASGOW OPHTHALMIC INSTITUTION, 126, West Regent-street (29 beds and six cots).—Clinical and systematic course of lectures for students during the winter and summer sessions. In-patients, 1087; out- or dispensary patients, 11,522. Operations on Wednesdays and Saturdays. Honorary Consulting Surgeon: Dr. D. N. Knox. Surgeon: Dr. A. Maitland Ramsay. Assistant Surgeons: Dr. John Rowan, Dr. H. Wright Thomson, and Dr. John Gilchrist. Pathologist: Dr. J. H. Teacher. Electrician: Dr. John Gilchrist. Anæsthetist: Dr. R. H. Henderson. House Surgeons: Dr. John Fotheringham and Dr. Campbell Suttie. This institution is the Ophthalmic Department of the Royal Infirmary. A post-graduate course is given by Dr. Ramsay and assistants during September. Clinical instruction is given in the summer session to students of the University and Queen Margaret College and in winter to students of St. Mungo's College and to all who take the class.

GLASGOW EYE INFIRMARY, Berkeley-street and Charlotte-street.—This institution, the largest of its kind in Scotland, was founded in 1824. The Infirmary now consists of two large buildings—that in Berkeley-street being occupied as the Infirmary proper, and that in Charlotte-street (new buildings opened June, 1894) as a dispensary. The Infirmary is devoted exclusively to the treatment of Diseases of the Eye, and is intended primarily to provide treatment, and, when necessary, board and lodging, for those who are unable to do so for themselves. The average number of new patients for the last ten years has been 22,689·2, and the total number of cases in 1909 was 24,536.

Gentlemen may attend as students on payment to the treasurer of the following fees:—For six months £1 1*s.*, 12 months £2 2*s.* All students when duly entered in the Infirmary Register may attend the clinical instruction of any or every member of the medical staff on production of their tickets. The days on which the surgeons respectively attend to receive patients may be ascertained at the Infirmary. Students have the privilege of being present in the Dispensaries at such hours as are arranged. They may enter the wards along with the surgeon whose clinique they are attending when he visits his patients. They may also be present at operations under the sanction of the surgeon operating, but no student may enter the wards or operating-room except under the aforesaid regulation. Students may be allowed the use of the journals and case-books for examination on applying to the House Surgeon. The wards and dispensary are recognised by the University of Glasgow for the purpose of instruction in ophthalmology for graduation in medicine. Secretary and Acting Treasurer: Harold John Black, 88, West Regent-street, Glasgow. The medical session opens in October. The Medical Staff is as follows:—Surgeons: Dr. A. Freeland Fergus, Dr. Andrew Wilson, Dr. James Hinshelwood, Dr. Leslie Buchanan, Dr. W. Ernest F. Thomson, and Dr. A. J. Ballantyne. Assistant Surgeons: Dr. A. Lewis M'Millan, Dr. Henry L. G. Leask, Dr. W. Cochrane Murray, Dr. Brownlow Riddell, Dr. W. B. Inglis Pollock, and Dr. Samuel Capie. Pathologist: Dr. M. Logan Taylor. Honorary Medical Electrician: Dr. Ernest A. Boxer. Honorary Anæsthetist: Dr. J. Wishart Kerr. House Surgeon: Dr. Neil MacInnes. Assistant House Surgeon: Dr. Charles A. Chrichton.

UNIVERSITY OF ST. ANDREWS (UNITED COLLEGE ST. ANDREWS AND UNIVERSITY COLLEGE, DUNDEE).

The following are extracts from the Regulations for Degrees in Medicine contained in Ordinance No. 45 (St. Andrews, No. 4) of the Commissioners under the Universities (Scotland) Act, 1889. These regulations came into force on April 19th, 1897. Four degrees in Medicine

and Surgery shall be conferred by the University of St. Andrews—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), and a Diploma in Public Health. The whole curriculum may be taken at University College, Dundee, or the first two years of the course may be taken at St. Andrews and the remaining three years in Dundee. The degrees of M.B. and Ch.B. shall always be conjoined. Before commencing his medical studies each student shall pass a Preliminary Examination in (*a*) English, (*b*) Latin, (*c*) Elementary Mathematics, and (*d*) one of the following optional subjects:—(α) Greek, (β) French, (γ) German, (δ) Italian, (ε) any other Modern Language, (ζ) Logic. A degree in Arts or in Science in any of the Universities of the United Kingdom and in some colonial or foreign universities shall exempt from the Preliminary Examination. The Preliminary Examination for graduation in Medicine and Surgery, Arts or Science, of the University of St. Andrews is accepted as equivalent to the Registration Examination required by the General Medical Council (the certificate to include the required subjects). Also the Final Examination for a degree in Arts or Science and the Final Examination for the Diploma of L.L.A.

Degree of Bachelor of Medicine and Bachelor of Surgery.—Candidates must have been engaged in medical study for at least five years. In each of the first four years the candidate must have attended at least two courses of instruction in one or more of the subjects of study specified below, each course extending over a session of not less than five months, either continuous or divided into two terms, or, alternatively, one such course along with two courses, each extending over a session of not less than two and a half months. During the fifth or final year the candidate shall be engaged in clinical study for at least nine months at the Infirmary of Dundee or at one or more of such public hospitals or dispensaries, British or foreign, as may be recognised for the purpose by the University Court. The candidate must have received instruction in each of the following subjects of study, including such examinations as may be prescribed in the various classes—viz.: Anatomy, Practical Anatomy, Chemistry, Materia Medica, Physiology, or Institutes of Medicine, Practice of Medicine, Surgery, Midwifery and the Diseases peculiar to Women and Infants, Pathology, Practical Chemistry, Physics (including the Dynamics of Solids, Liquids, and Gases, and the Rudiments of Sound, Heat, Light, and Electricity), Elementary Botany, Elementary Zoology, Practical Physiology, Practical Pathology, Forensic Medicine, and Public Health. The candidate must have attended for at least three years the Medical and Surgical Practice either of the Infirmary of Dundee or of a General Hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons and is recognised for the purpose by the University Court. Additional subjects of study are Practical Pharmacy, Mental Diseases, Practical Midwifery, Operative Surgery, Vaccination, Children's Diseases, Fevers, Ophthalmology, and Post-mortem Examinations.

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations shall have effect:—1. Two of the five years of medical study must be spent in the University of St. Andrews. 2. The remaining three years may be spent in any University of the United Kingdom or in any Indian, Colonial, or Foreign University recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court.

Women shall be admitted to graduation in Medicine, subject to the provisions of Ordinance No. 18 [General No. 9—Regulations for the Graduation of Women and for their Instruction in the Universities]: Provided always that every candidate for graduation shall produce evidence of having satisfied the conditions herein laid down with respect to the Preliminary Examination, and shall be examined in all the subjects necessary for graduation by the Examiners of the University of St. Andrews. All the classes necessary for graduation shall be taken in the University of St. Andrews, except in so far as instruction obtained elsewhere is allowed by the said Ordinance.

Professional Examinations for the Degrees of Bachelor of Medicine and Bachelor of Surgery.—Each candidate shall be examined both in writing and orally, and also clinically where the nature of the subject admits, in the following divisions—viz., first, in Botany, Zoology, Physics, and Chemistry; second, in Anatomy, Physiology, and Materia Medica; third, in Pathology, and Forensic Medicine and Public Health; and fourth, in Surgery, Clinical and Operative Surgery, Practice of Medicine and Clinical Medicine, and Midwifery and Gynæcology (Systematic and Clinical).

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery shall be 22 guineas and the proportion of this sum to be paid by a candidate at each division of the examination shall be regulated from time to time by the University Court. The fee to be paid for the degree of Doctor of Medicine shall be 10 guineas, exclusive of any stamp duty which for the time may be demanded. The fee to be paid for the degree of Master of Surgery shall be 10 guineas.

The whole medical curriculum can be taken in University College or the first two years in United College.

Bursaries, United College, St. Andrews.—Fourteen Taylour Thomson Bursaries for female Medical students of the annual value of from £20 to £30 each, tenable for one or two years. The Bursaries are awarded in the order of merit, the most valuable ones being given to those students who obtain the highest marks in the Preliminary Examination and who are prepared to take two Anni Medici at the United College, St. Andrews.

University College, Dundee.—(*a*) Open to either sex. Eleven Entrance Bursaries of £15, tenable for one year. (*b*) Open to either sex: Four £20 and three £15, second year. (*c*) Four £20 and two £15, third year. (*d*) Two £20, fourth year. (*e*) Two £20, fifth year. (*f*) Bute Bursary, founded in 1893 by the late Most Honourable the Marquis of Bute, K.T. This Bursary consists of the free proceeds of £1000. (*g*) Two Bursaries of the annual value of £25, tenable for three years at either University College, Dundee, or at any Scottish University (local candidates only).

Professors—Natural Philosophy: William Peddie, D.Sc., F.R.S.E. Chemistry: Hugh Marshall, D.Sc., F.R.S. Edin. Natural History: D'Arcy W. Thompson, M.A., C.B. Botany: Patrick Geddes, F.R.S.E. Anatomy: J. Yule Mackay, M.D., LL.D. Physiology: E. W. Reid, B.A., D.Sc., M.B., M.R.C.S., F.R.S. Pathology: L. R. Sutherland, M.B., C.M. Surgery: D. MacEwan, M.D. Medicine: Alexander M. Stalker, M.A., M.D. Midwifery: J. A. C. Kynoch, M.B., F.R.C.P. & S.Edin. Materia Medica: C. R. Marshall, M.A., M.D.

United College of St. Salvator and St. Leonard.—Professors—Natural Philosophy: A. S. Butler, M.A. Natural History: W. C. MacIntosh, M.D., LL.D., F.R.S. Chemistry: James C. Irvine, D.Sc., Ph.D. Anatomy: James Musgrove, M.D., C.M. Physiology: Percy T. Herring, M.D.

For further particulars apply to Professor Kynoch, Dean of the Medical Faculty, University College, Dundee.

UNIVERSITY COLLEGE, Dundee.—This College is one of the constituent colleges of the University of St. Andrews. In the new medical buildings there are spacious and well-equipped laboratories and work-rooms for Anatomy, Physiology, Materia Medica, Pathology, Ophthalmology, Public Health, Medicine, Surgery, and Gynæcology. The complete medical curriculum can be taken in Dundee. For classes, fees, &c., see under University of St. Andrews.

ROYAL INFIRMARY, Dundee.—The Infirmary contains 400 beds, including special wards for the Diseases of Women, Children, Eye, Ear and Throat, Skin, and for Obstetric cases. There is in addition an Extern Obstetric Department. There were during last year 19,516 out-patients and 7964 home patients. The Royal Infirmary offers exceptional facilities for practical work to students. Appointments: Five qualified Resident Medical Assistants are appointed every six months and one non-resident Obstetric Assistant. Clinical Clerks and Dressers are attached to the Physicians and Surgeons, and students are appointed as assistants in the Pathological Department. There are in connexion with the clinical courses Tutorial Classes in Medicine and Surgery. Instruction is also given in Practical Pharmacy and Materia Medica and in Practical Dentistry. Further information can be obtained from Dr. Fraser, Medical Superintendent.

ROYAL and DISTRICT ASYLUMS, Dundee (five miles from City). Number of patients, 490.—Physician Superintendent: Dr. William Tuach-Mackenzie. Lectures on Mental Diseases and clinical instruction in connexion with

University College, Dundee (University of St. Andrews), are given during the Summer Session at University College and at the Royal and District Asylums by Dr. Tuach-Mackenzie. The course consists of 12 Lectures and 14 Clinical Lectures and Demonstrations. There are two paid qualified Resident Assistants and two unpaid Resident Clinical Assistants.

UNIVERSITY OF ABERDEEN.

The University of Aberdeen grants four degrees in Medicine and Surgery—viz., Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Medicine (M.B.), and Bachelor of Surgery (Ch.B.). The two degrees of M.B. and Ch.B. are not conferred separately and the higher degrees of M.D. and Ch.M. are only granted to holders of the M.B. and Ch.B. degrees.

Degrees of M.B. and Ch.B.—Before commencing his medical studies each student must pass a Preliminary Examination in (1) English, (2) Latin, (3) Mathematics, and (4) Greek, or French, or German. In the case of a candidate whose native language is not English an examination in the candidate's native language may be substituted for one in French or German, and an examination in any other classical language for one in Latin or Greek. The curriculum for the degrees extends over a period of five years, during which attendance is required in the following subjects: Botany, Zoology, Physics, Chemistry (Systematic and Practical), Anatomy (Systematic and Practical), Physiology (Systematic and Practical), Materia Medica and Therapeutics, Practical Pharmacy, Pathology (Systematic and Practical), Medical Jurisprudence and Public Health, Surgery, Medicine, and Midwifery.

Candidates must attend for at least three years the medical and surgical practice of a recognised hospital accommodating at least 80 patients and having a distinct staff of physicians and surgeons, and they must have attended courses of at least nine months in clinical medicine and clinical surgery. The candidate must have acted as clerk in the medical and dresser in the surgical wards of a hospital and must have attended for at least six months the practice of a dispensary or the out-practice of a hospital, &c. Attendance is also required on courses in Mental Diseases, Fevers, Ophthalmology, Post-mortem Examinations, and other special subjects. The candidate is also required to have been properly instructed in Vaccination and to have attended at least 12 Midwifery cases.

Professional Examinations are held twice in each year—namely, in March and July, directly after the close of the winter and summer sessions.

The fee for the degrees of M.B. and Ch.B. amounts to £23 2*s*. Matriculation fee for the winter and summer sessions, £1 1*s*.; summer session alone, 10*s*. 6*d*.

Besides the Royal Infirmary, students have the opportunity of attending the following institutions: City Fever Hospital, Sick Children's Hospital, General Dispensary, and Lying-in and Vaccine Institutions (daily), Royal Lunatic Asylum, Ophthalmic Institution, &c.

Degrees of M.D. and Ch.M.—Candidates for either of these degrees must already hold the degrees of M.B. and Ch.B. of Aberdeen. A thesis has to be presented for approval by the Medical Faculty and an examination has to be passed in Clinical Medicine or Clinical Surgery as the case may be. Fee for each of the degrees £10 10*s*.

A diploma in Public Health is granted by the University to graduates in Medicine of a University in the United Kingdom, after a special examination. The diploma can be entered on the Register of the General Medical Council.

Application for further information should be addressed to the Secretary of the Medical Faculty.

Professors—Physics: C. Niven, M.A., D.Sc., F.R.S. Physiology: J. A. MacWilliam, M.D. Medicine: David White Finlay, M.D. Chemistry: F. R. Japp, LL.D., F.R.S. Anatomy: R. W. Reid, M.D., F.R.C.S. Surgery: John Marnoch, M.B., C.M. Materia Medica: J. T. Cash, M.D., F.R.S. Midwifery: W. Stephenson, M.D. Forensic Medicine: Matthew Hay, M.D., LL.D. Botany: J. W. H. Trail, M.D., F.R.S. Pathology: Geo. Dean, M.B. Natural History: J. Arthur Thomson, M.A.

Scholarships and Prizes.—In the Faculty of Medicine of the University of Aberdeen there are the following Bursaries, Scholarships, and Prizes:—Bursaries: about 15 Bursaries (competition and presentation) are open each year, of £15 to £30 per annum in value, most of them being tenable for three years; certain other Bursaries are not confined to the Faculty of Medicine, but may be held by Arts Students. Scholarships: five Post-Graduate Scholarships, value £36 to £160 per annum. Prizes and Medals: 13 Gold Medals and Prizes for proficiency in special departments, &c.

Clinical Instruction.—ABERDEEN ROYAL INFIRMARY.—Contains 251 beds. Consulting Physician: Dr. Angus Fraser. Physicians: Professor Finlay, Dr. George M. Edmond, and Dr. Ashley W. Mackintosh. Assistant Physicians: Dr. A. H. Lister, Dr. W. R. Pirie, and Dr. Thos. Fraser. Consulting Surgeons: Professor Alexander Ogston, Dr. J. C. O. Will, and Dr. J. Mackenzie Booth. Surgeons: Mr. J. S. Riddell, Professor John Marnoch, and Mr. H. M. W. Gray. Assistant Surgeons: Dr. Wallace Milne, Dr. Henry Peterkin, and Dr. Fred. K. Smith. Ophthalmic Surgeon: Dr. C. H. Usher. Assistant Ophthalmic Surgeon: Dr. W. Clark Souter. Gynæcologist: Professor W. Stephenson. Pathologist: Professor George Dean. Assistant Pathologist: Dr. G. M. Duncan. Dental Surgeon: Dr. J. M. P. Crombie. Anæsthetist: Dr. J. J. Y. Dalgarno. Assistant Anæsthetists: Dr. Alex. Mitchell and Dr. A. W. Falconer. Medical Electrician: Dr. J. R. Levack. Assistant Medical Electrician: Dr. Clifford T. Bell. Dermatologist and Lecturer on Diseases of the Skin: Dr. J. F. Christie. Medical Superintendent and Clinical Registrar: Dr. William Sinclair. Clerk and Treasurer and Factor for the Hospital Lands: Mr. A. Scott Finnie, 343, Union-street, Aberdeen.

ABERDEEN ROYAL LUNATIC ASYLUM.—Contains, with hospital attached to main institution and agricultural branch, about 986 beds. Medical Superintendent: Dr. William Reid. Assistant Physicians: Dr. Arthur Kellas, Dr. P. Sinclair Hunter, and Dr. Kenneth Ross. Clerk, Treasurer, and Factor: Mr. A. Scott Finnie, 343, Union-street, Aberdeen. Clinical instruction is given to students during three months in summer.

SCOTTISH MEDICAL CORPORATIONS GRANTING DIPLOMAS.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

These Colleges have made arrangements by which, after one series of examinations, held in Edinburgh or Glasgow, or both, the student may obtain the diplomas of the three Bodies.

The three Bodies grant their Single Licences only to candidates who already possess legal qualifications in Medicine or Surgery. Copies of the Regulations for the Single Licence of any of the Bodies may be had on application to the respective secretaries.

Professional Education.—I. The candidate must produce certificates or other satisfactory evidence of having attended the following separate and distinct courses of instruction: Physics, three months; Elementary Biology, three months; Chemistry, six months; Practical or Analytical Chemistry, three months; Anatomy, during at least six months; Practical Anatomy, twelve months; Physiology, six months; Materia Medica, three months; Pathology (including Practical Pathology), six months; Practice of Medicine, six months; Clinical Medicine, nine months; Principles and Practice of Surgery, six months; Clinical Surgery, nine months; Midwifery and the Diseases of Women and Children, three months; Medical Jurisprudence and Public Health, three months. The certified attendance on lectures, demonstrations, and practical work must not be less than three-fourths of the total number of roll-calls. II. The candidate must also produce the following certificates:—(*a*) Of having personally attended not less than six cases of labour, or alternatively attendance on 12 cases of labour, at least five of these to be conducted personally under the direct superintendence of the practitioner who signs the certificate, who must be a registered medical practitioner, but the practical midwifery applicable to students commencing medical study on and after Oct. 1st, 1908, is as follows: 1. Every student before commencing the study of Practical Midwifery shall have attended a course of lectures on Surgery and Midwifery and be required to have held the offices of Clinical Medical Clerk

and Surgical Dresser. 2. Every student shall be required either—(1) to have attended the indoor practice of a lying-in hospital or the lying-in wards of a general hospital for a period of three months to the satisfaction of the medical officer in charge, and after having received therein practical instruction in the conduct of labour, under the personal supervision of a medical officer, to have conducted 12 cases of labour under official medical supervision; or (2) to have conducted not less than 12 cases of labour, subject to the following conditions—That he has during one month given regular daily attendance upon the indoor practice of a lying-in hospital or the lying-in wards of a general hospital or Poor-law infirmary recognised for that purpose by any of the licensing bodies, and that he has therein conducted cases of labour under the personal supervision of a medical officer of the hospital or infirmary, who shall, when satisfied of the student's competence, authorise him to conduct outdoor cases under official medical supervision. 3. No certificate that the student has conducted the above-mentioned 12 cases of labour shall be accepted unless it is given by a member of the staff of a lying-in hospital or of the maternity charity of a general hospital or of a dispensary having an obstetric staff recognised for that purpose by any of the licensing bodies or of a Poor-law infirmary having a resident medical officer so recognised. (*b*) Of having attended, for two and a half months, instruction in Practical Pharmacy; the certificate to be signed by the teacher, who must be a member of the Pharmaceutical Society of Great Britain, or the superintendent of the laboratory of a public hospital or dispensary, or a registered practitioner who dispenses medicines to his patients, or a teacher of a class of Practical Pharmacy. (*c*) Of having attended for 27 months the Medical and Surgical practice of a public general hospital containing on an average at least 80 patients available for clinical instruction and possessing distinct staffs of physicians and of surgeons. Evidence must be produced that the candidate has acted as Surgical Dresser and Medical Clinical Clerk for not less than three months in the wards in each case, and has received practical instruction in administration of anæsthetics. (*d*) Of having attended for six months the practice of a public dispensary specially recognised by any of the above authorities, or the out-patient practice of a recognised general hospital or of having acted for six months as pupil to a registered practitioner who either holds such a public appointment, or has such opportunities of imparting practical knowledge as shall be satisfactory to the coöperating authorities; this attendance should be made after the student has passed the First and Second examinations. (*e*) Of having been instructed in the Theory and Practice of Vaccination by a Public Vaccinator authorised by the Local Government Board to grant certificates of proficiency in vaccination and of having performed operations under the teacher's inspection during a period of not less than six weeks.

The above Course of Hospital Practice, and the above Courses of Clinical Medicine and Clinical Surgery shall be attended at a recognised Public General Hospital, possessing distinct staffs of Physicians and of Surgeons, and containing on an average not less than 80 patients available for Clinical Instruction.

In addition to the courses above prescribed candidates are required to attend the following courses: Diseases and Injuries of the Eye, three months; Insanity, three months; Infectious Diseases, three months.

The curriculum lasts for five years; the fifth year should be devoted to clinical work at one or more public hospitals or dispensaries. The period of three years devoted to hospital practice may include clinical instruction in special subjects, and must also include instruction in administration of anæsthetics and attendance at post-mortem examinations. The student's regularity of attendance in the wards and out-patients' departments of the hospitals and at the post-mortem examinations should be duly ascertained and noted on the certificate.

Students are recommended to pay particular attention to practical work in connexion with all the departments of study, and to avail themselves of opportunities of acquiring practical acquaintance with special departments of Clinical Study, such as Diseases of the Ear, Throat, and Skin, Diseases of Children, and Operative Surgery. The examinations shall be so conducted as to test practical knowledge.

Candidates shall be subjected to four professional examinations:

First Examination.—The First examination shall embrace the following subjects—(1) Physics, (2) Chemistry, including Practical Chemistry, and (3) Elementary Biology. The fees payable for admission to the First examination shall be for the whole examination, £5; for each subject separately, £2 10*s.*; and for re-entry, £2.

Second Examination.—The Second examination shall embrace Anatomy and Physiology including Histology; and candidates may be admitted to this examination at the end of the second year of medical study. The fees payable for admission to the Second examination shall be—for the whole examination, £5, and for re-entry after rejection, £3 for both subjects, and for each of the subjects separately, £3, and for re-entry for each subject after rejection, £2.

Third Examination.—The Third examination shall embrace Pathology and Materia Medica with Pharmacy. The fees payable for admission to the Third examination shall be—for the whole examination, £5; for re-entry in both subjects after rejection, £3; and for each of the subjects separately, £3, and for re-entry for each subject after rejection, £2.

Final Examination.—The Final examination shall not be taken earlier than the end of the fifth year of study and shall embrace the following subjects:—Medicine, including Therapeutics, Medical Anatomy, and Clinical Medicine; Surgery, including Surgical Anatomy, Clinical Surgery, and Diseases and Injuries of the Eye; Midwifery and Diseases of Women and of New-born Children; and Medical Jurisprudence and Public Health, but it is optional to candidates who have passed the Third Examination to be admitted to the subject of Medical Jurisprudence and Public Health on lodging certificates of having attended the necessary course in that subject at any time; but the subjects of Medicine, Surgery, and Midwifery shall be taken together at any time after the end of the fifth Winter Session, provided that a period of 24 months has elapsed since passing the Second Examination. All candidates shall be subjected, in addition to the written and oral examinations, to clinical examinations in Medicine and Surgery, which shall include the Examination of Patients, Physical Diagnosis, the Clinical use of the Microscope, Examination of the Urine and Urinary Deposits, Surgical Appliances, Bandages, Surface Markings, &c. The fees payable for the Final examination shall be,—for the whole examination, £15, for re-entry after rejection, £5, and for the subjects of Medical Jurisprudence and Public Health when taken separately, £5, with £3 for re-entry in that subject.

Candidates who enter on the footing of having passed the earlier examination at another Board shall pay the fees in respect of these examinations, as well as the Final examination fees.

There are six periods of examination annually, four in Edinburgh and two in Glasgow, and candidates may present themselves at either examining centre irrespectively of the place of the previous examination. The Registrar in Edinburgh is Mr. J. Robertson, solicitor, 54, George-square; and the Registrar in Glasgow, Mr. A. Duncan, LL.D., 242, St. Vincent-street, to whom fees and certificates must be sent for the respective examinations.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH: THE MEMBERSHIP AND FELLOWSHIP.

In addition to the diplomas granted by the Scottish Conjoint Board the Royal College of Physicians grants its Single Licence to candidates already possessing legal qualifications for professional practice.

The Royal College of Physicians of Edinburgh grants a *Membership* and a *Fellowship*.

Membership.—A candidate, who must be a Licentiate of the College or a graduate of a British or Irish University and 24 years of age, is examined in medicine, therapeutics, and in any branch of the departments of medicine, such as general pathology, psychology, public health, obstetrics, tropical medicine, or medical jurisprudence. The fee for the Membership is £36 15*s.*, 15 guineas of which will be returned to any successful candidate who was already a Licentiate of the College at the time of qualifying for the Membership.

Fellowship.—The Fellows are selected, save with rare exceptions, from the ranks of the *Members*. They must be 25 years of age. The fee is £64 18*s.*

The College grants its *Single Licence* on terms similar to those of the Royal College of Surgeons of Edinburgh, as mentioned in the next section.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH: THE FELLOWSHIP.

The Royal College of Surgeons of Edinburgh grants a diploma of Fellowship after examination to the holders of the surgical degrees of diplomas of such British examining bodies, as well as of the holders of such surgical degrees of the Universities of Canada, Australia, New Zealand, and the Indian Empire as are recognised by the College. The candidates for the examination must be 25 years of age and must have been engaged in practice for at least two years. The examination is of a practical nature, partly written and partly *viva voce*, and must include surgery and surgical anatomy, operative surgery, and clinical practice. One optional subject must also be taken, the range of these specialisms covering nearly every branch of medicine. The fee to be paid on entering for examination for Fellowship is £45, £10 of which is remitted to those who already hold the Licentiateship of the College. Candidates rejected at the examination obtain repayment of fee less £10 retained for examination expenses. One month's notice of intention to present himself for examination must be given by the candidate to Mr. D. L. Eadie, 54, George-square, Edinburgh, clerk to the College, together with credentials signed by two Fellows of the College, one of whom must be a resident in Edinburgh, unless a special application be made to the President and the Council of the College. In exceptional circumstances registered medical practitioners who have distinguished themselves in the practice of their profession are admitted to the Fellowship without examination.

The Royal College of Surgeons of Edinburgh admits to the examination for its Single Licence any candidate who already holds a Diploma in Medicine of any British, Indian, or Colonial university or of any British or Colonial College of Physicians, or of the Society of Apothecaries of London or Apothecaries' Hall, Dublin, granted under the provisions of the Medical Act, 1886, whose preliminary examination and course of professional study is proved to be sufficient to fulfil the requirements of the College, or to those who have passed a full examination for any of the above. Female practitioners are now admitted to the Licence of the College but not to the Fellowship, and the regulations for the Licence apply to practitioners of either sex.

Every candidate for a surgical diploma must have followed his course of study in a university, or in an established school of medicine, or in a provincial school specially recognised by the College of Surgeons of that division of the United Kingdom in which it is situate.

Under the title Established School of Medicine are comprehended the medical schools of those cities of Great Britain and Ireland in which Diplomas in Surgery are granted, and such colonial and foreign schools as are similarly circumstanced in the countries in which they exist.

SINGLE LICENCE.

Professional Examination for the Diploma of the College.—Candidates for the Diploma of the College will be subjected to one professional examination, partly in writing and partly practically and orally.

Opportunities for the examinations will be presented four times in each year. On each of these occasions the candidates will assemble to write answers to the questions proposed, and the clinical and oral examinations shall be conducted on the days immediately succeeding.

Unsuccessful candidates will be remitted to their studies for a period to be determined by the judgment of the examiners, but not in any case for less than three months.

The examination will embrace the principles and practice of surgery (including operative surgery and surgical pathology), clinical surgery, and surgical anatomy, and will not take place before the termination of the full period of study.

Applications for examination must be made to Mr. D. L. Eadie, not later than one week prior to the date of examination.

On the production of the required documents Mr. Eadie will give the candidate an order authorising the examiners to admit him to examination.

The fee of £15 15*s.* payable to the College must be lodged in the hands of Mr. Eadie not later than one week preceding the examination day. The sum of £10 10*s.* will be returned to each unsuccessful candidate. Under special circumstances candidates can be examined on days other than those fixed by the regulations. The fee for a special examination is as follows, viz., £20 for examination, of which £10 will be returned to candidates remitted on examination.

In order to test more effectually the practical knowledge of candidates recent dissections and anatomical specimens will be employed during examination. They will also be subjected to a practical clinical examination in the Surgical Hospital, including the application of surgical apparatus, bandages, surface markings, &c., and may, if it be considered necessary to test their knowledge, be required to perform operations on the dead body.

THE ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

Like the preceding corporations, the Royal Faculty of Physicians and Surgeons of Glasgow grants a Fellowship and a Licence to be held as separate qualifications.

Fellowship.—The Fellowship of the Faculty is granted after examination in medicine or surgery, together with an optional subject, which may be anatomy or physiology or be selected from any special branch of medicine or surgery, and 14 days' notice must be given by the candidate of his intention to present himself to Mr. Alexander Duncan, LL.D., the Faculty Hall, Glasgow. The fee for the Fellowship is £30, £10 of which sum are returned to any successful candidate who already holds the Licence of the Faculty. An additional sum of £20 is required in the case of candidates resident within seven miles of Glasgow. In certain circumstances Fellows may be elected as a mark of distinction.

Licence.—The Licence of the Royal Faculty is granted as a separate qualification to qualified practitioners in Medicine after examination in surgery, including surgical anatomy and clinical surgery. The fee is 15 guineas.

SCOTTISH PROVINCIAL ANCILLARY SCHOOLS AND HOSPITALS.

The hospitals which are recognised by the Scottish Conjoint Boards, as places where professional study for their diplomas can be pursued are all those institutions which feed the medical faculties of the universities. In addition the Scottish Boards recognise all the places which are recognised by the English Conjoint Board (see p. 643) and the Irish Conjoint Board (see p. 665).

III.—IRELAND.

THE UNIVERSITIES.

The Irish Universities have at length emerged from the state of transition following upon the passing of Mr. Birrell's Universities Act of 1908 for their reformation. Under that Act the old Royal University of Ireland, which was a purely examining body having its headquarters in Dublin, with affiliated colleges in Belfast, Galway, and Cork, was dissolved on Oct. 31st last. It has been superseded by two new universities—namely, the University of Belfast and the National University of Ireland, the latter having headquarters at Dublin, with University College, Dublin, a new College established under the Act, and the old Queen's Colleges at Cork and Galway, reconstituted as the University Colleges of Cork and Galway, as its constituent colleges. The Cecilia-street Catholic School of Medicine has been absorbed in the Dublin College of the National University, which receives a substantial subsidy under the Act for new buildings and equipment. Under the National University the students of the University Colleges of Dublin, Cork, and Galway will be examined by their own professors, assisted by an extern board selected by the Senate of the University. Each College has the privilege of presenting its own course of study in the several faculties for the approval of the University. We give below the courses and regulations as adopted in each College for the next academic year in the Faculty of Medicine. Former students of the Royal University may present themselves for examination under the temporary regulations of the National University for the

examination of extern students. The Medical Faculty of the new University of Belfast (to which status Queen's College, Belfast (R.U.I.), has been raised) has completed its revision of the medical curriculum and chosen its teaching staff. We print below full information on these heads.

The first of the Irish Universities to fall under notice, by right of seniority, is Trinity College, Dublin.

UNIVERSITY OF DUBLIN (TRINITY COLLEGE).

Matriculation.—All students in the School of Physic intending to practise Physic must pass a matriculation examination. This may be either the Public Entrance of Trinity College and a Junior Freshman Term or a special Medical Preliminary, or, for Extern Students, an examination recognised by the General Medical Council. No student can be admitted for the winter course after Nov. 25th.

Degrees in Medicine (M.B.), Surgery (B.Ch.), and Midwifery (B.A.O.).—Candidates for these degrees must be of B.A. standing and must be for at least five academic years on the books of the Medical School, reckoned from the date of matriculation. The Arts course may be concurrent with the Medical course and the B.A. degree need not be taken before the final medical examinations, but the Medical degrees are not conferred without the Arts degree. The following courses must be attended:—(1) Lectures—Systematic, Descriptive and Applied Anatomy, Chemistry and Practical Chemistry, Surgery and Operative Surgery, Histology, Botany, Zoology, Physics and Practical Physics, Physiology and Practical Physiology, Practice of Medicine, Midwifery, Pathology, Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene; (2) three courses of nine months' attendance on the Clinical Lectures of Sir Patrick Dun's or other recognised Dublin Hospital (see p. 665) (two years at a recognised London or Edinburgh hospital before the commencement of the Dublin curriculum may be counted as one year spent in such Dublin hospital); (3) Practical Vaccination, one month's instruction; (4) Mental Disease, three months; (5) Practical Midwifery with Clinical Lectures, including not less than 30 cases, six months; (6) Ophthalmic Surgery, three months. Three groups of examinations have to be passed. Preliminary Scientific Examination, including Physics and Chemistry, Botany, and Zoology. The Intermediate Medical, Part I., including Anatomy and Institutes of Medicine (Practical Histology and Physiology). The Intermediate Medical, Part II., including Applied Anatomy and Applied Physiology; and the Final Examination, which is divided into Part I., Materia Medica, Jurisprudence, and Pathology; and Part II., Medicine, Surgery, Midwifery, Gynæcology, Clinical Medicine, Mental Diseases, Clinical Surgery, Operations, and Clinical Ophthalmology. Part I. may be passed in the fourth year and Part II. in the fifth year. Fee for the *Liceat ad Examinandum*, £10. Fee for the degrees, £17.

Doctor in Medicine.—A Doctor in Medicine must have passed all the qualifying examinations and must be a B.A. of three years' standing. He must also read a thesis before the Regius Professor of Physic. Total amount of fees for this degree, £13.

Master in Surgery.—A Master in Surgery must be a Bachelor in Surgery of the University of Dublin of not less than three years' standing, and must produce satisfactory evidence of having been engaged for not less than two years from the date of his registration in the study, or study and practice, of his profession. He must then pass an examination in the following subjects: 1. Clinical Surgery. 2. Operative Surgery. 3. Surgical Pathology. 4. Surgery. 5. Surgical Anatomy (on the dead subject), and one of the following optional subjects:—1. Surgery in one of the following branches—viz., Ophthalmic and Aural, Gynæcological and Dental. 2. Mental Disease. 3. Medical Jurisprudence and Hygiene. 4. Advanced Anatomy and Physiology. 5. Comparative Anatomy. Fee for the degree of Master in Surgery, £11.

Master in Obstetric Science.—A Master in Obstetric Science must be fully qualified and produce a certificate of having attended a summer course in Obstetric Medicine and Surgery. He is then required to pass an examination in the following subjects:—1. Practice of Midwifery. 2. Gynæcology. 3. Anatomy of Female Pelvis and Elementary Embryology. 4. Clinical Gynæcology. Fee for the degree of Master in Obstetric Science, £5.

University Diplomas.—Candidates for the diplomas in Medicine, Surgery, or Obstetric Science must be matriculated in Medicine and must have completed two years in Arts and five years in Medical Studies. The Course and Examination necessary for the diplomas are the same as for the degrees. A diploma in Medicine, Surgery, and Midwifery is a registrable qualification conferred upon candidates who have completed a full five years' course in Medicine and two years in Arts. The diploma, like the degree, qualifies for registration. A diplomate, on completing his course in Arts and proceeding to the degree of B.A., may become a Bachelor by paying the degree fees. Fee for the *Liceat ad Examinandum*, £10. Fee for the diplomas in Medicine, Surgery, and Midwifery, £11.

Professors and Lecturers.—Natural Philosophy: F. Purser, M.A. Anatomy and Surgery: A. F. Dixon, D.Sc., M.B. University Anatomist: Sir C. B. Ball, M.D., M.Ch. Physic (Regius): James Little, M.D. Surgery (Regius): Sir C. B. Ball, M.Ch. Surgery: E. H. Taylor, M.D. Botany: H. H. Dixon, D.Sc. Physics: W. E. Thrift, F.T.C.D. Pathology: A. C. O'Sullivan, M.D., F.T.C.D. Institutes of Medicine: W. H. Thompson, M.D., D.Sc. Medicine: James Craig, M.D. Materia Medica: W. G. Smith, M.D. Midwifery: Henry Jellett, M.D. Jurisprudence and Hygiene: H. T. Bewley, M.D. Chemistry: Sidney Young, D.Sc. Comparative Anatomy and Zoology: H. W. Mackintosh, M.A.

Clinical instruction.—The hospital facilities for clinical instruction available in Dublin will be described below.

THE NATIONAL UNIVERSITY OF IRELAND.

Matriculation.—All students intending to proceed to the medical degree of the University of Ireland must pass a matriculation examination, the next examination taking place on the 26th of next September in Dublin and at certain local centres. The examination is in (1) Latin or Greek; (2) French, German, or any approved modern language, including Irish; (3) English or History and Geography; (4) Mathematics; and (5) one other subject not already selected, such as Chemistry. In this group of subjects the student must, of course, to satisfy the regulations of the General Medical Council, take Latin, English, and Mathematics.

The following are the regulations for external students proceeding to medical degrees; it is probable that they are subject to modification:—

Degrees of M.B., B.Ch., and B.A.O.—Printed forms of application for admission to any medical examination may be had from "The Registrar, The National University of Ireland, Dublin." Each candidate must send to the Registrar a printed form of application for admission, accurately filled up and signed by the candidate, together with the prescribed fee. 1. Students who pass the First Medical Examination in 1910, or have passed that examination in any year previously in the Royal University, may take Practical Chemistry, if the prescribed course of instruction has been pursued, at a special examination before or with the Second Examination in Medicine of the National University of Ireland, and on passing this special examination shall be regarded as having passed the First Examination in Medicine of the National University. 2. Students who have completed two years of study and who pass the Second Examination in Medicine in 1910 may, on completion of the courses required for the Third Examination of the late Royal University of Ireland, take either (*a*) an examination equivalent to the Third Medical Examination of the late Royal University of Ireland in autumn, 1911, or (*b*) an Examination in Anatomy and Physiology in spring, 1911. In the latter case they will subsequently conform to the new Regulations; in the former case they conform to the new Regulations, omitting Materia Medica at the new Third Examination. 3. Students who, in October, 1910, have completed three years of study, and have passed the Third Medical Examination in 1910, may conform either to the new Regulations (omitting Materia Medica), or may finish their studies under the Regulations prescribed by the Royal University. 4. Students who have completed four years of study in October, 1910, may finish their studies under the Regulations prescribed by the Royal University.

Degree of M.D., M.Ch., M.A.O.—Candidates may present themselves for the examination for this degree after an

interval of three academic years from the time of obtaining the M.B., B.Ch., B.A.O. degrees, but in the case of candidates who have obtained a degree in Arts an interval of two years will be sufficient. All further information concerning fees, dates of examinations, production of certificates, and so on can be obtained from the Registrar of the University. The same formalities have to be complied with for proceeding to the degree of M.Ch. and M.A.O.

The Constituent Colleges of the National University of Ireland at which the full curriculum for medical degrees can be obtained are University College, Dublin; University College, Cork; and University College, Galway.

UNIVERSITY COLLEGE, DUBLIN.—The University and the College were created by the Irish University Act, 1908, and by Charters issued in December, 1908. Former students of the Cecilia-street School of Medicine who graduated in the Royal University may become graduate members of the new College. The constitution of the College, like that of the Constituent Colleges of Cork and Galway, provides for a governing body, an academic council consisting of professors and coöpted lecturers, a body of graduate members, and a body of student members matriculated in the University. The first professors and lecturers were appointed by the Dublin Commissioners Irish Universities Act, 1908. The College teaching staff includes professors in all the Faculties of the University. Pending the erection of new buildings, for which a Parliamentary grant is provided, the teaching is conducted in part of the University Buildings, Earlsfort-terrace, in the buildings formerly known as University College, Stephen's Green, and in the Medical School, Cecilia-street. The professors were appointed in October, 1909, and the Medical Session was begun at once at the same date as in the other Colleges for the session 1909-10. The number of medical students in the session numbered over 300. The students of the College are free to attend any of the recognised Dublin hospitals for clinical instruction. Following the provisions of the statutes of the National University, the Constituent Colleges submit for the consideration of the University the courses of study for degrees, and on the University approving of the courses the latter become binding on the students of the College. The medical courses so adopted for the three Colleges are practically identical.

Degrees of M.B., B.Ch., and B.A.O.—The courses taken for the first year include Physics, Chemistry (Theoretical and Practical), Botany, Zoology, and Dissections. The second year is devoted to Anatomy and Physiology. Clinical attendance is taken in the third, fourth, and fifth years. The third year includes Materia Medica, Sanitary Science, Medical Jurisprudence, and Pathology, and a Third Examination is held at the end of the third year in these subjects. Applied Anatomy is introduced into the final year. The Final Examination includes the Written and Clinical Examinations in Medicine, Midwifery, and Surgery. The Dental course is kept at a high standard to facilitate a Dental student in obtaining the primary Medical degrees, the first two years in the Dental course being the same as the first two years in Medicine. The degree of M.B. may be obtained either by examination or on published work.

The following is the teaching staff of this school:—

Dean of the Faculty (of the College): Professor McLoughlin.

Professors.—Anatomy: Edward Patrick McLoughlin, B.A., M.B., B.Ch., B.A.O. Physiology: Bertram James Collingwood, B.A., M.D. Zoology: George Sigerson, M.D. Chemistry: Hugh Ryan, M.A., D.Sc. Physics: John A. McClelland, M.A., D.Sc., F.R.S. Pathology and Bacteriology: Edmund J. McWeeney, M.A., M.D., D.P.H., F.R.C.P. Irel. Medicine: Sir Christopher J. Nixon, Bart., M.D., LL.D., F.R.C.P. Irel. Surgery: John S. McArdle, M.Ch., F.R.C.S. Irel. Midwifery and Gynæcology: Alfred J. Smith, M.B., F.R.C.S. Irel. Materia Medica and Therapeutics: Martin Dempsey, B.A., M.D., F.R.C.P. Irel. Hygiene and Medical Jurisprudence: J. N. Meenan, M.B., B.Ch., B.A.O., D.P.H.

Lecturers.—Botany: J. Bayley Butler, M.A., M.B., B.Ch., B.A.O. Special Pathology: W. M. Crofton, B.A., M.B., B.Ch., B.A.O. Ophthalmology: Louis Werner, M.B., F.R.C.S. Irel. Dental Surgery: E. Sheridan, F.R.C.S. Irel., L.D.S. Dental Mechanics: J. L. Potter, L.D.S.

Assistants and Demonstrators.—Anatomy: Mr. P. J. Fagan, Dr. G. Keating, Mr. H. S. Meade, and Dr. O'C. Sullivan. Chemistry: Mr. G. Ebrill and Mr. T. Dillon. Medicine: Dr. J. F. O'Carroll. Pathology and Bacteriology: Mr. T. T. O'Farrell and Dr. W. D. O'Kelly. Pharmacy: Mr. M. Hayes. Physics: Mr. J. Nolan. Surgery: Dr. A. Blayney.

UNIVERSITY COLLEGE,[1] CORK: THE SCHOOL OF MEDICINE.—The building is provided with a very large, well-ventilated dissecting room supplied with electric light, with physiological, toxicological, pathological, and pharmaceutical laboratories, materia medica, anatomical and pathological museums, as well as a collection of surgical and obstetrical instruments and appliances. There are well-appointed physical, chemical, and biological laboratories, and a large natural history museum in the adjoining building, and part of the College ground is laid out as a botanical garden. The plant houses are well filled with plants and are open to the students in the class of Botany. The Library contains over 45,000 volumes and is open daily during term time to students. The Medical Museum occupies a large room erected at the northern end of the medical buildings. It consists of (1) an anatomical museum and bone-room, occupying the gallery; (2) pathological museum; and (3) materia medica museum. The two latter collections are on the ground floor. There is a large and representative collection of surgical instruments. The Students' Club is open to all men students of the College who pay the annual subscription of 2*s.* 6*d.* The club is a detached building containing reading, smoking, and refreshment rooms, kitchen, and lavatory. There is also a ladies' club, subscription 1*s.* The Rugby Football Club shares the Mardyke ground with two other clubs, and there is also a practice ground within the walls of the College. There are also Gaelic football, Association football, cricket, hockey, hurling, and athletic clubs, the last of these holding a public meeting once in each year in the Mardyke grounds.

Dean of the Faculty.—Professor A. E. Moore, M.B., B.Ch., B.A.O.

Professors.—Anatomy: D. P. Fitzgerald, M.B., B.Ch. Botany: H. A. Cummins, M.D., C.M.G. (Major, R.A.M.C.). Chemistry: A. E. Dixon, M.D. Experimental Physics: W. Bergiu, M.A. Materia Medica: John Dundon, M.B., B.Ch., B.A.O., F.R.C.S. Eng., F.R.C.S. Irel. Medicine: W. Ashley Cummins, M.D., M.Ch. Obstetrics and Gynæcology: H. Corby, B.A., M.D., M.Ch. Pathology: A. E. Moore, M.B., B.Ch., B.A.O. Physiology: D. T. Barry, M.D., F.R.C.S. Surgery: C. Yelverton Pearson, M.D., M.Ch., F.R.C.S. Zoology: Marcus Hartog, M.A., D.Sc., F.L.S., F.R.H.S.

Lecturers.—Hygiene: Mr. D. D. Donovan. Medical Jurisprudence: Dr. P. T. O'Sullivan. Mental Diseases: Dr. J. J. Fitzgerald. Ophthalmology: Dr. A. W. Sandford.

Demonstrators.—Anatomy: Dr. W. F. O'Connor. Chemistry: Mr. J. Taylor and Dr. J. L. McKee, Ph.D. Experimental Physics: Mr. P. Belas. Midwifery: Dr. M. Cagney. Pathology: Dr. W. Magner. Physiology: Dr. Verner Wiley. Surgery: Dr. C. B. Pearson. Zoology: Mr. J. C. Johnson.

Terms.—The First Term will commence on Oct. 4th, 1910, and end on Dec. 23rd. The Second Term will commence on Jan. 10th, 1911, and end on April 1st. The Third Term will commence on April 24th, 1911, and end with the session on June 30th. (*Note.*—The Easter Recess for the Medical Faculty includes the Friday and Saturday before Easter and Easter Monday.) Lectures in Chemistry, Experimental Physics, and Zoology will commence on Oct. 17th, 1910. Students who have been admitted as matriculated students are required to attend before the President and sign the Roll of Matriculated Students. Students who may be candidates for degrees in the National University of Ireland must have passed the Matriculation Examination of that University, and medical students must have passed a preliminary examination recognised by the General Medical Council. Candidates will be examined in Irish, Greek, or French or German, Latin, History, Geography, English, and Mathematics.

Admission of Medical Students.—Students in the Faculty of Medicine who have passed the First Professional Examination of the Conjoint Examinations of the Royal College of Physicians and the Royal College of Surgeons in Ireland, or of the Royal College of Physicians and Royal College of Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, or of the Royal College of Physicians, London, and Royal College of Surgeons, England, may be admitted to the rank of second year students on making application to the Council and submitting a certificate of having passed the examination.

[1] D.P.H., see Regulations, p. 30, Faculty of Medicine.

Similarly, students who have passed the Second Professional Examination of the same Colleges may be admitted to the rank of third year students; and those who have passed the Third Professional Examination of the Dublin Colleges, or of the Edinburgh Colleges and Glasgow Faculties, may be admitted to the rank of fourth year students.

Class Fees.—The fees for Anatomy, Physiology, Practical Anatomy, Practical Physiology, Practical Pathology, Operative Surgery, and Practical Chemistry are £3 each.

Residence of Students.—There is no accommodation for the residence of students within the College, but every matriculated student under the age of 21 years must reside during the College terms with his parent or guardian, or with some relation or friend to whose care he shall have been committed by his parent or guardian. All students are required to register their addresses each session in the book kept for that purpose in the hall porter's office, and to immediately notify to the registrar any change of address during the session. St. Anthony's Hall, adjoining the College, is the property of, and is occupied by, the Franciscan Order. A number of sets of rooms, together with recreation and common rooms, are provided for lay students who may desire to live there. For full particulars apply to the Very Rev. Superior, St. Anthony's Hall, Fernhurst-avenue. The Ursuline Convent, Blackrock, has a house of residence, quite separate from their Secondary School, for Catholic women students. Separate bedrooms, dining, and recreation rooms will be provided. For terms and details apply to the Rev. Mother Superior, Ursuline Convent, Blackrock, Cork. There is a Girls' Friendly Society Lodge, Dyke Parade, for other women students; apply to Miss Roy.

Scholarships.—There are five scholarships for second-year students of the value of £28, each tenable for one year. These will be offered for competition in October, 1910. For these scholarships students must attend, to the satisfaction of the professors and lecturers, the prescribed Medical course of the second year, and must pass the Second Medical Examination of the University at the end of the academic year. Four scholarships of the third year, value £28, will be offered for competition in October, 1910. On the recommendation of the professors and lecturers concerned these scholarships may be continued during a second year. Holders of scholarships thus continued must attend the prescribed Medical course of the fourth year and pass the Third Examination in Medicine of the University at the end of the academic year 1911–12. Four scholarships of the fourth year, value £28, will be offered for competition in October, 1910. Candidates must not have exceeded four years from the date of their registration as medical students. At the beginning of the session 1910–11 an Exhibition of the value of £25 will be offered for competition among fourth-year students of the Faculty of Medicine in the following subjects: Theoretical Pathology, Practical Pathology, Materia Medica, and Surgical Anatomy. The Blayney Scholarship and Senior Exhibition, of the value of about £32, is open to students who have attended in Queen's College, Cork, the recommended courses of the third and fourth years and passed the sessional examinations, who have completed the previous portion of the Medical course, who have not obtained a medical qualification, and who have not exceeded five years from the date of registration as a medical student. The candidate will be examined in Medicine, including Clinical work; Surgery, including Operative Surgery; Midwifery, including Diseases of Women and Children; Pathology; and Medical Jurisprudence.

The Charles Gold Medal.—In January, 1909, the governing body of University College, Cork, received from John James Charles, M D., F.R.S.E., formerly Professor of Anatomy and Physiology in Queen's College, Cork, £125 Guaranteed Preference Stock of the London and North-Western Railway Company, as well as a dic, to provide a gold medal for competition amongst the students attending the courses of Anatomy or of Physiology in University College, Cork.

Clinical Instruction.—Students may attend the South Infirmary, Cork North Charitable Infirmary, the Mercy Hospital, the Cork District Lunatic Asylum, the Victoria Hospital for Diseases of Women and Children, the County Lying-in Hospital, the Cork Maternity, the Cork Fever Hospital, the Cork District Hospital, and the Cork Ear, Eye, and Throat Hospital.

South Infirmary and County of Cork General Hospital (100 beds).—Staff: Consulting Physician: Dr. P. J. Cremen. Physicians: Dr. P. T. O'Sullivan and Mr. Norman I. Townsend. Surgeons: Mr. H. R. Townsend, Mr. T. Gelston Atkins, and Mr. Henry Corby. Ophthalmic Surgeon: Mr. A. W. Sandford. Physicians for Extern Patients: Mr. E. W. Allsom and Dr. E. V. Cantillon. Surgeon for Extern Patients: Mr. R. P. Crosbie. Pathologist: Dr. A. E. Moore. Dentist: Mr. T. C. Butterfield. Honorary Secretary: Mr. N. I. Townsend. Clinical instruction is given daily in the wards. Special instruction on Ophthalmic Surgery and Diseases of Women and Children will be given in the special wards for such cases. Fee for perpetual ticket, £18 18*s.*; for 12 months, £8 8*s.*; for six months, £5 5*s.*; for three months, £3 3*s.* Three resident pupils will be appointed by competitive examination. Clinical prizes will be given by the staff at the close of the session.

Cork North Charitable Infirmary and County and City of Cork General Hospital (100 beds).—Staff: Honorary Consulting Surgeon: Dr. N. J. Hobart. Physicians: Mr. D. D. Donovan and Dr. Edward Magner. Surgeons: Mr. Jeremiah Cotter, Mr. C. Y. Pearson, Mr. N. H. Hobart, and Mr. D. J. O'Mahony. Assistant Physician: Mr. R. B. Dalton. Assistant Surgeons: Mr. John Dundon and Mr. Richard P. Byrne. Pathologist: Mr. Denis Murphy. Surgeon Dentist: Mr. William Pericho. Dispensing Chemist: Mr. M. Tucker. Honorary Secretary: Mr. R. B. Dalton. Clinical instruction is given daily in the wards by the physicians and surgeons. Special instruction is given to Junior Students on two days weekly. Fee for perpetual ticket, £18 18*s.*; for 12 or nine months, £8 8*s.*; for six months, £5 5*s.*; and for three months, £3 3*s.* Three resident pupils are appointed quarterly by the medical staff. All resident pupils are required to be registered pupils of the Hospital.

Mercy Hospital.—Staff: Consulting Physician: Dr. P. J. Cremen. Consulting Surgeon: Dr. J. Cotter. Consulting Ophthalmic Surgeon: Dr. J. J. McMahon. Physician: Dr. D. J. O'Connor. Surgeons: Mr. J. Giusani and Mr. J. Dundon. Ophthalmic Surgeon: Mr. J. M. Browne. Surgeon Dentist: Mr. H. O'Keeffe. Resident Surgeon: Mr. T. Golding. Pathologist: Dr. M. A. Shinkwin. This hospital contains 75 beds for medical and surgical cases. There is also a daily extern for medical and surgical cases, as well as for diseases of the eye, ear, and throat. Extern medical attendances, 2602; surgical attendances, 1660; ophthalmic attendances, 5974; dental attendances, 996; operations successfully performed, 470; intern patients, 1104. Honorary Secretary to the Staff: Dr. James Browne.

Cork District Lunatic Asylum.—Psychological Medicine: A course of Clinical Lectures on Mental Disease and Allied Neuroses will be delivered in the Cork District Lunatic Asylum on Mondays and Thursdays, commencing the first Thursday in February, by the Resident Medical Superintendent. All students wishing to enter for the course are expected to attend at the Asylum at 2.30 P.M. on that day. All information may be had at the Asylum.

Victoria Hospital for Diseases of Women and Children (Cork).—Honorary Staff: Dr. Ashley Cummins, Dr. C. Yelverton, Dr. P. Lee, Dr. Hobart, and Dr. C. B. Pearson. Lady Superintendent: Mrs. George Armstrong. There are 70 beds. Clinical instruction on Diseases Peculiar to Children is given. The extern department is open daily at 9.30.

County and City of Cork Lying-in Hospital (Erinville, Western-road; founded 1798).—Staff: Honorary Consulting Physicians: Dr. W. E. Ashley Cummins, Dr. Cotter, and Mr. D. D. Donovan. Honorary Obstetric Surgeon: Mr. C. Yelverton Pearson. Physicians: Dr. Norman I. Townsend, Dr. N. H. Hobart, Dr. Lucy E. Smith, and Dr. Daniel J. O'Connor. Assistant Physicians: Dr. P. J. O'Brien and Dr. E. V. Cantillon. This hospital contains 20 beds. Fee for six months' attendance, including clinical lectures, £3 3*s.* For further particulars apply to Norman I. Townsend, honorary assistant secretary to staff.

Cork Maternity (Bachelor's Quay).—Staff: Honorary Consulting Surgeon: Dr. H. Macnaughton-Jones. Consulting Obstetric Physicians: Dr. T. Gelston Atkins and Dr. Henry Corby. Obstetric Physicians: Dr. John Booth, Dr. Richard Crosbie, and Dr. Michael Cagney. Three resident pupils are taken into the Maternity. Poor women are attended at their own homes. About 400 are now annually entered on the Maternity register. Clinical lectures are delivered during the session. There is an extern department

for the treatment of women's and children's diseases. Fee for attendance at clinical lectures and certificate, £3 3s. For further particulars apply to Dr. Henry Corby, secretary to staff.

Cork Fever Hospital.[2]—Staff: Ordinary Physicians: Dr. T. B. Moriarty and Dr. D. J. Flynn. Extraordinary Physician: Mr. T. Callaghan. Resident Medical Officer and Registrar: Mr. A. G. Sutton. Upwards of 200 cases of various forms of fever and zymotic disease are treated yearly in this hospital. The Resident Medical Officer gives instruction in Practical Pharmacy, a certificate of which is necessary for the National University and Colleges of Physicians and Surgeons of Edinburgh.

Cork District Hospital (Douglas-road; 1200 beds).—Staff: Dr. W. E. Ashley Cummins, Dr. J. Giusani, Mr. D. Morrissy, and Mr. James T. O'Connor. Resident Medical Officers: Dr. Alice Barry and Dr. Michael C. Ahern. This hospital includes special buildings for fever and other infectious diseases (100 beds); for children's diseases (100 beds); and a Lock hospital, the only one in the South of Ireland (80 beds). It affords an extensive field for the study of all classes of diseases, acute and chronic, including special departments for gynæcology and diseases of the skin and nervous system. The physicians and surgeons visit the hospitals every morning at 10 o'clock. Lectures and clinical instruction are given daily in the wards by the physicians and surgeons. Three prizes are given at the end of the session for the best olinical reports—one in Medicine, one in Surgery, and one in Fever. Further particulars may be obtained from Dr. W. E. Ashley Cummins, 17, St. Patrick's-place, honorary secretary, medical staff.

Cork Eye, Ear, and Throat Hospital (Western-road).—Staff: Visiting Surgeon: Dr. Arthur W. Sandford. Consulting Physician: Dr. W. E. Ashley Cummins. This hospital is open to students attending the University College and others. Certificates of attendance for three or six months can be obtained. The hospital contains 35 beds. Over 4000 cases are treated during the year. Clinical instruction in the Extern Department is given to students attending the hospital. A course of Lectures on Ophthalmic Surgery is delivered during the session. For further information apply to Dr. Arthur Sandford, 13, St. Patrick's-place, Cork.

UNIVERSITY COLLEGE, GALWAY: SCHOOL OF MEDICINE.—The College contains well-lighted and ventilated dissecting-room and anatomical lecture theatre; physiological, pathological, pharmaceutical, chemical, and physical laboratories; anatomical, pathological, gynæcological, and materia medica museums; as well as a large natural history and geological museum and an extensive library in which students can read and from which they can borrow books. New Chemical and Pathological Laboratories are in process of construction. There are eight Junior Scholarships in Medicine of the annual value of £25 each. Two are tenable by matriculated students of the first, second, third, and fourth years respectively. In addition the Governing Body has power to award exhibitions for distinguished answering. The Scholarship Examinations are held at the beginning of each session. There are extensive grounds, a portion of which is occupied by a Botanic Garden and a portion is at the disposal of the College Athletic Union. There are several student societies in the College, including a Biological Society. There are abundant facilities for research and Post-graduate work in the Chemistry, Physiology, and Pathology departments. Clinical instruction is given in the Galway Hospital and in the Galway Union and Fever Hospitals.

Professors—Natural Philosophy: A. Anderson, M.A., LL.D. Chemistry: A. Senier, Ph.D. Natural History: R. J. Anderson, M.A., M.D. Anatomy and Physiology: J. P. Pye, M.D., D.Sc. Medicine: J. I. Lynham, M.D. Surgery: W. W. Brereton, L.R.C.S.I. Materia Medica: N. W. Colahan, M.D. Midwifery: R. J. Kinkead, M.D.

Lecturers—Pathology: T. Walsh, B.A., M.D., D P.H. Chemistry: A. Robeson, Ph.D., D.Sc.

Galway County Hospital (60 beds).—Medical Officers: Dr. N. W. Colahan, Dr. J. P. Pye, Dr. W. W. Brereton, Dr. R. J. Kinkead, Dr. J. I. Lynham, and Dr. McDermott. Clerk: S. J. Leonard. Patients, 800.

Galway Union and Fever Hospitals (120 beds).—Medical Officers: Dr. N. W. Colahan and Dr. M. J. McDonagh. A new Fever Hospital has just been built.

A prospectus containing full information as to courses of lectures, scholarships, and fees for classes can be obtained on application to the Registrar, University College, Galway.

[2] No returns

QUEEN'S UNIVERSITY OF BELFAST.

There are six degrees in the Faculty of Medicine of the University—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (B.Ch.), Bachelor of Obstetrics (B.A.O.), Doctor of Medicine (M.D.), Master of Surgery (M.Ch.), and Master of Obstetrics (M.A.O.). The University also grants a Diploma in Public Health, particulars of which will be found on p. 683. The degrees of M.B., B.Ch., and B.A.O. are the primary degrees in the Faculty of Medicine, and are conferred at the same time and after the same course of study. No student is admitted to the final examination for these degrees until he has shown: (1) that he is a matriculated student of the University; (2) that he has completed the prescribed course of study in the Faculty of Medicine extending over a period of not less than five academic years from the date of his registration as a student of Medicine by the General Council of Medical Education and Registration of the United Kingdom; (3) that he has passed the several examinations prescribed; (4) that he has attended in the University during three academic years at least the courses of study prescribed for such degrees (the Senate may accept, for not more than two academic years of the required five, courses of study pursued in any other University or School of Medicine approved by the Senate); and (5) that he has attained the age of 21 years. Every candidate for admission as a matriculated student of the University shall pass such Matriculation Examination or fulfil such other test of fitness as may be prescribed by the Senate, which may prescribe the conditions under which students who have passed the Matriculation or Entrance Examination of any other University or College approved for that purpose (or who have fulfilled such other test of fitness as may be prescribed) may be exempted from passing the Matriculation Examination of the University.

The Matriculation Examination.—Entrants to the University who desire to proceed to a degree in the Faculty of Medicine shall be required to pass in five subjects, to be selected from (1) English; (2) Mathematics; (3) Latin; (4 and 5) any *two* of the following (of which *one* must be a Language)—(*a*) Greek, (*b*) French, (*c*) German, (*d*) Physics, (*e*) Chemistry. There shall be two examinations for Matriculation, one in summer and one in autumn. All the subjects offered by a candidate for Matriculation shall be passed at one examination. Entrants (other than those who are matriculated students of the Royal University of Ireland) who have passed the Senior Grade of the Intermediate Education Board for Ireland in the subjects already prescribed in or after the year 1906 shall, on making formal application to the secretary, be admitted as matriculated students. Two examinations for Matriculation, each covering a period of six days, are held each year. Candidates must lodge their entrance forms, duly filled up, with the Secretary, and pay the prescribed fee of £1 1s., not later than May 13th for the summer examination and not later than Sept. 3rd for the autumn examination, or with a late fee of 10s., not later than 14 days before the examination, after which no entry will be received. Entrance forms may be had from the secretary.

Entrance Scholarships.—Candidates who intend to present themselves for the Entrance Scholarships to be awarded after the October Matriculation Examination must give notice to the secretary of the subjects in which they propose to be examined not later than Oct. 1st, 1910. Information as to the scholarships which will be open for competition and the subjects which may be taken may be obtained from the secretary.

PRIMARY DEGREES OF M.B., B.CH., B.A.O.

All candidates for these degrees shall satisfy the examiners in the subjects of four examinations known as the First, Second, Third, and Fourth Medical Examinations respectively. Two examinations for each of these will be held in the spring and summer.

The First Medical Examination.—The subjects of this examination are Chemistry (Inorganic and Organic), Experimental and Practical Physics, Botany and Zoology, and

Practical Botany and Zoology. The examination will be divided into two parts which may be taken separately: I., Chemistry, Practical Chemistry and Experimental Physics (including laboratory work); II., Botany and Zoology (including laboratory work).

The Second Medical Examination.—The subjects are Anatomy and Practical Anatomy, Physiology and Practical Physiology. Candidates who have previously passed the First Medical Examination may present themselves for this examination at the close of their second year.

The Third Medical Examination.—The subjects are: (1) Pathology and Practical Pathology; (2) Materia Medica, Pharmacology and Therapeutics; (3) Medical Jurisprudence; (4) Hygiene. Candidates who have previously passed the Second Medical Examination may present themselves for this examination at the close of the third year. Attendance on a course in any subject of the Third Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the First Medical Examination.

The Fourth Medical Examination.—The subjects are: (1) Medicine; (2) Surgery; (3) Midwifery; (4) Ophthalmology and Otology. This examination may be taken in two parts: I., Systematic; II., Clinical, Practical and Oral. Candidates who have previously passed the Third Examination may present themselves for Part I. of the Fourth Examination at the close of the fourth year, provided that they have fulfilled the necessary requirements as to attendance, &c., on the courses of instruction in the subjects of examination. Candidates who have passed Part I. of this examination may present themselves for Part II. at the close of the fifth year, provided that they have fulfilled the necessary requirements as to hospital attendance on the various clinical courses in the subjects of examination. Parts I. and II. may be taken together at the close of the fifth year. Attendance on a course in any subject of the Fourth Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the Second Medical Examination.

Courses of Study.—Candidates who desire to enter for any of the Medical Examinations must furnish satisfactory certificates of attendance on the various courses dealing with the subjects of the respective examinations.

Candidates for the Final Examination for the Degree of M.B., B.Ch., and B.A.O. are required to furnish the following certificates in addition to those granted for attendance on the necessary academic courses:—(1) Of having attended the medical and surgical practice of a hospital or hospitals, approved by the University, for at least 27 months. Such attendance shall only be reckoned from the beginning of the third year of medical study. (2) Of having acted as a dresser for at least three months in the surgical wards, and as a clinical clerk for at least three months in the medical wards, of a hospital recognised by the University. These attendances must not be concurrent. (3) Of having received practical instruction in the methods of administration of Anæsthetics. (4) In Practical Midwifery. Every student shall be required either—(*a*) To have regularly attended the indoor practice of a lying-in hospital or the lying-in wards of a general hospital for a period of three months, and after having received therein practical instruction in the conduct of labour, under the personal supervision of a medical officer, to have conducted 20 cases of labour under official medical supervision; or (*b*) to have conducted not less than 20 cases of labour, subject to the following conditions: That he has during one month given regular daily attendance upon the indoor practice of a Lying-in Hospital or the lying-in wards of a general hospital or Poor-law infirmary having a resident medical officer recognised for that purpose by the University; and that he has therein conducted cases of labour under the personal supervision of a medical officer of the hospital, who shall, when satisfied of the student's competence, authorise him to conduct outdoor cases under official medical supervision. No certificate that the student has conducted the above-mentioned 20 cases of labour shall be accepted unless it is given by a member of the staff of a lying-in hospital or of the maternity charity of a general hospital, or of a dispensary having an obstetric staff recognised for that purpose by the University, or of a Poor-law infirmary having a resident medical officer so recognised. Every student before commencing the study of Practical Midwifery shall be required to have held the offices of clinical medical clerk and surgical dresser, and to have attended a course of lectures on Surgery and Midwifery. (5) In Gynæcology. Every student shall present a certificate of having received clinical instruction in Diseases of Women, either in a special hospital for diseases of women recognised by the University or in a special ward for diseases of women in a general hospital similarly recognised. (6) In Diseases of Children. Every student shall present a certificate of having received clinical instruction in Diseases of Children for a period of three months, either in a children's hospital or in a children's ward of a general hospital recognised by the University. (7) In Mental Diseases and Infectious Diseases. Every student shall present a certificate of having attended approved courses of instruction. (8) In Vaccination. Every student shall present a certificate of having attended lectures and practical instruction in Vaccination by a teacher recognised by the Local Government Board. (9) In Ophthalmology and Otology. Every student shall present a certificate of attendance for a period of three months at a hospital recognised by the University for clinical instruction in Diseases of the Eye and Ear.

The following order of study and examinations is recommended:—

First Year.

Winter Session.—Chemistry, Practical Chemistry, Experimental Physics (including Laboratory work), Anatomy (Elementary), and Practical Anatomy.

First Examination, Part I. (fee £1 1*s.*).

Summer Session.—Botany, Zoology, and Practical Botany and Zoology.

First Examination, Part II. (fee £1 1*s.*).

Second Year.

Winter Session.—Anatomy, Practical Anatomy, Physiology, and Practical Physiology (Physical and Chemical).

Summer Session.—Practical Anatomy (including Demonstrations), Physiology (continued), and Practical Histology.

Second Examination (fee £1 1*s.*).

Third Year.

Winter Session.—Pathology; Materia Medica, Pharmacology, and Therapeutics; Hygiene; and Hospital Practice.

Summer Session.—Practical Pathology, Practical Pharmacy, Medical Jurisprudence, and Hospital Practice.

Third Examination (fee £1 1*s.*).

Fourth Year.

Winter Session.—Surgery, Medicine, Midwifery, and Hospital Practice.

Summer Session.—Operative Surgery, Ophthalmology, Vaccination, and Hospital Practice.

The following Hospital courses should be taken during the Fourth or Fifth Year:—Diseases of Children, Mental Diseases, Practical Midwifery and Gynæcology, and Fevers.

Fourth Examination, Part I. (Systematic) (fee £1 1*s.*).

Fifth Year.

Winter Session.—Clinical Medicine, Clinical Surgery, Clinical Gynæcology, Clinical Ophthalmology, and Hospital Practice.

Summer Session.—Hospital Practice.

Fourth Examination, Part II. (Clinical, Practical, and Oral Examinations), fee £1 1*s.*

Admission to degrees of M.B., B.Ch., and B.A.O.—fee £10 10*s.*

DEGREES OF M.D., M.CH., AND M.A.O.

These degrees shall not be conferred until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science of at least two academic years, after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study, or been engaged in such practical work as may be prescribed. These degrees may be conferred by the Senate either (*a*) after an examination, which includes written, oral, clinical, and practical examinations; or (*b*) on the submission of a thesis or other evidence of original study or research, to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject thereof. On application for these degrees a fee of £2 2*s.*, and on admission to them a fee of £2 2*s.*, must be paid.

The subjects of the examiuation for the degree of M.D. are:—The Principles and Practice of Medicine, and one other special subject to be selected by the candidate from: (i.) Human Anatomy, including Embryology; (ii.) Physiology; (iii.) Pathology; (iv.) Pharmacology and Therapeutics; (v.) Sanitary Science and Public Health; (vi.) Forensic Medicine and Toxicology.

The subjects of the examination for the degree of M.Ch. are:—(1) Surgery, Theoretical and Practical, including Ophthalmology and Otology. (2) Surgical Pathology. (3) Surgical Anatomy and Operative Surgery, with the use of surgical instruments and appliances.

The subjects of the examination for the degree of M.A.O. are:—(1) Midwifery. (2) Diseases of Women and Children. (3) Pathology in its special bearing on Midwifery, and Diseases of Women and Children.

Scholarships.—At entrance for Students of Medicine and Science together Eight Scholarships tenable for one year. Of these, three (of the value of £30, £20, and £15 respectively) will be offered for competition in literary subjects, and five (of the value of £30, £20, £20, £15, and £15) in scientific subjects. Four Scholarships of the value £40, £30, £20, £15, tenable for one year, will be open for competition in connexion with the Summer First Medical Examination. Four Scholarships of the value £40, £30, £20, and £15, tenable for one year, will be open in connexion with the Summer Second Medical Examination. Four Scholarships of value £40, £30, £20, and £15 will be open in connexion with the Summer Third Medical Examination. Four Scholarships of value £30, £30, £30, and £20, tenable for one year, will be open in connexion with the Summer Fourth Medical Examination. Grants from a Post-Graduate Research Fund may be obtained by graduates in medicine of not more than two years' standing.

The Medical School.—The Donald Currie Chemical Buildings contain a lecture theatre, a preparation room, a chemical museum, a large class-room for elementary practical chemistry, laboratories for qualitative and quantitative analysis, rooms for water and gas analysis, dark room for photographic purposes, balance room, &c., provided with all modern appliances. Special facilities are given to those who wish to pursne original research. The Anatomical Department contains a large and well-lighted dissecting-room, a lecture-room, a professor's and demonstrator's room, a bone-room, and a laboratory for microscopic and photographic work. The Medical Museum is in the same building. The Jaffé Laboratories for Physiology comprise a lecture theatre, laboratories for practical work in chemical physiology, histology, and experimental physiology, and in addition small private research rooms, including balance, galvanometer, and centrifuge rooms. The Musgrave Pathological Laboratory.—In this department opportunity is afforded for research in pathology and bacteriology. The department is in touch with most of the hospitals in Belfast, and there is an ample supply of material for investigation by graduates in morbid histology, clinical pathology, and the bacteriology of infectious diseases. A course in pathology or bacteriology is given to graduates, and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in the department for the Public Health Committee of the corporation in connexion with water-supply, sewage disposal, meat- and milk-supply, the diagnosis of cases of infectious diseases, &c. The certificate issued to members of the class in bacteriology qualifies for the D.P.H. degree. The Pharmaceutical Laboratory is fitted and equipped for the work of practically instructing students in the compounding and dispensing of medicines.

The Teaching Staff of the Faculty of Medicine.—Professors—Natural Philosophy: W. Blair Morton, M.A. Chemistry: E. A. Letts, Ph.D., D.Sc. Zoology: Cregg Wilson, M.A., D.Sc. Botany: D. T. Gwynne-Youghan, M.A. Anatomy: J. Symington, M.D., F.R.S. Physiology (Dunville Professor): T. H. Milroy, M.D., B.Sc. Materia Medica: Sir William Whitla, M.A., M.D. Pathology (Musgrave Professor): W. St. Clair Symmers, M.B. Medicine: J. A. Lindsay, M.A., M.D., F.R.C.P. Lond. Surgery: T. Sinclair, M.D., M.Ch., F.R.C.S. Eng. Midwifery: Sir John Byers, M.A., M.D., M.Ch., M.A.O. Lecturers—Medical Jurisprudence: W. St. C. Symmers, M.B., and T. Houston, M.D. Ophthalmology and Otology: Cecil Shaw, M.D., M.Ch. Hygiene: W. J. Wilson, M.D., D.P.H. Bio-Chemistry: J. A. Milroy, M.D. Physics: R. Jack, D.Sc. Organic Chemistry: A. W. Stewart, D.Sc. Vaccination: J. M'Liesh, M.B., D.P.H. Assistants and Demonstrators—Anatomy: J. S. Dickey, M.D., T. S. S. Holmes, M.B., and P. T. Crymble, M.B., F.R.C.S. Eng. Applied Anatomy: P. T. Crymble, M.B., F.R.C.S. Eng. Physiology: Vacant. Practical Pharmacy: V. G. L. Fielden, M.B., Ph.C. Riddel Demonstrator in Pathology and Bacteriology: J. A. Sinton, M.B. Pathological Neurology: W. J. Maguire, M.D. Clinical Pathology: T. Houston, M.D. Medicine: J. E. MacIlwaine, M.D. Surgery: Mr. Howard Stevenson. Midwifery: Dr. C. G. Lowry. University Clinical Lecturers—Medicine: W. J. Maguire, M.D. Surgery: A. B. Mitchell, M.B., F.R.C.S. Irel. Midwifery, &c.: John Campbell, M.A., M.D., F.R.C.S. Eng. Ophthalmology: James A. Craig, M.B., F.R.C.S. Eng. Internal Examiner in Sanitary Science: Mr. H. W. Bailie.

Clinical instruction.—The following institutions are recognised by the University as affording proper opportunities for clinical instruction: the Royal Victoria Hospital, the Mater Infirmorum Hospital, the Union Hospitals, the Belfast Hospital for Sick Children, the Belfast Maternity, the Ulster Hospital for Women and Children, the Ulster Eye, Ear, and Throat Hospital, the Belfast Ophthalmic Hospital, the Purdysburn Fever Hospital, and the Belfast District Lunatic Asylum.

The staffs of the various institutions are as follows:—

The Royal Victoria Hospital (300 beds).—Physicians: Professor Sir William Whitla, Professor James A. Lindsay, Dr. William Calwell, and Dr. H. L. McKisack, Surgeons: Mr. J. Walton Browne, Professor T. Sinclair, Mr. A. B. Mitchell, and Mr. T. S. Kirk. Gynæcologist: Professor Sir John Byers. Surgeon for Diseases of the Eye, Ear, and Throat: Mr. James A. Craig. Pathologist: Professor W. St. C. Symmers. Physician for Diseases of the Skin: Dr. W. Calwell. Assistant Physicians: Dr. W. B. McQuitty and Dr. J. S. Morrow. Assistant Surgeons: Mr. Robert Campbell and Mr. Andrew Fullerton. Assistant to the Gynæcologist: Mr. R. J. Johnstone. Assistant Surgeon to the Eye, Ear, and Throat Department: Mr. Henry Hanna. Assistant to the Pathologist: Dr. C. G. Lowry. Administrators of Anæsthetics: Dr. V. G. L. Fielden and Mr. W. C. M. Burnside. Medical Electrician: Dr. J. C. Rankin. Hæmatologist: Dr. Thomas Houston. Medical Tutor: Dr. J. E. MacIlwaine. Surgical Tutor: Mr. Howard Stevenson. Registrars: Dr. Fred C. Smyth and Mr. H. Norman Barnett.

Ophthalmic Hospital, Great Victoria street (30 beds).—Consulting Physician: Sir W. Whitla. Surgeon: Mr. J. W. Browne. Assistant Surgeon: Mr. C. E. Shaw.

Maternity Hospital, Townsend-street (32 beds).—Consulting Physician: Dr. B. Smyth. Consulting Surgeon: Mr. J. Campbell. Visiting Physicians: Dr. H. D. Osborne, Sir J. W. Byers, Dr. R. J. Johnstone, and Dr. M. B. Smyth.

Union Infirmary (600 beds).—Visiting Physicians: Mr. R. Hall and Dr. J. M Liesh. Visiting Surgeons: Dr. J. A. Craig and Mr. J. Fulton.

City Fever Hospital, Purdysburn (230 beds).—Physician in Charge: Dr. A. Gardner Robb.

District Lunatic Asylum (1000 beds).—Consulting and Visiting Physician: Dr. R. J. Purdon. Resident Medical Superintendent: Dr. W. Graham. Assistant Medical Officers: Dr. J. Patrick and Mr. S. J. Graham.

Mater Infirmorum Hospital (160 beds).—Consulting Physician: Dr. A. Dempsey. Physicians: Dr. W. J. Maguire and Mr. W. M'Lorinan. Surgeons: Sir Peter R. O'Connell, Dr. J. B. Moore, and Mr. John O'Doherty. Gynæcologist: Dr. A. Dempsey. Ophthalmic Surgeons: Dr. C. E. Shaw and Mr. H. Mulholland. Pathologist: Dr. W. St. Clair Symmers. Anæsthetist: Dr. W. Hill Dental Surgeon: Mr. J. McStay. House Physician: Dr. J. H. Harbrum. House Surgeon: Mr. J. McKie.

Ulster Hospital for Women and Children (28 beds).—Consulting Staff, Children's Department—Physicians: Dr. J. D. Williamson and Dr. R. W. Leslie. Surgeons: Dr. A. B. Mitchell and Dr. H. Stevenson. Ophthalmic Surgeon: Dr. H. H. B Cunningham. Women's Department: Dr M. B. Andrews and Dr. C. G. Lowry. Pathologist: Dr. T. Houston. Anæsthetist: Dr. V. Fielden. Obstetric Physician: Dr. J. D. Williamson.

Hospital for Sick Children, Queen-street (52 beds).—Consulting Physicians: Dr. B. Smyth, Sir J. W. Byers, and Dr. F. H. Sinclair. Attending Physicians: Dr. J. M'Caw and Dr. R. L. Leathem. Honorary Attending Assistant Physicians: Dr. W. B. Smyth and Dr. J. Colville Consulting Surgeons: Mr. J. Fagan and Mr. W. G. Mackenzie. Attending Surgeons: Mr. T. S. Kirk and Mr. R. Campbell. Honorary Attending Assistant Surgeons: Mr. A. Fullerton and Mr. B. O'Brien. Ophthalmic Surgeon: Mr. J Nelson. Pathologist: Professor W. St. C. Symmers Surgeon-Dentist: Mr. N. White. Anæsthetists: Dr. W. Burnside, Dr. P. T. Crymble, and Dr. T. Killen.

Benn Ulster Eye, Ear, and Throat Hospital (30 beds).—Acting Surgeon: Mr. W. M. Killen. Assistant Surgeon: Mr. H. Hanna.

IRISH MEDICAL CORPORATIONS GRANTING DIPLOMAS

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

The College issues its Licences in Medicine and in Midwifery to practitioners whose names appear on the Medical Register of the United Kingdom.

The Licence in Medicine.—The subjects of examination are: Practice of Medicine, Clinical Medicine, Pathology, Medical Jurisprudence, Midwifery, Hygiene, and Therapeutics.

The Licence in Midwifery.—Candidates must produce certificates of registration. A registered medical practitioner of five years' standing may be exempted from the examination by printed questions.

Fees.—Fee for the Licence to practise Medicine, £15 15*s.* Fee for examination for the Licences in Medicine and Midwifery, if obtained within the interval of a month, £16 16*s.*—to be lodged in one sum. (*Any candidate who has been rejected at the examination for the Licence in Medicine loses this privilege and will be required to pay the full fee of five guineas for the Licence of Midwifery.*) Fee for special

examination for the Licence to practise Medicine, £21. Fee for examination for the Licence to practise Midwifery, £5 5s. Fee for special examination for the Licence to practise Midwifery, £10 10s. The examinations for these Licences are held in the three days preceding the first Friday in February, May, and November.

The Membership.—Examinations for Membership are held in January, April, July, and October. The fee for the examination is £21 to Licentiates of the College, or £36 15s. to non-Licentiates. Further particulars can be obtained from the Registrar of the Royal College of Physicians of Ireland, Kildare-street, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

The Licence in Surgery.—A candidate whose name is entered either on the Medical Register for the United Kingdom, the Colonial Medical Register, or the Foreign Medical Register of the year in which he presents himself for examination, and who satisfies the Council that he has passed through a course of study and Examinations equivalent to those required by the Regulations of the Conjoint Board of the Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland, preceded by the passing of an Examination in Arts recognised by the General Medical Council, may, at the discretion of the Council, be admitted to the Examination.

Candidates are examined in Surgery, Clinical Surgery, Operative Surgery on the subject, Surgical Appliances, and Ophthalmic Surgery. The examination is partly written, partly *viva voce*, and partly practical. The fee is £26 5s., of which £5 5s. is retained by the College in the case of unsuccessful candidates.

Candidates are required to lodge their applications, declarations, and certificates with the Registrar at least 21 days before the date of the Examination.

Diploma in Midwifery.—A diploma in Midwifery is granted after examination to persons possessing a registrable qualification. Candidates must produce evidence of (*a*) attendance at a course of lectures on Midwifery and Diseases of Women and Children in some school recognised by the Council; (*b*) attendance on six months' practice in connexion with a recognised lying-in hospital or dispensary for lying-in women and children; and (*c*) of having conducted at least 30 labour cases. The fee for the examination is £15 15s., of which £5 5s. is retained by the College in case the candidate is unsuccessful.

Fellowship Examinations.—A candidate for the Fellowship shall make application to the President and Council to be admitted to examination. All the required evidences of study or qualification, fees, and testimonials as to character must be submitted previously to the application being considered, and the candidate shall then, if approved by the Council, be admitted to the next sessional examination. In order that these regulations may be carried out candidates are required to lodge their applications complete with the Registrar at least seven days before the date of examination. Sessional Fellowship Examinations commence as follows:—The primary on the first Monday in March, the third Monday in July, and the third Monday in November; the Final on the second Monday in March, the fourth Monday in July, and the fourth Monday in November. Special examinations will not be granted by the Council under any circumstances.

Candidates are required to pass two examinations—Primary and Final. Candidates may present themselves for the Final Examination immediately after passing the Primary part, provided they have complied with the necessary regulations. The subjects for the Primary Examination are (*a*) Anatomy, including Dissections; and (*b*) Physiology and Histology.

The subjects for the Final Examination are Surgery, including Surgical Anatomy, and Pathology. The examination is partly written and partly *viva voce*, and includes the examination of patients, and the performance of operations on the dead body. Candidates must pass in all subjects at one examination.

The conditions of admission to the Primary Examination are that the candidate must produce evidence of having completed examinations in Anatomy, Physiology, and Histology under a licensing body whose degrees entitle the holder to have his name placed on the Medical Register. For admission to the Final Examination the candidate must have passed the Primary Examination, and must be a Licentiate or Graduate in Surgery of a university or licensing body recognised by the General Medical Council; all such candidates must not be less than 25 years of age. The fees for the examinations are as follows:—Primary Examination, each admission, £5 5s.; Final Examination, each admission, £5 5s. Of these examination fees £10 10s. will be reckoned as part of the £42 fee payable upon admission to the Fellowship. The fee to be paid is £42, except when the new Fellow is a Licentiate of the College, in which case it is £26 5s.

In cases of rejection the examination fees are retained by the College and are not allowed for in the fees for re-examination.

A rejected candidate will not be again admitted to examination until after a period of three months.

Further particulars can be obtained from the Registrar of the College, Stephen's-green, West Dublin.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND AND ROYAL COLLEGE OF SURGEONS IN IRELAND.

Every candidate for the Conjoint Examinations of the Colleges shall produce evidence of having before entering on medical studies passed a Preliminary Examination in general education recognised by the Royal Colleges. Each candidate before receiving his diplomas must produce a registrar's certificate or other satisfactory evidence that he has attained the age of 21 years.

Preliminary Examination.—The subjects for examination are identical with those prescribed for the Preliminary Examination by the General Council of Medical Education and Registration.

Professional Examinations.—Every candidate must pass four Professional Examinations—at the end of the first, second, third, and fifth years respectively of his professional studies. No candidate shall be admitted to the Final or Qualifying Examination within three months of his rejection at the Final or Qualifying Examination by any other licensing body.

First Professional Examination.—Every candidate is required, before admission to the First Professional Examination, to produce evidence—(1) of having passed in the subjects of the Preliminary Examination; and (2) of having attended a course of—(*a*) lectures on Theoretical Chemistry, six months; (*b*) Practical Chemistry, three months; (*c*) Biology, three months; and (*d*) Physics.

The subjects of the First Professional Examination are the following:—1. (*a*) Chemistry; (*b*) Physics. 2. Biology. The fee for this examination is £15 15s.

Second Professional Examination.—Candidates are not admissible to this examination till they have passed in the subjects of the First Professional Examination, and they must produce evidence of having attended (*a*) the practice of a medico-chirurgical hospital for nine months; (*b*) anatomical dissections, six months; and Lectures on (*a*) Anatomy, six months; (*b*) Physiology, six months; (*c*) Practical Physiology and Histology, three months.

The subjects of the Second Professional Examination are the following:—(1) Anatomy; and (2) Physiology and Histology. The fee for this examination is £10 10s.

Third Professional Examination.—Every candidate is required, before admission to the Third Professional Examination, to produce evidence of having passed the Second Professional Examination and certificates of having attended courses of instruction in (*a*) the practice of a medico-chirurgical hospital for nine months; (*b*) Pathology—(1) Systematic, (2) Practical, three months each; (*c*) Materia Medica, Pharmacy, and Therapeutics, three months; (*d*) Forensic Medicine and Public Health, three months.

The subjects for the Third Professional Examination are the following:—(1) Pathology; (2) Materia Medica, Pharmacy, and Therapeutics; (3) Public Health and Forensic Medicine. The fee for this examination is £9 9s.

Final Professional Examination.—Before admission to the Final Examination candidates must have passed the Third Professional Examination and produced evidence of having attended in Division I. the practice of a medico-chirurgical

hospital for nine months (unless such evidence has been previously produced for admission in Division II.); the practice of a recognised fever hospital or the fever wards of a recognised clinical hospital, three months; clinical instruction in Mental Diseases, one month (12 attendances); Lectures on Medicine, six months at a recognised medical school; of having performed the duties of medical clinical clerk in a recognised hospital for three months. In Division II. of having attended the practice of a medico-chirurgical hospital for nine months (unless such evidence has been previously produced for admission to Division I.); clinical instruction in Ophthalmic and Aural Surgery, three months; lectures on Surgery, six months at a recognised medical school; instruction in Operative Surgery, three months at a recognised medical school; of having performed the duties of surgical dresser in a recognised hospital for three months. In Division III. of having attended a midwifery hospital or maternity and having been present at 20 labours, six months; instruction on vaccination, six attendances to be certified by a public vaccinator; lectures on midwifery (including diseases peculiar to women and to new-born children), six months at a recognised medical school. Candidates are recommended to present themselves in all the subjects of the Final Examination at one time, but a candidate at or after the end of the fourth year may present himself in any one of the Divisions I., II., or III., provided he has completed his curriculum as far as concerns the division in which he presents himself. The examination in at least one of the divisions must be deferred till the end of the fifth year.

The subjects of the Final Examination are: (1) Medicine, including Fevers, Mental Diseases, and Diseases of Children; (2) Surgery, Operative and Ophthalmic; and (3) Midwifery and Gynæcology, Vaccination, and Diseases of New-born Children. The fee is £6 6*s*. Further particulars can be obtained from Alfred Miller, the Secretary of the Committee of Management, Royal College of Physicians, Kildare-street, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND (SCHOOLS OF SURGERY).—The schools of surgery are attached by Charter to the Royal College of Surgeons and have existed as a department of the College for over a century. They are carried on within the College buildings and are specially subject to the supervision and control of the Council, who are empowered to appoint and remove the professors and to regulate the methods of teaching pursued. The buildings have been reconstructed, the capacity of the dissecting-room nearly trebled, and special pathological, bacteriological, public health, and pharmaceutical laboratories fitted with the most approved appliances in order that students may have the advantage of the most modern methods of instruction. There are special rooms set apart for lady students. The entire building is heated by hot-water pipes and lighted throughout by the electric light. Winter Session commences Oct. 15th; Summer Session, April 1st. Prospectuses and guide for medical students can be obtained post free on written application to the Registrar, Royal College of Surgeons, Stephen's-green, W., Dublin.

Scholarships and Prizes.—At the College there are offered the Class Prizes: two Gold Medals, two Scholarships, and a Bequest. The Class Prizes having the value of £100 are open to students of the class and are awarded for proficiency in the class examination. The Stoney Gold Medal is confined for competition to the Anatomy Class and the Surgery Gold Medal to the Practical Surgery Class. They are each of the value of £3 15*s*., and are open to students of the respective classes. The Carmichael Scholarship of the value of £15 is open to students of the third year and is awarded on the result of examination in anatomy, physiology, histology, chemistry, materia medica, and pharmacy. The Mayne Scholarship of the value of £8 is open to students of the third and fourth year and is obtained by merit in the subjects of surgery, medicine, pathology, midwifery, and diseases of women. The Barker Bequest of £26 5*s*. is awarded for the best Dissection and is open to all medical students.

APOTHECARIES' HALL OF IRELAND.

The Licence of this Hall is granted to students who present certificates of having fully completed the course of study as laid down in the curriculum and who pass the necessary examinations. The diploma of the Apothecaries' Hall of Ireland entitles the holder to be registered as a practitioner in medicine, surgery, and midwifery, with also the privileges of the Apothecary's Licence. There are four professional examinations, the total fees for which amount to 21 guineas. Ladies are eligible for the diploma. Registered medical practitioners will receive the diploma of the Hall upon passing an examination in the subject or subjects not covered by their previous qualifications and on paying a fee of 10 guineas.

The fees payable for each examination are as follows:—first professional, £5 5*s*.; second, £5 5*s*.; third, £5 5*s*.; final examination, £6 6*s*. If a candidate gives three clear days' notice of his inability to attend he may present himself at the ensuing examination without a further fee. A candidate is allowed for each professional examination which he has completed at any other licensing body except the final. If he has passed in some only of the subjects in a given examination he has to pay the whole of the fee for that examination. The fees for re-examination are for each subject £1 1*s*., except in the subjects of surgery, medicine, and anatomy, and the fees for which are 2 guineas each. The fee for the third and final or final alone is £15 15*s*. when the other examinations have been taken elsewhere. All examination fees are to be lodged in the National Bank of Ireland, College Green, to the credit of the Examination Committee. Applications and schedules, together with bank receipt for the fee, must be lodged with the Registrar, Apothecaries' Hall, 40, Mary-street, Dublin, at least 14 clear days before the first day of examination.

There are four examinations—first, second, third, and final. They are held quarterly on the first Monday in January, April, July, and October. The first examination comprises biology, physics, theoretical and practical chemistry (with an examination at the bench). Pharmacy is put down in this examination, but it may be taken at any of the first three examinations. Candidates holding a Pharmaceutical licence are exempt from this subject. The second examination comprises anatomy of the whole body (including practical dissections), physiology, and practical histology. The third examination comprises pathology, materia medica, medical jurisprudence, and hygiene. The final examination comprises medicine, including clinical and oral, surgery, including operations, clinical and oral, ophthalmic surgery, clinical only, midwifery, and gynæcology.

Candidates who desire to obtain the Letters Testimonial of the Apothecaries' Hall in Ireland must before proceeding to the final examination produce evidence of having attended courses of instruction as follows:—One course each (of six months) of the following: anatomy (lectures), chemistry (theoretical), midwifery, practice of medicine, physiology, surgery, and dissections, two courses of six months each. Courses of three months: materia medica, medical jurisprudence, chemistry (practical), practical physiology and histology, operative surgery, physics, clinical ophthalmology, biology, clinical instruction in mental disease, pathology, and a course in vaccination. Medico-chirurgical hospital, 27 months to be distributed, at the student's own discretion, over the last four years of his study. The candidate may substitute for nine months in this hospital attendance, six months as a resident pupil. He will be required to present a certificate of having taken notes of at least six medical and surgical cases recorded under the supervision respectively of a physician and surgeon of his hospital. Three months' study of fever—which may be included in his 27 months' hospital attendance—in a hospital containing fever wards, and having taken notes of five cases of fever—viz., either typhus fever, typhoid fever, scarlet fever, small-pox, or measles. Six months' practical midwifery and diseases of women during the winter or summer of the third or the fourth year at a recognised lying-in hospital or maternity. Three months' practical pharmacy in a recognised clinical hospital or a recognised school of pharmacy, or a year in the compounding department of a licentiate apothecary or a pharmaceutical chemist. Each candidate before receiving his diploma must produce evidence that he has attained the age of 21 years. The details of the course of education required and syllabus of the examinations will be supplied on application to the Registrar at 40, Mary-street, Dublin.

HOSPITALS AFFORDING PRACTICE RECOGNISED BY THE IRISH UNIVERSITIES AND CORPORATIONS.[3]

ADELAIDE MEDICAL AND SURGICAL HOSPITALS, Peter-street, Dublin.—Fee for nine months' hospital attendance, £12 12*s.*; six months, £8 8*s.* Summer, three months, £5 5*s.*

Staff.—Physicians: Dr. James Little, Dr. Wallace Beatty, Dr. H. T. Bewley, and Dr. G. Peacocke. Surgeons: Mr. F. T. Heuston, Mr. T. E. Gordon, Mr. L. G. Gunn, and Mr. W. Pearson. Obstetric Surgeons: Sir W. J. Smyly and Dr. J. S. Ash. Ophthalmic Surgeon: Sir H. R. Swanzy. Throat Surgeon: Dr. S. Horace Law. Pathologists and Bacteriologists: Dr. J. Alfred Scott and Dr. W. Geoffrey Harvey. Dental Surgeon: Mr. John Stanton. Assistant Physician: Dr. W. G. Harvey. Assistant Surgeon: Mr. W. Pearson. House Physician: Dr. V. McGusty. House Surgeon: Dr. E. C. Deane.

Two resident surgeons are elected yearly and four resident pupils half-yearly. At the termination of the session prizes in Clinical Medicine and Surgery and in Dermatology will be awarded.

Hudson Scholarship.—In addition to the junior prizes the Hudson Scholarship, £30 and a gold medal, as well as a prize of £10, together with a silver medal, will be awarded at the end of the session for proficiency in clinical medicine and medical pathology, clinical surgery and surgical pathology, pathological histology, surgical appliances, including instruments and bandaging, ophthalmology, gynæcology, and dermatology.

The certificates of attendance are recognised by all the Universities and licensing bodies in the United Kingdom. Further particulars may be obtained from Dr. H. T. Bewley.

COOMBE LYING-IN HOSPITAL AND GUINNESS DISPENSARY FOR THE TREATMENT OF DISEASES PECULIAR TO WOMEN, Dublin.—This hospital contains nearly 70 beds and consists of two divisions, one of which is devoted to lying-in cases and the other to the treatment of diseases peculiar to women. The practice of this hospital is one of the largest in Ireland; nearly 18,000 cases are treated annually, either as intern or extern patients. Lectures are delivered, practical instruction given, and gynæcological operations are performed in the theatres daily. There is a general dispensary held daily, at which instruction is given on the Diseases of Women and Children. There is a special afternoon dispensary held by the Master and his assistants, at which practical instruction in gynæcology is given. There is no extra charge for attendance at this dispensary. There is accommodation for intern pupils who enjoy exceptional advantages of acquiring a thorough knowledge of this branch of their profession. Lady medical students can reside in the hospital. Clinical assistants are appointed from amongst the pupils as vacancies occur. Certificates of attendance at this hospital are accepted by all licensing bodies, and the diploma is recognised by the Local Government Board as a full legal midwifery qualification. The residents' quarters have been much enlarged. A billiard table is available for the use of students. Fees: Extern pupils for full course of six months, £8 8*s.*; three months, £4 4*s.* Intern pupils, one month, £4 4*s.*; each consecutive month, £3 3*s.*; six months, £18 18*s.*; board and lodging in the hospital, 20*s.* per week. Lady students' intern, one month, £5 5*s*; each consecutive month, £4 4*s.* Registration fee, in advance, 10*s.* 6*d.* Students can enter for attendance at any time, but prefcrence is given to thosc entering from the first day of the month. Further particulars may be had on application to the Master or the Registrar at the hospital.

Staff.—Consulting Physicians: Sir John W. Moore and Dr. J. M. Redmond. Consulting Surgeons: Dr. F. T. Heuston and Dr. F. W. Kidd. Pathologist: Dr. E. J. McWeeney. Pathological Analyst: Sir C. A. Cameron. Master: Dr. M. J. Gibson. Assistant Master: Dr. Victor J. McAllister and Dr. R. A. MacLaverty. Registrar: Fred. A. Heney.

SIR PATRICK DUN'S HOSPITAL, Grand Canal-strcet, Dublin.—Classes for clinical instruction both in Medicine and Surgcry are held each morning from 9 o'clock from Oct. 1st till the end of June. Special classes for students commencing their hospital studies will be held in the wards during the months of October, November, and December. They will embrace the elements of Medicine and Surgery, including note-taking. The surgical operating theatre, which has recently been erected, is equipped upon the most approved principles and is thoroughly in accord with modern surgical requirements. Instruction in the Diseases of Women is given Tuesday and Friday at 10 A.M. There is a special wing devoted to fever cases. Pathological and Bacteriological Demonstrations will be given on Fridays at 10.30 A.M., when there is suitable material, during the Winter and Summer Sessions in the new Pathological Laboratory. A new department has been opened for the special treatment of Throat, Nose, and Ear Diseases under the direction of Dr. R. H. Woods. Instruction will be given in these subjects and in the use of the Laryngoscope and Otoscope to senior students on Mondays and Thursdays. Arrangements have been made to give practical instruction in anæsthetics to senior students. Opportunities are given the members of the hospital class of seeing the various applications of the X rays to the diagnosis and treatment of injury and disease. Opportunities are also afforded in the out-patient department for the diagnosis and treatment of the numerous minor ailments not met with in the hospital wards. A Resident Surgeon, with salary, is appointed annually. The election takes place at the end of December. Four Resident Pupils are appointed each half-year. Six Surgical Dressers and six Clinical Clerks are appointed each month.

Prizes and Medals.—Clinical medals and prizes amounting to about £15 each will be awarded in Medicine and in Surgery respectively in accordance with the will of the late Rev. Samuel Haughton, M.D., S.F.T.C.D. Candidates who fail to obtain these medals and prizes will be awarded special certificates in Medicine and in Surgery provided they show sufficient merit. The next examination will be held in April, 1909.

Fees.—Winter and summer session, £12 12*s.*; winter session (six months), £8 8*s.*; and summer session (three months), £5 5*s.* The practice of this hospital is open to students of medicine in attendance on schools other than the School of Physic, the certificates being recognised by the Royal University and Royal Colleges of Surgeons of England, Ireland, and Scotland.

Consulting Physician: Dr. J. M. Purser. Physicians: Dr. W. G. Smith, Dr. James Craig, Dr. H. C. Drury, and Dr. Henry Jellett. Assistant Physician: Dr. E. J. Watson. Surgeons: Sir Charles B. Ball, Dr. E. H. Taylor, and Dr. C. A. K. Ball. Pathologist: Dr. A. C. O'Sullivan. Department for Throat, Nose, and Ear: Dr. R. H. Woods. Assistant Surgeon: Dr. C. M. Benson. Assistant Gynæcologist: Dr. D G. Madill. X Ray Department: Dr. E. J. Watson. Anæsthetist: Dr. N. P. Jewell. House Surgeon: Dr. G. E. Craig.

Further information will be supplied by the Secretary to the Medical Board, Dr. H. C. Drury.

JERVIS-STREET HOSPITAL, Dublin.—Founded 1718; rebuilt 1886 130 beds. A new out-patient department has been completed and contains all modern requirements. Physicians: Dr. F. Callaghan and Dr. R. J Rowlette. Surgeons: Mr. W. Stoker, Mr. L. A. Byrne, Mr. D. Kennedy, and Mr. J. L. Keegan. Surgeon to Out-patient Department: Mr. P. Hayden. X Rayist: Dr. H. W. Mason. Gynæcologists: Dr. M. J. Gibson and Dr. McArdle. Ophthalmic Surgeon: Mr. M. Maxwell. Pathologist: Mr. E. J. McWeeney. Secretary: Mr. Kiernan O'Dea.

MATER MISERICORDIÆ HOSPITAL, Dublin.—Consulting Physician: Sir Francis R. Cruise. Physicians: Sir Christopher Nixon, Bart., Dr. Joseph Redmond, Dr. John Murphy, and Dr. Martin Dempsey. Surgeons: Sir Arthur Chance, Sir John Lentaigne, and Mr. Alexander Blaney. Assistant Physician: Dr. John O'Donnell. Temporary Assistant Surgeon: Mr. D. Farnan. Gynæcologist: Dr. Robert Farnan. Ophthalmic Surgeon: Mr. Louis Werner. Surgeon for Diseases of Throat and Nose: Mr. Patrick Dempsey. Dental Surgeon: Mr. E. Sheridan. Pathologist: Professor Edmond McWeency. Assistant Pathologist: Dr. W. D. O'Kelly. X Rayist: Mr. Maurice Hayes. Anæsthetist and Surgical Registrar: Dr. Patrick O'Farrell. This hospital, the largest in Dublin, at present containing 345 beds, is open at all hours for the reception of accidents and urgent cases. Clinical instruction will be given by the Physicians and Surgeons

[3] This list of the institutions recognised by the Conjoint Board of Ireland is supplemented in the regulations of the Colleges by those hospitals mentioned as recognised institutions in Scotland and England. The recognised facilities for clinical instruction in Belfast, Cork, and Galway have been described in connexion with the Belfast and National Universities.

at 9 A.M. daily. A course of Clinical Instruction on Fever will be given during the winter and summer sessions. A certificate of attendance upon this course, to meet the requirements of the licensing bodies, may be obtained. Ophthalmic Surgery will be taught in the Special Wards and in the Dispensary. Surgical Operations will be performed daily at 11 o'clock. Connected with the hospital are extensive Dispensaries, which afford valuable opportunities for the study of general Medical and Surgical Diseases, and Accidents. Instruction will be given on Pathology and Bacteriology. Two House Physicians, six House Surgeons, and 20 resident pupils will be elected annually. Dressers and Clinical Clerks will also be appointed, and certificates will be given to those who perform their duties to the satisfaction of the staff. Leonard Prizes will be offered for competition annually. For further particulars see prospectus. Certificates of attendance upon this hospital are recognised by all the Universities and licensing bodies in the United Kingdom. Private Wards have been opened for the reception of Medical and Surgical cases. A Training School and a Home for Trained Nurses have been opened in connexion with the Hospital.

Terms of attendance.—Nine months, £12 12*s.*; six winter months, £8 8*s.*; three summer months, £5 5*s.* Entries can be made with any of the physicians or surgeons, or with the Registrar, Dr. Martin Dempsey, 35, Merrion-square. A prospectus containing in detail the arrangements for Clinical Instruction, Prizes, &c., may be obtained from the Secretary, Medical Board.

MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY.—Physicians: Sir John William Moore and Dr. Edward E. Lennon. Surgeons: Sir L. H. Ormsby, Mr. W. J. Hepburn, Mr. William Taylor, and Mr. R. Lane Joynt. Gynæcologist: Dr. F. W. Kidd. Clinical Assistants: Dr. William Boxwell and Dr. Henry Stokes. Pathologist: Professor Arthur H. White. This hospital was founded in 1753 and now contains 160 beds available for clinical teaching. A building containing 40 beds for the isolated treatment of fevers is attached to the hospital. The certificates of this hospital are recognised by all the universities and licensing bodies of the United Kingdom. Six Medical Clinical Clerks and 12 Surgical Resident Pupils and Dressers are appointed every six months, and a House Surgeon and two Clinical Assistants are elected annually. The session will open on Oct. 1st. A prospectus giving the complete arrangements for the Medical and Surgical classes for the coming session may be obtained from the Secretary of the Medical Board, Mr. William Taylor, 47, Fitzwilliam-square, Dublin.

MERCER'S HOSPITAL.—This hospital, founded in 1734, is situated in the centre of Dublin, in the immediate vicinity of the Schools of Surgery of the Royal College of Surgeons, the Catholic University School of Medicine, and within five minutes' walk of Trinity College. It contains 120 beds for medical and surgical cases, and arrangements have been made with the medical officers of Cork-street Fever Hospital whereby all students of this hospital are entitled to attend the clinical instruction of that institution and become eligible for the posts of Resident Pupil, &c. There are a large out-patient department and a special department for diseases peculiar to women. There are also special wards for the treatment and study of children's diseases. During the past few years the hospital has undergone extensive alterations in order to bring it up to modern requirements.

Appointments.—A House Surgeon is appointed annually. Five Resident Pupils, each for six months, and Clinical Clerks and Dressers are appointed monthly from amongst the most deserving members of the class.

Fees.—Winter, six months, £8 8*s.*; Summer, three months, £5 5*s.*; nine months, £12 12*s.*

Consulting Physician: Dr. J. Magee Finny. Consulting Surgeon: Mr. H. Fitzgibbon. Consulting Gynæcologist: Dr. J. H. Glenn. Consulting Ophthalmic Surgeon: Mr. J. B. Story. Physicians: Dr. E. L'Estrange Ledwich and Dr. J. Lumsden. Surgeons: Mr. R. C. B. Maunsell, Mr. S. S. Pringle, and Mr. W. Ireland de C. Wheeler. Gynæcologist: Dr. Gibbon Fitzgibbon. Radiologist: Dr. W. H. Mason. Pathologist: Dr. J. T. Wigham.

For further particulars apply to Mr. Seton Pringle, Hon. Sec., Medical Board, 27, Lower Baggot-street, Dublin.

NATIONAL MATERNITY HOSPITAL, Holles-street, Dublin.—Established 1894. Masters: Dr. A. J. Horne and Dr. R. J. White.

RICHMOND, WHITWORTH, AND HARDWICKE HOSPITALS, North Brunswick-street, Dublin.—These hospitals contain 270 beds—86 for Surgical cases, 64 for Medical cases, and 120 for Fever and other Epidemic Diseases. A Resident Physician and a Resident Surgeon are appointed each half year and are paid for their services. 12 Resident Clinical Clerks are appointed each quarter and provided with furnished apartments, fuel, &c. These appointments are open not only to advanced Students but also to those who are qualified in Medicine and Surgery. The Dressers are selected from among the best qualified of the pupils without the payment of any additional fee. For prospectuses apply to Dr. Travers Smith, Hon. Secretary 20, Lower Fitzwilliam-street, Dublin.

ROTUNDA HOSPITAL, Dublin.—This institution is the largest combined gynæcological and maternity hospital in the British empire. Qualified men who take out a course of three months' duration obtain (if they show keenness and capacity) one or more forceps applications and a certain number of minor gynæcological operations. Unqualified students can also enter at any time for the practice of the hospital and have access, not alone to the maternity and gynæcological wards, but also to the pathological laboratory attached to the hospital. The residential quarters have undergone considerable improvement and afford comfortable accommodation. Valuable appointments are periodically filled by qualified students who have obtained the hospital diploma. Women students can reside in the hospital on terms similar to those enjoyed by men. Master: Dr. E. Hastings Tweedy. Assistants: Dr. B. A. H. Solomons and Dr. J. R. Freeland. Pathologist: Dr. R. J. Rowlette. Assistants: Dr. Osborne and Dr. Keelan. For further particulars apply to Dr. E. Hastings Tweedy, Master.

ROYAL CITY OF DUBLIN HOSPITAL.—Founded 1832; enlarged 1851; rebuilt 1893. 124 beds. Consulting Physician: Dr. H. Benson. Physicians: Dr. A. R. Parsons and Dr. T. G. Moorhead. Consulting Surgeon: Mr. H. Fitzgibbon. Surgeons: Mr. G. J. Johnston, Mr. H. Moore, and Mr. R. A. Stoney. Ophthalmic and Aural Surgeon: Mr. A. H. Benson. Gynæcologist: Mr. R. H. Fleming. Anæsthetist: Mr. J. P. Meldon. Dental Surgeon: Mr. D. L. Rogers. Secretary: Mr. T. Spunner.

ROYAL VICTORIA EYE AND EAR HOSPITAL, Dublin.—Established 1844. Incorporated 1897. 82 beds. Consulting Physician: Dr. J. Little. Consulting Dental Surgeon: Mr. A. W. W. Baker. Surgeons: Sir Henry Swanzy, Mr. J. B. Story, and Mr. A. H. Benson. Junior Surgeon: Mr. P. W. Maxwell. Assistant Surgeons: Mr. L. Werner, Mr. R. J. Montgomery, Mr. H. C. Mooney, and Mr. F. C. Crawley. Physician to Dispensary for Throat: Dr. R. A. Hayes. Surgical Radiographer: Mr. W. S. Haughton. Registrar: Mr. E. Parker. In-patients, 1510; out-patients, 9891.

DR. STEEVENS' HOSPITAL, Dublin.—Established 1720. 200 beds. Consulting Physicians: Dr. J. Little, Dr. J. M. Purser, and Dr. H. C. Tweedy. Consulting Surgeon: Sir C. B. Ball. Physicians: Dr. R. A. Hayes, Dr. T. P. C. Kirkpatrick, and Dr. W. A. Winter. Assistant Physician: Dr. J. J. Purser. Surgeons: Mr. R. B. McCausland, Mr. R. L. Swan, and Mr. W. S. Haughton. Assistant Surgeon: Mr. W. C. Stevenson. Anæsthetist: Dr. W. L. Hogan. Obstetric Physician and Gynæcologist: Dr. E. H. Tweedy. Ophthalmic and Aural Surgeon: Mr. J. B. Story. Pathologist: Dr. W. M. Crofton. Dental Surgeon: Mr. G. M. P. Murray. Resident Surgeon: Dr. W. L. Hogan. Secretary: Mr. G. E. Pepper. Patients, 1425.

ST. VINCENT'S HOSPITAL AND DISPENSARY, Dublin.—Established 1834. 160 beds. Physicians and Lecturers on Medicine: Dr. M. F. Cox, Dr. M. McHugh, and Dr. W. J. Dargan. Physician for Extern Department: Dr. J. Meenan. Surgeon for Extern Department: Mr. D. J. Kennedy. Surgeons and Lecturers on Surgery: Mr. J. S. McArdle, Mr. R. F. Tobin, and Mr. P. J. Fagan. Gynæcologist and Lecturer on Gynæcology: Mr. A. J. Smith. Ophthalmic Surgeon and Lecturer on Diseases of Eye and Ear: Mr. H. C. Mooney. Pathologist and Lecturer on Pathology: Dr. T. T. O'Farrell. Surgeon-Dentist and Lecturer on Dentistry: Mr. J. J. Murphy. Pharmacist and Lecturer on Pharmacy: R. Shaw.

UNIVERSITY OF BRUSSELS.

British and other practitioners holding registrable qualifications are admitted to the examination for the Doctorate of the University of Brussels without further curriculum. It is essentially a practitioner's examination and is separate from that intended for the Belgian students who take up the medical curriculum of the University. The fees are—For matriculation, £8 12*s.*; for 1st Part, £4 4*s.*; for 2nd Part, £4 8*s.*; for 3rd Part, £4 8*s.*; for legalisation of diploma, 8*s.*—total, £22. Candidates who have paid in advance the fees for the three examinations, and are unsuccessful in the first, recover the fees paid for the second and third; those who fail in the second recover the fees paid for the third examination. Unsuccessful candidates are allowed to come up again three months after rejection on payment of examination fees only, provided this second appearance be in the course of the same academical year (October 1st to June 30th), otherwise they must renew the payment of the matriculation fee of £8 12*s.* The examination consists of three parts, viz.—1st Part: General Medicine; Materia Medica and Pharmacology; General Surgery; and Theory of Midwifery. 2nd Part: General Therapeutics; Pathology and Morbid Anatomy, with use of the microscope; Special Therapeutics and Medicine of Internal Diseases, including Mental Diseases; and Special Surgery. 3rd Part: Public and Private Hygiene; Medical Jurisprudence; Clinical Medicine; Clinical Surgery; examination in Operative Surgery, consisting of some of the usual operations on the dead subject—viz., Amputation, Ligature of an Artery, &c.; Ophthalmology; examination in Midwifery, consisting in obstetrical operation on the mannikin (model of pelvis); and examination in Regional Anatomy with Dissection. The time required for the three examinations seldom exceeds ten days, and is usually less. Candidates have the option of passing each part separately or of taking the three together, and the latter is the usual course; also of demanding a written examination on payment of an additional fee of one guinea for each part, a rule of which candidates rarely or never avail themselves. The examinations, which are *vivâ voce*, begin on the first Tuesday in November, December, March, May, and middle June. Candidates should appear with their medical registration certificate or their diplomas at the Secretary's office not later than 2 P.M. on the day preceding the examination. Most of the examiners speak English and those who do not examine through the medium of an interpreter. Great importance is attached to practical knowledge, but candidates must also possess sound theoretical knowledge, the standard required varying with the subject. Pathological and other specimens are not usually shown. There are in England at present over 600 graduates holding this degree, and a British Association of Brussels Medical Graduates has been in existence for many years. Applications should be made to the Secrétariat, 14, Rue des Sols, Bruxelles.

THE NAVAL, MILITARY, AND INDIAN MEDICAL SERVICES.

THE conditions of service in the medical departments of the Navy, Army, and Indian Army remain, with certain modifications, the same as for 1909.

With regard to the Naval Medical Service a few prefatory words are needed, for we have from time to time published articles dealing with the considerable amount of dissatisfaction which exists therein, while in summarising communications from our correspondents we came to the inevitable conclusion that some of the unfavourable criticism was just. We would strongly urge on the authorities the advisability of removing legitimate grievances *now;* the reforms could for the most part be effected at the expense of little but tact and a consideration of what is justly due to the naval medical officers. Every naval medical officer who has written to our columns, and this is not a small number, has expressed dissatisfaction with the position in which the cabin question has been left by recent regulations. Allotment to the medical officer of cabin accommodation inferior to that to which he is entitled still takes place, and cannot, at any rate cannot always, be explained by the cramped space on that elaborate box of tricks, a modern man-of-war. Another innovation sadly wanted is a regulation to ensure that the senior medical officers in hospitals should have proper disciplinary power over their subordinates and patients. Other points, the supply and use of boats, for example, and the payment in certain grades, might well be settled in accordance with the just desires of the Naval Medical Service, for the Admiralty will be prudent to aim at making the Service more popular. And the same may be said of all three services. For that there is now no competition for commissions in the Naval Medical Service and no keen competition for those in the Army Medical Corps or the Indian Medical Service seems undeniable, and this is the more unfortunate a position that fewer men are now entering the medical profession as a whole. It is no longer easy for all hospitals to obtain suitable residents, while assistants are scarce and even junior partners are not to be found directly they are wanted. The Services will therefore have to be careful to increase their popularity, and the point is that it may be economical of them to do so now. By small concessions they may be avoiding having later to pay a heavy price to attract men. We would also suggest that it is unwise to let any of these departments run below the normal strength if it is possible to maintain them at par.

Though reform may be wanted in the Naval Medical Service, its present state is not without material advantages. At one time not so very long ago the Naval Medical Service was not looked upon as one in which an educated gentleman could serve with dignity, while complaints were heard of many of the conditions of service. But the old order of things is giving place to the new, and a comparison of the lot of the naval medical officer with that of the civil practitioner will show that the trials of the civil branch of the profession are greater than those of the naval branch, and probably when all things are considered the naval surgeon is in a far better position than the average lay professional man. In the junior ranks of the Service the pay is better than the average income of the lay medical man of the same age, and promotion is not always slow. With £20 a month the young naval surgeon can, if he is not extravagant, get along very comfortably, though he will require at the commencement of his career £50 or £60 for outfit. A private income is certainly not necessary though it is eminently desirable. After 20 years of service a naval surgeon is entitled to a pension of £350 a year, which compares very favourably with the prospects of many medical men on the civil side of the profession, and in case of illness there is the half-pay rate, while pensions are provided for widows and children. In this way the young naval officer is relieved of the most serious anxiety which can press upon a married man, but he ought not to marry young without due consideration, a warning which, however, applies to most medical men. With regard to the Medical Services of the Army and Indian Army, a comparison with that of the Navy shows that though the Army and Indian Service are better paid, promotion in the case of the army has been rendered less certain in both services; expenses are higher and the work more fatiguing, while in the Indian Service there is a greater liability to disease and death. The young surgeon, too, on board his vessel probably gets a better chance in the Navy than in the Army. So long as the new surgeon is adequately good at his profession, is kind and unselfish towards his patients, is not too self-assertive, and has any positive accomplishments or skill at any sport or game, he should get on very well, especially if he is good-humoured and helpful. And if a man has not these qualities and readiness where should he be advised to practise?

The conditions of entry into the Royal Naval Medical Service have been altered since last year. Formerly, candidates on passing the examination in London at once received their commissions as surgeons in the Royal Navy. They are in future to be merely appointed acting surgeons. Then, after courses of instruction, they will be again examined, and if they pass this examination also will be duly commissioned. Their seniority—that is, their place on the list throughout their service—will depend on the marks they get in both examinations. The standard of marking is not disclosed, and proficiency in the second examination in subjects which have been studied only through perhaps

three or six months may avail as much in fixing their places as success in the first examination, which is the outcome of the industry and training of at least five years. This point should be cleared up by the Admiralty, as the uncertainty will operate to discourage application from the best candidate, the most highly educated, those most desired by the service, who will be rather shy to trust their hard-won pre-eminence to so doubtful a fortune. An extra 10 per cent. for the second examination would give plenty of inducement to the acting surgeons to be attentive to the important instruction in tropical diseases and naval hygiene they receive at Haslar. The relative proportions should be mentioned if the best candidates are not to be frightened away. The entrance examination is also altered. Voluntary subjects and hygiene are done away. The examination is to deal with medicine and surgery only. In each subject there is to be a written, a clinical, and an oral examination, and 400 marks are given for each of the six examinations. This new scheme gives a material advantage in the competition to less broadly educated candidates. These regulations, it will be noted, show certain points of difference from the former regulations which appeared in the last Students' Number of THE LANCET (August 28th, 1909). Confidential reports as to the character of a candidate are now to be obtained from the dean of his medical school. Certain additional marks are given to candidates who possess certificates from the Officers' Training Corps. Nominated candidates, except those nominated by colonial universities, are no longer allowed.

ROYAL NAVY MEDICAL SERVICE.

REGULATIONS FOR THE ENTRY OF CANDIDATES FOR COMMISSIONS IN THE MEDICAL DEPARTMENT OF THE ROYAL NAVY.

Every candidate for admission into the Medical Department of the Royal Navy must be not under 21 nor over 28 years of age on the day of the commencement of the competitive examination. He must produce an extract from the register of the date of his birth; or, in default, a declaration made before a magistrate, from one of his parents or other near relative, stating the date of birth.

He must be registered under the Medical Act in force, as qualified to practise medicine and surgery in Great Britain and Ireland.

He must declare (1) his age and date and place of birth; (2) that he is of pure European descent[1] and the son either of natural-born British subjects or of parents naturalised in the United Kingdom; (3) that he labours under no mental or constitutional disease or weakness, nor any other imperfection or disability which may interfere with the most efficient discharge of the duties of a medical officer in any climate; (4) that he is ready to engage for general service at home or abroad, as required; (5) whether he holds, or has held, any commission or appointment in the public services; (6) that he is registered under the Medical Act, giving the date of his registration as a medical student, or of his beginning professional study; and (7) whether he has previously been examined for entry in the Naval Service, and, if so, when.

The certificates of registration and birth must accompany the declaration, which is to be filled up and returned as soon as possible, addressed to the Director-General, Medical Department, Admiralty, London, S.W., to permit of reference to the candidates medical school. The Dean or other responsible authority of such school will be requested by the Medical Director-General to render a confidential report as to the candidates character, conduct, professional ability, and fitness to hold a commission in the Royal Navy. The candidate will then be interviewed by the Medical Director-General, and his physical fitness will be determined by a board of Naval Medical Officers. The Medical Director-General will then decide whether he may be allowed to compete. If accepted, the candidate will be eligible to present himself at the entrance examination, which will be held twice a year. Notification of the exact date of this, as well as the number of commissions to be competed for, will be advertised in THE LANCET. Candidates will be examined in the following subjects: (*a*) Medicine, including Medical Pathology and Therapeutics; and (*b*) Surgery, including Surgical Pathology and Clinical Surgery. The examination will be partly written and partly practical, marks being allotted under the following scheme:—

Medicine.		*Surgery.*	
Paper	400	Paper	400
Clinical...	400	Clinical...	400
Oral	400	Oral	400
Total	1200	Total	1200

No candidate will be considered eligible who obtains less than 50 per cent. of marks in each subject. The examination will be held in London and will occupy four days.

The appointments announced for competition will be filled from the list of qualified candidates, arranged in order of merit; but should it at any time be considered expedient to grant Commissions beyond those periodically competed for, the Admiralty have power to admit annually not more than six candidates, according to requirements, specially recommended by the governing bodies of such colonial universities as may be selected and whose qualifications are recognised by the General Medical Council. Candidates so proposed are to be approved by the Director-General of the Medical Department of the Navy. Colonial candidates will have to pass a physical examination before a board of Naval Medical Officers in the colony, and will be required to register their qualifications on arrival in England. They will be allowed, if they wish it, to compete at the next examination for entrance and take their position according to the order of merit; should they decide not to compete they will be placed at the bottom of the list. A fee of £1 will have to be paid by each candidate to entitle him to take part in the competition.

Candidates who have served in the Officers' Training Corps, and who are in possession of the certificates laid down in the regulations for that Corps, will be credited at the entrance examination with additional marks as follows: Candidates in possession of Certificate A will receive 1 per cent., and those who possess Certificates A and B, 2 per cent. of the maximum number of marks allotted.

A candidate will not be allowed to compete at more than two examinations.

A candidate successful at the entrance examination will be appointed as acting surgeon in the Royal Navy and will be required to pass through such courses of instruction as the Admiralty may decide. At the end of the courses the acting surgeon will be examined and after he has passed will be given a commission as surgeon in the Royal Navy. The commission will date from the day of passing the entrance examination. The number of marks gained at this examination, together with those gained at the entrance examination, will decide a candidate's place on the list for seniority. An acting surgeon who fails to qualify in the above examination will be allowed a second trial at the next examination, the period between the two examinations not being counted as service for either promotion, withdrawal with gratuity, or retirement after 20 years' service, and should he qualify he will be placed at the bottom of his list; should he again fail his appointment will not be confirmed and he will be required to withdraw.

A gold medal, a silver medal, and three navy regulation pocket cases will be awarded as prizes in connexion with these examinations, and the gold medallist will have a distinguishing mark after his name in the Navy List.

Surgeons on entry are only required to provide themselves with a pocket case of instruments.

Promotion.

An Inspector-General of Hospitals and Fleets will be selected from amongst Deputy Inspectors-General who have in that rank three years' full pay service and who have not at any time declined foreign service except for reasons which the Lords Commissioners of the Admiralty regard as good and sufficient.

A Deputy Inspector-General of Hospitals and Fleets will be selected for ability and merit from amongst Fleet Surgeons.

(*a*) Subject to the approval of the Lords Commissioners of the Admiralty rank as Fleet Surgeon will be granted to Staff Surgeons at the expiration of eight years from the date of promotion to Staff Surgeon, provided they are recommended by the Medical Director-General and have not declined service except for reasons which in the opinion of the Lords Commissioners of the Admiralty are satisfactory. (*b*) Special promotions from the rank of Staff Surgeon to that of Fleet Surgeon will be made at their Lordships' discretion in cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and will not exceed the rate of one in two years; the total number at any one time of Fleet Surgeons holding that rank by such special promotions will not exceed six.

(*a*) Rank as Staff Surgeon will be granted, subject to their Lordships' approval, to surgeons at the expiration of eight years from the date of entry, provided they are recommended by the Medical Director-General, and have passed such examination as may be required after completion of five years from the date of entry in the rank of surgeon. (*b*) Special promotions will be made at their Lordships' discretion to the rank of Staff Surgeon in cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and not exceed the rate of one a year. The total number at any one time of Staff Surgeons holding that rank by such special promotions will not exceed eight. No officer will be so promoted unless he passes the examination prescribed for other surgeons, but in such a case the requirement of five years' time in rank of surgeon will be dispensed with. (*c*) When a surgeon's promotion to the rank of Staff Surgeon has been retarded by failure to pass the qualifying examination he will, should he pass and be promoted, be dealt with as follows. He will be granted the seniority as Staff Surgeon he would have received had he passed in ordinary course. He will reckon service for increase of full and half pay only from the date of appointment to full pay as Staff Surgeon. If on half pay, or if placed on half pay when promoted, he will receive the lowest rate of half pay of the new rank from the date of passing the qualifying examination. Where delay in passing the qualifying examination may be due to unavoidable circumstances special consideration will be given. (*d*) The seniority of surgeons on entry will be determined by the sum total of the marks they obtain at the London examination and those at the conclusion of the Haslar course and their names will then be placed in the official navy list, except in the case of candidates who hold, or are about to hold, a post as resident medical officer or surgical officer to a recognised civil hospital. These candidates will retain the position in the list which they obtained on entry, and when their period of service as resident officer is over they will join the next Haslar course and will be required to obtain qualifying marks. Surgeons entered without competition will take seniority next after the last surgeon entered at the same time by competition. (*e*) The examination for promotion to the rank of staff surgeon will be held by the Examining Board, to which a naval medical officer will be attached to conduct the examination in naval hygiene. The subjects of examination will be in writing and will include medicine, surgery, pathology, general hygiene, naval hygiene. (*f*) A candidate who at the time of passing the examination for entry into the medical branch of the Royal Navy holds, or is about to hold, an appointment as resident medical or surgical officer in a recognised civil hospital, may be allowed to serve in such civil appointment provided that the period of such service after the date of entry into the Royal Navy does not exceed one year. Pay from naval funds will be withheld from officers while thus serving, but the time concerned will reckon for increase of full and half pay while on the active list, and retired pay or gratuity on retirement or withdrawal, except that no officer will be allowed to retire on a gratuity until he has completed four years' service exclusive of the time spent as resident medical or surgical officer. The eligibility of this appointment to count for time will be decided by the Medical Director-General.

[1] If any doubt should arise on this question the burden of clear proof that he is qualified will rest upon the candidate himself.

Full Pay and Allowances.

Rank.	Daily.	Yearly.
	£ s. d.	£ s. d.
Surgeon—		
On entry	0 14 0	255 10 0
After 4 years' full-pay service (including service allowed by (*f*), see above)	0 17 0	310 5 0
Staff Surgeon—		
On promotion	1 0 0	365 0 0
After 4 years' full-pay service in rank	1 4 0	438 0 0
Fleet Surgeon—		
On promotion	1 7 0	492 15 0
After 4 years' service in rank	1 10 0	547 10 0
,, 8 ,, ,,	1 13 0	602 5 0
,, 12 ,, ,,	1 16 0	657 0 0
Deputy Inspector-General	2 2 0	766 10 0
Inspector-General	—	1300 0 0 Consolidated.

The medical officers in charge of the following hospitals and sick quarters will be granted charge pay: Haslar, Plymouth, Chatham, Malta, Hong-Kong, Bermuda, Portland, Yarmouth, Haulbowline, Cape, Gibraltar, and Yokohama. The rate of charge pay will be as follows:—

	s. d.	
Inspectors-General	10 0	a day.
Deputy Inspectors-General	7 6	,,
Fleet Surgeons of over 4 years' seniority	5 0	,,
Fleet Surgeons of under 4 years' seniority and Staff Surgeons of over 4 years' seniority	2 6	,,

The hospital allowances for naval medical officers at home and abroad, in lieu of provisions, for themselves and servants, and for fuel and lights, are as follows:—

—	At home.	Abroad.
	£	£
Deputy Inspectors-General	67	112
Fleet Surgeons and Staff Surgeons of over 4 years' seniority	53	112
Staff Surgeons of under 4 years' seniority and Surgeons	39	108*

* Except at Malta, where the allowance will be £70, but servants will be provided at the public expense. These allowances are also granted to medical officers of marine divisions and dockyards.

An allowance of 5*s.* a day, in addition to full pay, is granted to the senior medical officer, being a Fleet or Staff Surgeon, of a flag-ship bearing the flag of a Commander-in-Chief. An allowance of 2*s.* 6*d.* a day is granted to the senior medical officer, being a Fleet or Staff Surgeon, of the ship bearing other flags or broad pendants. The following charge allowances may be granted to medical officers in charge of hospital ships: if above the rank of fleet surgeon, 5*s.* a day; and if of the rank of fleet surgeon or junior, 3*s.* 6*d.* a day. The Fleet and Staff Surgeons serving in the Admiralty and the Marine Rendezvous will be granted the Hospital allowance of £53 a year in addition to the usual lodging money. Medical officers conducting the course of instruction at Haslar Hospital will receive the following allowances: two senior officers employed upon this duty, £150 a year each; the junior officer assisting, £50 a year; and the junior officer instructing the Sick Berth Staff, £50 a year. The junior officer instructing the Sick Berth Staff at Plymouth, £50 a year. Medical officers employed elsewhere than at a hospital, and not victualled in kind, receive an allowance of 1*s.* 6*d.* a day in lieu of provisions, fuel, and lights. The travelling allowances, extra pay, lodging money, and compensation for losses are fixed for naval medical officers according to their relative rank in the service.

Half Pay.

Rank.	Daily.	Yearly.
	£ s. d.	£ s. d.
Surgeon—		
Under 2 years' full-pay service	0 6 0	109 10 0
After 2 years' full-pay service	0 7 0	127 15 0
,, 4 ,, ,,	0 8 0	146 0 0
,, 6 ,, ,,	0 9 0	164 5 0
Staff Surgeon (or Surgeon over eight years)—		
On promotion	0 10 0	182 10 0
After 2 years' service in rank	0 11 0	200 15 0
,, 4 ,, ,,	0 12 0	219 0 0
,, 6 ,, ,,	0 13 0	237 5 0
Fleet Surgeon—		
On promotion	0 14 0	255 10 0
After 2 years' service in rank	0 15 0	273 15 0
,, 4 ,, ,,	0 17 0	310 5 0
,, 6 ,, ,,	0 18 0	328 10 0
,, 8 ,, ,,	0 19 0	346 15 0
,, 10 ,, ,, (maximum)	1 0 0	365 0 0
Deputy Inspector-General—		
On promotion	1 5 0	456 5 0
After 2 years' full-pay service in rank	1 7 0	492 15 0
,, 4 ,, ,,	1 9 0	529 5 0
Inspector-General	1 18 0	693 10 0

Candidates will do well to notice that the regulations issued to applicants do not put any limit on the amount of half-pay service which they may be compelled to undergo, also that time on half-pay counts only one-third towards retirement.

Retirement.

Compulsory retirement will be as follows:—

Inspector and Deputy Inspector-General of Hospitals and Fleets.	At the age of 60, or at any age, if he has had three years' non-employment in any one rank, or after four years' continuous non-employment in any two ranks combined. Except that if in any particular case the Lords Commissioners of the Admiralty may consider that the interests of the public service will be materially advanced by the further retention of an Inspector-General of Hospitals and Fleets on the active list, the age for the retirement of such Inspector-General may be extended to 62.	To be retired irrespective of age if found physically unfit for service.
Fleet Surgeon, Staff Surgeon and Surgeon.	At the age of 55, or at any age, if he has had three years' non-employment in any one rank, or after four years' continuous non-employment in any two ranks combined.	

The special attention of candidates is directed to the following rules under which officers are allowed to withdraw from the service after four years' full pay service in the Royal Navy, with the advantage of joining the Reserve of Naval Medical Officers:—

After four years' service in the Royal Navy, an officer, if he wishes, may pass from active service to the Reserve of Naval Medical Officers, when he will reap the following advantages:—

(1) He will be granted a gratuity of £500 on passing into the Reserve.

(2) His name will be retained in the Navy List; he will retain his naval rank and be entitled to wear his naval uniform under the regulations applying to officers on the retired and reserved lists of His Majesty's Navy.

(3) If he agree to remain in the Reserve for four years he will receive a retaining fee of £25 per annum. If at the expiration of this period he agree to remain in the Reserve for a further period of four years he will continue to receive the same retaining fee.

Should an officer prefer it, however, he may simply enter the Reserve for a period not exceeding eight years, with power to give six months' notice of his intention to resign his position at any time (in which case he will receive no retaining fee). He may also adopt this method of Reserve service after the expiration of four years served under the conditions referred to in (3), by renouncing his retaining fee for his last four years' service in the Reserve.

No officer will be allowed to remain in the Reserve for a longer period than eight years.

Officers of the Reserve will be liable to serve in the Royal Navy in time of war or emergency. When called up for such service they will receive the rate of pay—viz., 17*s.* a day and allowances—to which they would have been entitled after four years' service on the active list.

Voluntary retirement and withdrawal will be allowed as follows. (*a*) Every officer will have the option, subject to their Lordships' approval, of retiring after 20 years' full-pay service on the scale of retired pay provided in Paragraph 16, or with a gratuity on the scale provided in that paragraph if not eligible for retired pay. (*b*) At the expiration of four, eight, 12, or 16 years' full-pay service every officer will be permitted, subject to their Lordships' approval, to withdraw from the Naval Service, receiving a gratuity on the scale laid down in the table below. The name of an officer so withdrawing will be removed from the list of the Navy, with which all connexion will then be severed, except in the case of officers who withdraw after four years who are liable to serve in the Reserve. (*c*) Voluntary retirement and withdrawal at the discretion of their Lordships will be allowed, as a rule, only when an

Rank.	Gratuities.	Daily.	Yearly.
	£ s. d.	£ s. d.	£ s. d.
Surgeon, Staff Surgeon, and Fleet Surgeon—			
After 4 years' full-pay service	500 0 0	—	—
After 8 years' full-pay service (including service allowed by (*f*))	1000 0 0	—	—
After 12 years' full-pay service (including service allowed by (*f*))	1500 0 0	—	—
After 16 years' full-pay service (including service allowed by (*f*))	2250 0 0	—	—
Fleet Surgeon—			
After 20 years' service (including proportion of half-pay time)	—	*1 0 0	365 0 0
After 24 years' service (including proportion of half-pay time)	—	*1 2 6	410 12 6
After 27 years' service (including proportion of half-pay time)	—	*1 5 0	456 5 0
After 30 years' service (including proportion of half-pay time), or on compulsory retirement at the age of 55	—	*1 10 0	547 10 0
Deputy Inspector-General	—	1 15 0	638 15 0
Inspector-General	—	2 0 0	730 0 0

* To obtain this rate an officer must hold the commission of Fleet Surgeon.

officer is unemployed or serving at home. Under special circumstances, however, it may be permitted in the case of an officer serving abroad, provided he pays his passage home, and, if necessary, that of his successor. (*d*) Applications from officers to retire or withdraw or resign their commissions will receive every consideration, but no officer will, as a rule, be permitted to resign under three years from the date of entry. In order that arrangements may, as far as possible, be made for the relief of officers who may wish to withdraw on a gratuity it is desirable that six months' notice of their wish should be forwarded for the consideration of their lordships. The Admiralty reserve to themselves power to remove any officer from the list for misconduct.

Gratuities and retired pay will be awarded on retirement and withdrawal on the scale mentioned in the table on the preceding page.

An officer retired with less than 20 years' service on account of disability, contracted in and attributable to the Service, will receive the half pay of his rank, or, with the consent of their Lordships, a gratuity on the scales given in the above table and in the paragraph following this and 18 (*b*), but such officer will not be entitled to receive any special compensation for the disability in addition to the gratuity as above.[2]

An officer retired with less than 20 years' service on account of disability, contracted in but not attributable to the Service, will receive—(*a*) if he has over eight years' full-pay service, either a gratuity on the scale given above or half-pay according as their Lordships think fit; (*b*) if he has less than eight years' full-pay service, such gratuity as their Lordships think fit, not exceeding the rate of £125 for each year of full-pay service.

In circumstances other than those specified in the last two paragraphs, and other than misconduct, neglect of duty, &c., an officer retired with less than 20 years' service will not be allowed half pay or retired pay, but will receive a gratuity on the scale laid down in the table above if he has eight years' full-pay service, and on that provided in the last paragraph (*b*) should his full-pay service not amount to eight years. The power vested in their Lordships of granting reduced rates of half pay and retired pay in cases of misconduct is extended to the award of gratuities on retirement, and the gratuity awarded will be reduced to such an amount as is thought fit. An officer retiring after 20 years' full-pay service will be eligible, if recommended by the Medical Director-General for distinguished or meritorious service, to receive a step of honorary rank, such step to be awarded at their Lordships' discretion, and not to confer any claim to increase of retired pay or of widow's pension. All retired officers will be liable, till the age of 55, to serve in time of declared national emergency, in a rank not lower than that held on retirement. This liability does not exist in cases of officers who withdraw from the Naval Service receiving a gratuity after 8, 12, or 16 years' full pay service. Retired officers will receive special consideration as regards appointments on shore connected with the Admiralty now filled by civilians.

Widow's Pension.

When an officer retires or withdraws *on a gratuity* his widow and children will have no claim to pension or compassionate allowance. In respect to other officers on the active or retired list, the widow's pension ranges from £50 per annum for a surgeon's widow up to £120 for the widow of an Inspector-General; for each child an allowance is granted ranging from £9 to £20 per annum. Officers serving in the reserve who during re-employment are injured on duty, or lose their lives from causes attributable to the service, come under the same regulations as regards compensation for themselves, or pensions and compassionate allowances for their widows and children, as officers of the same rank on the permanent Active List.

Miscellaneous.

A special cabin will be appropriated to the Fleet or Staff Surgeon or the Surgeon in charge of the medical duties in each ship. Special regulations have been made as regards the mess expenses of medical officers appointed to the several divisions of Royal Marines for limited periods.

Every medical officer will be required to undergo a post-graduate course of three months' duration at a Metropolitan Hospital once in every eight years (should the exigencies of the Service permit), and this as far as possible during his Surgeon's, Staff Surgeon's, and Fleet Surgeon's period of service. While carrying out this course the medical officer will be borne on a ship's books for full pay and will reside at the Royal Naval College, Greenwich. The repayment of travelling expenses to and from his home or port will be governed by the King's Regulations; the fees for each course (not exceeding £25) will be paid by the Admiralty on the production of vouchers at the end of the course. The medical officer will be required to produce separate certificates of efficient attendance in the following: (1) the medical and surgical practice of the hospital, including instruction in anæsthetics; (2) a course of operative surgery on the dead body; (3) a course of bacteriology; (4) a course of ophthalmic surgery, particular attention being paid to the diagnosis of errors of refraction; and (5) a practical course of skiagraphy.

Relative rank is accorded to medical officers as laid down in the King's Regulations and Admiralty Instructions.

The Admiralty has made a considerable effort to make the Medical Service attractive to men of a good professional stamp. By the regulations promulgated in 1903, promotion was accelerated, special promotion in the lower grades was made possible in cases of distinguished service or conspicuous professional merit, and encouragement to enter the service, in the shape of earlier promotion, was given to men who have held resident posts in recognised hospitals. A feature of the present regulations is the permission to withdraw at the end of four years with a gratuity of £500. The pay has been increased but, in respect of allowances, the medical officers of the navy, up to the senior ranks, are not as well off as those of the Royal Army Medical Corps. In spite of the steps taken by the Admiralty there is still much discontent among naval medical officers, and such discontent will exist until the medical officers are unhampered in the performance of their important work by the executive officers. The medical officers should have control over the sick bay staff in ships, and over nurses and other attendants in hospitals, and executive officers should no longer figure as presidents of "medical surveys." The authority of the Director-General must be made adequate. More care must also be taken that medical officers are assigned fitting cabin accommodation. To make the service thoroughly efficient the medical officers must be given authority and position commensurate with their responsibilities, as has been done in the case of the Engineer department. A committee, presided over by Vice-Admiral Sir J. Durnford, was appointed many months ago to inquire into these matters, whose long delayed report is eagerly awaited.

[2] If the health of a surgeon breaks down before he completes 20 years' service, even if his disability be contracted in the Service or be due to climatic causes, he is liable at once to be placed on the retired list, receiving only a gratuity. This point should be well noted, as it is a most unjust one.

ARMY MEDICAL SERVICE.

During recent years the medical service of the Army has passed through many stages of evolution, and we consider that in all essential matters the changes have been distinctly in the direction of advance and improvement, not only for the officers composing this service, but in relation to the Army at large. The formation of the Royal Army Medical Corps by the Royal warrant of 1898, when Lord Lansdowne was War Minister, marked the first great step; then came a period of strain during the war in South Africa, when the medical services were exposed to fierce criticism. The outcome of this was the appointment of a committee of inquiry in 1901 by Mr. Brodrick (now Lord Midleton), over which he himself presided. A Royal Warrant embodying the recommendations of Mr. Brodrick's committee was issued in 1902, which regulates the existing conditions of service; in 1907 free passages to India were granted for the wives and families of medical officers, whether employed on duty or not, an important concession, and one evidencing the liberal spirit of the War Office towards the medical service.

Since 1907 several important changes have been made from time to time. Prior to this date promotion from the rank of Major to Lieutenant-Colonel was made by seniority after the passing of an examination on attaining 20 years' service, the establishment of Lieutenant-Colonels being unlimited. Under a new clause introduced in the Royal Warrant the establishment of Lieutenant-Colonels was made a fixed number and limited to 120. This establishment has not up to the present date been reached, owing to the very large number of Lieutenant-Colonels promoted before the new establishment was settled upon, and the date of the last promotion bears date of Oct. 20th, 1906. Under present rules no promotion to the rank of Lieutenant-Colonel can take place unless three factors are fulfilled—(1) there is a vacancy on the fixed establishment; (2) the officer has passed an examination for promotion; (3) he is selected as suitable for promotion. In the Colonels grade another important and far-reaching change has been made since Jan. 9th, 1907. An officer promoted to the rank of Colonel after this date will, on completing four years' service in the rank, be placed on half-pay unless further promoted or retired from the service. Officers of the substantive rank of Colonel were also removed from the Royal Army Medical Corps, and have been since shown in the Army List as belonging to the Army Medical Service; they have also a distinctive uniform.

REGULATIONS FOR ADMISSION TO THE ROYAL ARMY MEDICAL CORPS (ISSUED WITH ARMY ORDERS DATED JUNE 1ST, 1909).

A candidate for a commission in the Royal Army Medical Corps must be 21 years and not over 28 years of age at the date of the commencement of the entrance examination, and must be unmarried. He must, at the time of his appointment, be registered under the Medical Acts in force in the United Kingdom. A candidate must complete the subjoined form of application and declaration and submit it to the Director-General, A.M.S., in sufficient time to permit of reference to the medical school in which the candidate completed his course as a medical student.

APPLICATION OF A CANDIDATE FOR A COMMISSION IN THE ROYAL ARMY MEDICAL CORPS.*

(*A Candidate will not be permitted to compete oftener than twice.*)

1. Name in full.
2. Address.
3. Date of birth.†
4. Nature and date of examination qualifying for registration.
5. Date of registration as a medical student.
6. Dates of passing medical examinations—First, Second, Final.

7. Qualifications. (Medical Registration Certificate, or, if not registered, Diplomas to be furnished.)
8. Academic and other distinctions.
9. Resident medical appointments held since qualification.
10. Medical school or schools in which the candidate pursued his course as a medical student, and name or names of the deans or other responsible authorities.
11. Particulars of any commission or appointment held in the public services, including service in the officers training corps.
12. Date of examination at which the candidate proposes to present himself.

Declaration.

(N.B.—A mis-statement by the candidate will invalidate any subsequent appointment and cause forfeiture of all privileges for services rendered.)

I hereby declare upon my honour that the above statements are true to the best of my knowledge and belief and further :—

1. That I am a British subject of unmixed European blood.
2. That I am not, as far as I know, at present suffering from any mental or bodily infirmity, or physical imperfection or disability that is likely to preclude me from efficiently discharging the duties of an officer in any climate.
3. That I will fully reveal to the Medical Board, when physically examined, all circumstances within my knowledge that concern my health.
4. That I am unmarried.

Signature .....
Date.....

* All communications to be addressed to the Secretary, War Office, Whitehall, S.W.

† A certificate of registration of birth to be furnished.

(N.B.—It is of great importance that the names given in the birth certificate should be correctly given on this form, and it is to be clearly understood that when they differ the names and date of birth given in the birth or baptismal certificate will be accepted for official record.)

The dean, or other responsible authority, of the candidate's school will be requested by the Director-General to render a confidential report as to his character, conduct, professional ability, and fitness to hold a commission in the corps. A candidate whose application is regarded as satisfactory will be directed to appear before the Director-General, Army Medical Service, a few days preceding the examination. The Director-General will decide if the candidate may be allowed to compete for a commission. If approved, he will then be examined as to his physical fitness by a board of medical officers detailed by the Director-General a few days preceding his examination. The following is the order of the examinations :—

1. A candidate for a commission in the Royal Army Medical Corps must be in good mental and bodily health and free from any physical defect likely to interfere with the efficient performance of military duty.

2. The attention of the board will be directed to the following points: (*a*) That the correlation of age, height, weight, and chest girth is not less than that which is given in the following table :—

Physical Equivalents.

Age.	Height without shoes.	Chest. Girth when fully expanded.	Chest. Range of expansion.
	Inches.		
21 and upwards.	62½ and under 65	35 inches.	2 inches.
	65 ,, 68	35½ ,,	2 ,,
	68 ,, 70	36 ,,	2 ,,
	70 ,, 72	36½ ,,	2½ ,,
	72 and upwards.	37 ,,	2½ ,,

(*b*) Measurement of height. The candidate will be placed against the standard with his feet together and the weight thrown on the heels and not on the toes or outside of the feet. He will stand erect without rigidity and with the heels, calves, buttocks, and shoulders touching the standard; the chin will be depressed to bring the vertex of the head level under the horizontal bar and the height will be noted in parts of an inch to eighths.

(*c*) Measurement of chest. The candidate will be made to stand erect with his feet together and to raise his hands above his head. The tape will be carefully adjusted round the chest with its posterior upper edge touching the inferior angles of the shoulder blades and its anterior lower edge the upper part of the nipples. The arms will then be lowered to hang loosely by the side and care will be taken that the shoulders are not thrown upwards or backwards so as to displace the tape. The maximum expansion during deep inspiration will be carefully noted.

(*d*) Weight. The candidate will also be weighed and his weight recorded in the proceedings of the Board.

(*e*) The regulations regarding the examination of eyesight are as follows :—

Squint, or any morbid condition of the eyes or of the lids of either eye liable to the risk of aggravation or recurrence, will cause the rejection of the candidate.

The examination for determining the acuteness of vision includes two tests: one for distant, the other for near vision. The Army Test Types will be used for the test for distant vision, without glasses, except where otherwise stated below, at a distance of 20 feet; and Snellen's Optotypi for the test for near vision, without glasses, at any distance selected by the candidate. Each eye will be examined separately, and the lids must be kept wide open during the test. The candidate must be able to read the tests without hesitation in ordinary daylight.

A candidate possessing acuteness of vision, according to one of the standards herein laid down, will not be rejected on account of an error of refraction, provided that the error of refraction, in the following cases, does not exceed the limits mentioned, viz.: (*a*) in the case of *myopia*, that the error of refraction does not exceed 2·5 D; (*b*) that any correction for *astigmatism* does not exceed 2·5 D; and, in the case of myopic astigmatism, that the total error of refraction does not exceed 2·5 D.

Subject to the foregoing conditions, the standards of the minimum acuteness of vision with which a candidate will be accepted are as follows :—

Standard I.

Right eye.	*Left eye.*
Distant vision.—V = 6/6.	V = 6/6.
Near vision.—Reads 0, 6.	Reads 0, 6.

Standard II.

Better eye.	*Worse eye.*
Distant vision.—V = 6/6.	V. without glasses, = not below 6/60; and, after correction with glasses, = not below 6/24.
Near vision.—Reads 0, 6.	Reads 1.

Standard III.

Better eye.	*Worse eye.*
Distant vision. — V, without glasses, = not below 6/24; and, after correction with glasses, = not below 6/6.	V, without glasses, = not below 6/24; and, after correction with glasses, = not below 6/12.
Near vision.—Reads 0, 8.	Reads 1.

In Standard III., the standard for the test for distant vision, without glasses, for officers of the Special Reserve, will be not below 6/36.

Inability to distinguish the principal colours will not be regarded as a cause for rejection, but the fact will be noted in the report, and the candidate will be informed. The degree of acuteness of vision of all candidates for commissions (including preliminary examinations) will be entered in their reports in the following manner :—

Sufficient	Right eye...	V = ...	Reads .....
	Left eye ...	V = ...	Reads .....
Defective	Right eye...	V = ...	Reads .....
	Left eye ...	V = ...	Reads .....

No relaxation of the standard of vision will ever be allowed.

The following additional points will then be observed. (*f*) That his hearing is good. (*g*) That his speech is without impediment. (*h*) That his teeth are in good order. Loss or decay of ten teeth will be considered a disqualification Decayed teeth if well filled will be considered as sound. Non-erupted wisdom teeth will not be counted as deficient. (*i*) That his chest is well formed and that his heart and lungs are sound. (*j*) That he is not ruptured. (*k*) That he does not suffer from varicocele or varicose veins in a severe degree. A candidate who has been successfully operated on will be accepted. A definition of severe varicocele may be obtained from the Director-General Army Medical Service, War Office, Whitehall, S.W. (*l*) That his limbs are well formed and developed. (*m*) That there is free and perfect motion of all the joints. (*n*) That his feet and toes are well formed. (*o*) That he does not suffer from any inveterate skin disease. (*p*) That he has no congenital malformation or defect. (*q*) That he does not bear traces of previous acute or chronic disease pointing to an impaired constitution. (*r*) If the candidate is not of pure European descent the fact should be recorded by the board. If a candidate be pronounced physically fit for service at home and abroad he will be eligible to present himself at the next entrance examination which will be held twice in the year, usually in January and July. A candidate will not be permitted to compete oftener than twice.

The Army Council reserves the right of rejecting any candidate who may show a deficiency in his general education.

An entrance fee of £1 is required from each candidate admitted to the examination and is payable at the conclusion of his physical examination, if pronounced fit.

Candidates who have been specially employed in consequence of a national emergency, either as an officer or in a position usually filled by an officer, will be allowed to reckon such service towards retired pay and gratuity, and if over the regulated limit of age at the date of commencement of the competitive examination will be permitted to deduct from their actual age any period of that service, if such reduction will bring them within the age limit. The duration of service is to be reckoned from the date on which the candidate commenced such service, except in the case of candidates who have served for two or more periods at short intervals. In such cases the total period of service to be considered in granting marks at the entrance examination shall be specially determined.

Candidates who have served in the Officers Training Corps, and who are in possession of the certificates laid down in regulations, will be credited at the entrance examination with additional marks as follows: those having Certificate A will receive 1 per cent., and those having A and B 2 per cent. of the maximum marks allotted.

A candidate successful at the entrance examination will be appointed a Lieutenant on probation and will be required to pass through such courses of instruction as the Army Council may decide and, after passing the examinations in the subjects taught and satisfying the Director-General that he possesses the necessary skill, knowledge, and character for permanent appointment to the Royal Army Medical Corps, his commission as Lieutenant will be confirmed. The commission will bear the date of passing the entrance examination.

The precedence of Lieutenants among each other will be in order of merit as determined by the combined results of the entrance examination and the examinations undergone while on probation, except that the position on the list of a lieutenant on probation, seconded to hold a resident appointment in a recognised civil hospital shall be determined by the place he has gained at the entrance examination. A lieutenant cannot be so seconded for more than 12 months, and during this period he will not draw pay from Army funds, but his service will reckon towards promotion, increase of pay, gratuity, and pension. He will be required, at the conclusion of his hospital appointment, to attend the courses of instruction at the Royal Army Medical College and at Aldershot; but the subsequent examinations

will be of a qualifying character and will not influence his position on the seniority list of the Corps.

Lieutenants when appointed on probation will receive instructions as to the provision of uniform.

EXAMINATIONS.

Subjects for the Entrance Examination.

Candidates will be examined by the examining board in medicine and surgery. The examination will be of a clinical and practical character, partly written and partly oral, marks being allotted under the following scheme.

	Maximum marks.
Medicine (written).	
A. Examination and report upon a medical case	125
B. Commentary upon a case in medicine	100
(Two periods of 45 minutes total, one and a half hours—for A, and one and a half hours for B.)	
Medicine (oral).	
A. Clinical cases	100
B Medical pathology	75
(Ten minutes to examine case and ten minutes *viva voce*—total, 20 minutes—for A; 30 minutes to examine specimens and ten minutes *viva voce* —total, 40 minutes—for B.)	
Surgery (written).	
A. Examination and report upon a surgical case	100
B. Commentary upon a case in surgery	125
(Two periods of 45 minutes—total, one and a half hours—for A, and one and a half hours for B.)	
Surgery (oral).	
A. Clinical surgery and pathology (including diseases of the eye)	75
B. Operative surgery and bandaging (including surgical instruments and appliances)	100
(Ten minutes to examine case and ten minutes *viva voce*—total, 20 minutes—for A, and about 30 minutes for B.)	
Total marks	800

The following headings are published as a guide to candidates in drawing up their reports on cases:—(*a*) A brief history of the case as given by the patient, including such points only (if any) in the family or personal history as have a distinct bearing upon the present illness or incapacity. (*b*) A detailed account of the subjective symptoms and physical signs elicited by the candidate's personal examination of the patient, noting the absence of any which might be expected to be present in a similar case. (*c*) Where there is any reasonable doubt in the mind of the candidate as to an exact diagnosis, he is to give the alternatives, with his reasons for making the selection. (*d*) A commentary upon the case as a whole, pointing out the symptoms which may be considered typical, and those which appear to be unusual or only accidental complications. (*e*) Suggestions as to treatment, both immediate and possibly necessary at a later date. (*f*) A forecast of the progress and probable termination of the case.

Similarly the commentary on the report of a case submitted to the candidate should discuss: (*a*) The family and personal history and other conditions preceding the development of the condition described. (*b*) The relative significance of the physical signs, symptoms, other indications of disease noted, and the general clinical aspects of the case. (*c*) The diagnosis, with reasons for selection of the most probable, when a positive diagnosis cannot be attained. (*d*) The treatment, dietetic, medicinal, operative, &c., including a criticism of the plan adopted, and alternative schemes of treatment in case of disagreement. (*e*) The morbid appearances and an account of the post-mortem examination (if any).

The examinations are held in London and occupy about four days.

The appointments announced for the competition are filled up from the list of qualified candidates arranged in the order of merit, as determined by the total number of marks each has obtained. Having gained a place in this entrance examination the successful candidates are ordered to proceed to the Royal Army Medical College, Millbank, S.W., for instruction in recruiting duties, at the termination of which they will undergo two months' instruction in Hygiene, Pathology, Tropical Medicine, Military Surgery, and Military Medical Administration, after which they are examined in these subjects. The maximum number of marks obtainable at this examination is 700. At the present time the professors at the Royal Army Medical College are Major E. M. Pilcher, D.S.O., in the department of military surgery; Major W. S. Harrison, in the department of military medicine; Lieutenant-Colonel Sir W. B. Leishman, M.B., F.R.S., in the department of pathology; and Lieutenant-Colonel C. H. Melville, M.B., in that of hygiene, Captain J. C. Kennedy and Major C. F. Wanhill being assistant professors. Colonel D. Wardrop, C.V.O., M.B., the commandant and director of studies, assisted by Brevet Lieutenant-Colonel A. P. Blenkinsop, instructs in hospital and corps administration, in the duties of officers on transports, and in the examination of recruits, and Major T. W. Gibbard lectures on Syphilology. The services of the following staff of clinical teachers have been secured to give courses of instruction to the classes made up of 50 captains that now undergo an annual course for promotion to the rank of major:—Medicine: Major G. N. Pitt, M.D., 2nd London General Hospital; and Captain J. Galloway, M.D., F.R.C.S., 4th London General Hospital. Surgery: W. H. Clayton-Greene, M.B., F.R.C.S.; and Captain H. S. Collier, F.R.C.S., 3rd London General Hospital. Dermatology: A. Whitfield, M.D. Midwifery and Gynæcology: G. F. Blacker, M.D., F.R.C.S. Ophthalmology: J. H. Parsons, M.B., F.R.C.S. Otology with Laryngology and Rhinology: H. Tilley, M.D., F.R.C.S. Specific Fevers: E. W. Goodall, M.D. Besides these lecturers an honorary consulting staff has been appointed by the War Office to Queen Alexandra's Military Hospital at Millbank. This staff comprises:—A. E. Barker, F.R.C.S.; Major A. A. Bowlby, C.M.G., F.R.C.S., 1st London General Hospital: Surgeon-Major-General A. F. Bradshaw, C.B., K.H.P. (retired); J. M. Bruce, M.D., F.R.C.P.; Lieutenant-Colonel J. K. Fowler M.D., 3rd London General Hospital; Surgeon-Lieutenant-Colonel P. J. Freyer, M.D. Indian Medical Service (retired); W. S. A. Griffiths, M.D., F.R.C.P.; Lieutenant-Colonel G. H. Makins, C.B., F.R.C.S., 2nd London General Hospital; and Honorary Colonel W. Osler, M.D., LL.D., F.R.S., South Middlesex Division, Royal Army Medical Corps. The course of hygiene has hitherto comprised the examinations of water and air, the general principles of diet with the quality and adulterations of food and beverages, the sanitary requirements of barracks, hospitals, and camps, the consideration of the clothing, duties, and exercises of the soldier, and the circumstances affecting his health, with the best means of preventing disease, both at home and under the conditions of foreign service, also with particular reference to active service in the field. The pathological course has up to the present time included bacteriology and demonstrations in microscopic diagnosis, preparations of vaccines, &c., special attention being given to modern methods of research in the causation of tropical disease. The surgical course consists of lectures and demonstrations in military surgery and X rays and lectures on errors of refraction from a military point of view. On completion of the above course Lieutenants on probation join the Royal Army Medical Corps School of Instruction at Aldershot for a two months' course in the technical duties of the corps, including a course of gymnasium, drill, and stretcher drill, and at the end of the course are examined in the subjects taught. The maximum number of marks obtainable at this examination will be 100. A Lieutenant on probation who fails to qualify in either of these examinations will be allowed a second trial, and, should he qualify, will be placed at the bottom of the list. Should he again fail in either examination his commission will not be confirmed. Illiteracy on the part of a candidate as evinced by inaccurate spelling, poor composition, or grammatical errors in the oral examination, at the entrance examination, or at the examinations undergone while on probation will be regarded as disqualifying for appointment.

EXAMINATIONS FOR PROMOTION IN THE ROYAL ARMY MEDICAL CORPS.

These examinations are intended to test the progress and proficiency of officers in those branches of knowledge which are essential to their continued efficiency.

Lieutenant before Promotion to Captain.—This examination may be taken at any time after completing 18 months' service and will be held in the military district in which the officer is serving. The subjects of this examination, which are detailed in the King's Regulations, are as follows: (1) squad, company, and corps drills and exercises; (2) (*a*) the terms of the Geneva Convention; (*b*) a general knowledge of the administration, organisation, and equipment of the army in its relation to the Medical Services; (3) the duties of ward-masters and stewards in military hospitals, and the preparation of returns, accounts, and requisitions connected therewith; (4) duties of executive medical officers; and (5) military law.

Captains before Promotion to Major.—Captains will be examined under the following rules, and will be eligible for acceleration in their promotion to the rank of Major under Article 303 of the Pay Warrant. An officer who gains accelerated promotion will be placed for precedence after the last officer (whether subject to acceleration or not) promoted approximately 3, 6, 12, or 18 months before him.

This examination, which may be taken at any time after completing five years' service, will be held on the termination of a period of special study at such times and under such arrangements as the Director-General A.M.S. may determine. The examination will consist of written papers, essays, oral and practical examinations in the following subjects, which are detailed in the King's Regulations: (1) medicine; (2) surgery; (3) hygiene; (4) bacteriology and tropical disease; (5) one special subject from the subjoined list: (*a*) bacteriology, including the preparation of antitoxins; (*b*) dermatology, including venereal diseases; (*c*) midwifery and gynæcology; (*d*) operative surgery, advanced; (*e*) ophthalmology; (*f*) otology, including laryngology and rhinology; (*g*) State medicine; (6) military law.

Majors before Promotion to Lieutenant-Colonel.—This examination, which may be taken at any time after three years in the rank of Major, will be held in the military district in which the officer is serving at times which will be duly notified. The subjects of this examination, which are detailed in the King's Regulations, are as follows: 1. Army medical organisation in peace and war. 2. Sanitation of towns, camps, transports, and all places likely to be occupied by troops in peace and war; epidemiology, and the management of epidemics.

3. (*a*) Medical history of the more important campaigns and the lessons to be learnt therefrom; (*b*) a knowledge of the Army Medical Services of the more important Powers; and (*c*) the laws and customs of war, so far as they relate to the sick and wounded. 4. A tactical problem in field medical administration.

PAY, ADDITIONAL PAY, AND CHARGE PAY.

The following are the rates of pay, additional pay, and charge pay of the Army Medical Service and Royal Army Medical Corps:—

Pay.

Army Medical Service.	Inclusive of all allowances except field and travelling allowances (yearly).
At the War Office.	
Director-General	£ 2000
Deputy Director-General	1500
Assistant Director-General	850
Deputy Assistant Director-General	750
At Other Stations.	Exclusive of allowances (daily). £ s. d.
Surgeon-General	3 0 0
Colonel	2 5 0
Lieutenant-Colonel (promoted before Jan. 9th, 1907)	1 10 0
Lieutenant-Colonel (specially selected)	1 15 0
Major	1 3 6
After three years as such	1 6 0
After 20 years' total service, if considered qualified	1 10 0
Captain	0 15 6
After seven years' total full-pay service	0 17 0
After ten years' total full pay service	1 1 0
Lieutenant on probation and Lieutenant	0 14 0
Adjutant of the Royal Army Medical Corps (Territorial Force)	The pay of his rank.

A Captain of the Royal Army Medical Corps, holding the brevet rank of Major, shall receive pay at 2*s.* a day, in addition to the pay of his rank.

Additional Pay.

An officer not serving on the Headquarters Staff appointed a member of the Advisory Board, £150 a year. An officer under the rank of Lieutenant-Colonel holding an appointment as specialist, 2*s.* 6*d.* daily.

Charge Pay.

(*a*) An officer in charge of a general or other hospital, or of a division of a general hospital—

	Daily. s. d.
If in charge of at least 50 equipped beds	2 6
,, ,, 100 ,, ,,	5 0
,, ,, 200 ,, ,,	7 6
,, ,, 300 ,, ,,	10 0
(*b*) Senior medical officer, Royal Arsenal, not exceeding	10 0
(*c*) Officer in command of the Depôt, Royal Army Medical Corps	5 0
(*d*) The Senior officer of the Army Medical Service with an army in the field— A rate to be fixed according to the magnitude of the charge.	
(*e*) In a command abroad— The senior medical officer, if under the substantive rank of colonel, if the number of soldiers is 1500 or upwards	5 0

Reserve of Officers.

An officer of the Royal Army Medical Corps with at least three, but not more than six, years' service may be permitted to become an Army Reserve Officer for a period of seven years, and while so serving he shall receive a retaining fee of £25 a year. With the sanction of the Army Council such officer may be allowed to return to the active list, and if the period he has been in the Reserve of Officers amounts to at least one year, and not more than three years, he shall be allowed to reckon one-third of such period towards promotion, gratuity, and pension.

Seconded Officers.

A Lieutenant on probation who at the time of passing the examination for admission to the Royal Army Medical Corps holds, or is about to hold, a resident appointment in a recognised civil hospital may be seconded for the period not exceeding one year during which he holds the appointment. While seconded he shall not receive pay from army funds, but his service shall reckon towards promotion, increase of pay, gratuity, and pension.

PROMOTION.

No promotion of a medical officer shall be made without the approval of the Secretary of State.

An officer shall be eligible for promotion to the rank of Captain on the completion of three and a half years' service, and to the rank of Major on the completion of 12 years' service, provided that in each case he has previously qualified in such manner as may be prescribed by the Army Council.

Promotion to the rank of Lieutenant-Colonel to complete an establishment shall be made by selection from Majors who have qualified in such manner as may be prescribed by the Army Council.

If an officer has passed with distinction the examination qualifying for promotion to the rank of Major, the 12 years' service required to render him eligible for that rank may be reduced as follows:—

	Months.
If he obtained a "special certificate"	18
,, passed in the 1st Class	12
,, ,, ,, 2nd ,,	6
,, ,, ,, 3rd ,,	3

Promotion to the rank of Colonel to complete an establishment shall be made by selection from Lieutenant-Colonels. An officer promoted to the rank of Colonel shall, unless retired, be placed on half-pay on completing a period of four years' service in such rank. A Lieutenant-Colonel may also be promoted to the rank of Colonel if specially recommended for distinguished service in the field. Promotion to the rank of Surgeon-General shall be made by selection from Colonels. A Colonel may also be promoted to the rank of Surgeon-General for distinguished service in the field. An officer of the Royal Army Medical Corps is eligible for promotion to brevet rank. A Captain after at least 6 years' service, a Major or Lieutenant-Colonel, may be promoted to the next higher rank by brevet for distinguished service in the field or for meritorious or distinguished service of an exceptional nature other than in the field. If the officer dies before the date on which the notification of his promotion for distinguished service in the field appears in the *London Gazette* the promotion shall bear the date which it would have borne had the officer not died. Distinction in original investigation or research may, in the case of officers of the Royal Army Medical Corps, be regarded as "distinguished service of an exceptional nature other than in the field." An officer who may in the opinion of the Army Council have been prevented, in very special circumstances, from qualifying for promotion, or who, having failed to qualify, may have been debarred from further opportunity of qualifying, may be provisionally promoted. If, however, he fails to qualify on the first available opportunity his promotion shall be cancelled and he shall be retired from the service. An officer shall reckon towards his promotion any time, not exceeding one year, during which he may have been on half-pay on account of ill-health caused by military service; and also any time not exceeding two years during which he may have been on half-pay on reduction. An officer while seconded shall continue to be eligible for selection for promotion as if he had remained on the establishment, and his service while seconded shall reckon towards such promotion.

RANK.

The Director-General of the Army Medical Service shall hold the substantive rank of Surgeon-General and shall rank in relation to combatant officers as a Lieutenant-General if recommended by the Army Council. All other Surgeon-Generals shall rank as Major-Generals in relation to combatant officers. Officers of the Army Medical Service above the rank of Colonel shall hold the substantive rank of Surgeon-General.

RETIREMENT.

(*a*) *Voluntary Retirement.*

An officer of the Army Medical Service will be permitted to retire in cases in which such retirement may be deemed expedient by the Army Council.

Scale of Retired Pay.

	Yearly. £
Director-General after 3 years' service in the appointment (with 30 years' service)	1125
Under 3 years' service as Director-General and after not less than 30 years' service	875
	Daily. £ s. d.
Surgeon-General	2 0 0
Colonel—	
Under 4 years' service as such, but with 30 years' total service	1 10 0
After 4 years' service as such	1 15 0
If not qualified as above	the rate for a lieutenant-colonel.
Lieutenant-Colonel—	
After 20 years' service	1 0 0
,, 25 ,,	1 2 6
,, 28 ,,	1 7 6
Major, after 20 years' service	1 0 0
	Gratuity. £
Major or Captain—	
After 5 years' service in the rank of captain	1000
,, 3 ,, ,, major	1800
,, 6 ,, ,, ,,	2500

Except in the case of a Colonel, or a Lieutenant-Colonel, an officer who, on voluntary retirement, has served for less than three years in the rank from which he retires, shall be entitled only to the gratuity or retired pay assigned to the next lower rank.

(*b*) *Retirement on Account of Age or Limitation of Period of Service.*

The Director-General of the Army Medical Service shall, unless his service has been specially extended to complete 30 years' total service, retire on completion of the term of his appointment, and the retirement of other officers of the Army Medical Service shall be compulsory at the following ages: Surgeon-General, 60; Colonel, 57; and other officers, 55. A Major shall retire on completion of 25 years' service if he has been superseded for promotion; or, if he fails to qualify for promotion, on completion of 20 years' service.

A Lieutenant who does not qualify for promotion within three and a half years' service and failing to qualify on the first available opportunity shall be retired.

A Captain who fails to qualify for promotion will be retired on any gratuity for which he may be eligible, and, if not so eligible, shall be retired as soon as he completes five years' service in the rank of Captain.

It shall be competent to the Army Council to place a medical officer on the retired list after 30 years' service.

(*c*) *Retirement on Account of Medical Unfitness.*

An officer placed on the half-pay list on account of medical unfitness shall, if not previously retired, be retired from the Army at the expiration of five years from the date on which he was placed on the half-pay list, or, if reported by the regulated medical authority to

be permanently unfit for duty, on the officer's application, at such earlier date as may be decided by the Army Council.

An officer, whether on full pay or half pay, who, to the satisfaction of the regulated medical authority has been pronounced insane, shall be retired from the Army.

The scale of retired pay on account of age or medical unfitness is the same as under voluntary retirement, except that the condition of three years' service in the rank is omitted.

Rates for Officers not qualified for Retired Pay or Gratuity on Voluntary Retirement.

If the unfitness was caused by military service retired pay equal to the half pay of his rank. If not so caused, provided the officer has at least 12 years' service, retired pay equal to the half pay of his rank for such period only, not exceeding five years from the date of the officer's retirement from the Army, after five years on half pay under Article 435, as the Army Council shall determine according to the merits of the case.

KING'S HONORARY PHYSICIANS AND HONORARY SURGEONS.

Six of the most meritorious officers of the Army Medical Service on the active list shall be named Honorary Physicians and six Honorary Surgeons. On appointment as Honorary Physician or Honorary Surgeon an officer under the rank of Colonel in the Army Medical Service may be promoted to the brevet rank of Colonel. A Lieutenant-Colonel appointed Honorary Physician or Honorary Surgeon shall receive pay at the rate laid down for a Colonel of the Royal Army Medical Corps when qualified for promotion to that rank. An officer shall relinquish the appointment of Honorary Physician or Honorary Surgeon on retirement.

MEDICAL OFFICERS OF THE REGIMENTS OF HOUSEHOLD TROOPS.

Commissions as surgeon-lieutenants in the Household Cavalry shall be given, on the nomination of the titular colonels of the regiments, to persons approved by the Army Council. The conditions governing pay and promotion are similar to those laid down for the Royal Army Medical Corps.

EXCHANGES AND TRANSFERS.

An officer of the Royal Army Medical Corps shall be permitted to exchange with another officer of such corps, or with a medical officer of the Household Cavalry, under such conditions and regulations as may from time to time be made.

Exchanges between officers of the Royal Army Medical Corps under the rank of Major and medical officers of the Indian Army, and transfers of such officers from either of the above services to the other, shall only be permitted subject to the approval of the Secretary of State for India in Council and on the following conditions: (1) That the officers have less than seven years' service; (2) that the senior officer exchanging takes the place of the junior on the list and shall not be promoted until the officer next above him has been promoted; (3) that the junior officer exchanging is placed for seniority next below all medical officers whose commissions have the same date as his own; and (4) that the officer transferred is placed for seniority below all medical officers holding the same rank at the time of his transfer and shall not be promoted until the officer next above him has been promoted.

An officer of the Royal Army Medical Corps who has exchanged or been transferred from the Indian Army shall reckon, subject to the conditions of Article 316, his previous service with the said forces towards promotion, increase of pay, gratuity, and pension.

LEAVE OF ABSENCE.

Full pay during ordinary leave of absence for 61 days in each year at home stations and generally longer periods abroad may be granted to a medical officer provided that no additional expense is incurred thereby.

When the period of leave has been exhausted or exceeded in consequence of sickness no further pay during ordinary leave shall remain due.

SICK LEAVE.

An officer of the Army Medical Service may draw full pay for the undermentioned periods during sick leave granted on the recommendation of the regulated medical authority, provided there is reasonable probability that he will ultimately be fit to return to duty:—

1. In ordinary cases for a period not exceeding 12 months.
2. In very special cases, such as loss of health due to tropical service or to active operations, the period may be extended, but it shall not exceed 18 months in all.

When a medical officer is sick at his station, whether in hospital, quarters, or lodgings, his absence from duty on account of sickness, up to a period of 30 days, and if duly certified by a medical officer, shall not be included in the period of absence on leave to which the issue of pay is limited, provided the general officer commanding at the station considers that the circumstances of the case warrant such a concession. Any excess of such leave of absence on account of sickness at an officer's station beyond the period of 30 days shall be deducted from his ordinary leave.

SERVICE ON THE WEST COAST OF AFRICA.

An officer volunteering for, or ordered to, the West Coast of Africa shall receive double pay while actually serving on the coast, and for any time spent at Madeira or the Canary Islands on sick leave, or on ordinary leave not exceeding 61 days in a year.

A medical officer after 12 months' continuous service on the West Coast is entitled to full pay during leave at home for one day for every two days served on the coast.

Each year or portion of a year served on the West Coast of Africa by an officer of the Royal Army Medical Corps shall reckon double towards voluntary retirement or retired pay, provided that he has served 12 months on the coast. In ordinary cases the 12 months may be made up of two separate periods of not less than six months each; and if an officer leaves the coast on account of sickness he may reckon any period of service on the coast, however short, in order to make up the 12 months' coast service which is required to entitle him to count his service double. Except when the officer has been invalided, no period of less than six months' of service on the coast shall reckon double under this article, or count towards the required period of 12 months.

WIDOWS' PENSIONS.

Widows' pensions and compassionate allowances for children and other relatives of deceased officers are given under certain conditions specified in the Royal Warrant for Pay and Promotion. There is also an Army Medical Officers' Widows' and Orphans' Fund on mutual assurance principles.

PAY IN INDIA.

There has been an improvement of late years in the pay and conditions of service of army medical officers in India, as elsewhere. The pay and allowances (which are combined in India) of a lieutenant is 420 rupees per mensem; for captain's rank, the pay and allowances is from 475 rupees to 530 rupees after seven, and to 650 rupees after ten years' service. Majors receive 789 rupees on promotion and 826 rupees after 15 years' service. Lieutenant-Colonels, 1150 rupees. In addition, charge pay is given, ranging from 60 to 240 rupees according to the number of beds equipped in a hospital. There are also various specialist appointments, cantonment hospitals, &c., carrying extra pay, that are shared between the Royal Army Medical Corps and the Indian Medical Service.

INDIAN MEDICAL SERVICE.

The grades of officers in the Indian Medical Service are the same as those of the Army Medical Service and Royal Army Medical Corps. The Director-General will rank either as Major-General or Lieutenant-General as may be decided in each case by the Secretary of State for India in Council.

REGULATIONS FOR THE EXAMINATION OF CANDIDATES FOR ADMISSION TO THE INDIAN MEDICAL SERVICE.

Candidates must be natural born subjects of His Majesty, of European or East Indian descent, between 21 and 28 years of age at the date of the examination, of sound bodily health, and in the opinion of the Secretary of State for India in Council in all respects suitable to hold commissions in the Indian Medical Service. They may be married or unmarried. They must possess under the Medical Acts a qualification registrable in Great Britain and Ireland. No candidate will be permitted to compete more than three times. Examinations for admission to the service are held twice in the year, usually in January and July. Candidates for the January examination must be between 21 and 28 years of age on Feb. 1st, and those for the July examination must be between 21 and 28 on August 1st. The exact date of each examination and the number of appointments, together with the latest date at which applications will be received, will be notified in THE LANCET.

They must subscribe and send in to the Military Secretary, India Office, Westminster, *so as to reach that address by the date fixed in the advertisement of the examination*, a declaration according to the annexed form, which is procurable from the Military Secretary.

Declaration and Schedule of Qualifications to be Filled up by Candidates.

I, ..., a candidate for employment in His Majesty's Indian Medical Service, do hereby attest my readiness to engage for that service, and to proceed on duty immediately on being gazetted.

I declare that I labour under no mental or constitutional disease, nor any imperfection or disability that can interfere with the most efficient discharge of the duties of a medical officer.

I hereby declare upon my honour that the above statements are true to the best of my knowledge and belief.

I inclose, in accordance with Paragraph 4 of the Regulations, (*a*) proof of age; (*b*) two certificates of character; (*c*) certificate of having attended a course of ophthalmic instruction, showing that the course included instruction in errors of refraction; (*d*) evidence of a registrable qualification; (*e*) *in case of natives of India or others educated in that country only*, a certificate from the Director-General, Indian Medical Service.

Signature .....

Date ....., 19 .

1. Name in full.
2. Address. (*Any alteration to be notified to the Military Secretary, India Office, London, S.W.*)
3. Date of birth. (*This must be supported by a certificate or statutory declaration.* See *Paragraph 4 of the Regulations.*)
4. Profession or occupation of father, and whether, at the time of candidate's birth, his father was a British subject of European or East Indian descent.
5. Statement as to whether the candidate is married or single.
6. Colleges and Medical Schools at which the candidate has received his medical education.
7. Medical School in which the candidate completed his course as a medical student, and name of the Dean or other responsible authority.
8. Degrees of B.A. or M.A.; details as to any prizes, university honours, &c.
9. Registrable qualifications.
10. Date of examination at which the candidate proposes to present himself.
11. Date of any previous occasions on which the candidate may have presented himself for examination for admission to the Indian Medical Service, or other examination for the Public Services.
12. Particulars of any commission or appointment held in the Public Services.

Candidates for the Indian Medical Service may, if they like, undergo a preliminary examination by the Medical Board which meets at the India Office every Tuesday by applying to the Under Secretary of State, India Office, inclosing a fee of two guineas. They must pay their own travelling expenses. The decision must be understood, however, not to be final. It may be reversed in either direction by the Examining Medical Board immediately prior to the Professional Examination.

The declaration must be accompanied by the following documents:—

a. Proof of age either by Registrar-General's certificate, or, where such certificate is unattainable, by the candidate's own statutory declaration, form for which can be obtained at the India Office, supported, if required by the Secretary of State, by such evidence as he may consider satisfactory. A certificate of baptism which does not

afford proof of age will be useless. In the case of natives of India it will be necessary for a candidate to obtain a certificate of age and nationality in the form laid down by the Government of India which is obtainable from the Director-General of the Indian Medical Service, Simla. *b.* A recommendation and certificate of moral character from two responsible persons—not members of his own family—to the effect that he is of regular and steady habits and likely in every respect to prove creditable to the service if admitted. *c.* A certificate of having attended a course of instruction for not less than three months at an ophthalmic hospital or the ophthalmic department of a general hospital, which course shall include instruction in the errors of refraction. *d.* Some evidence of having obtained a registrable qualification. *e.* Any European educated in India and every native of that country will be required to produce a certificate signed by the Director-General, Indian Medical Service, that he is a suitable person to hold a commission in the Indian Medical Service.

The Secretary of State for India reserves the right of deciding whether the candidate may be allowed to compete for a commission in His Majesty's Indian Medical Service.

The physical fitness of each candidate will be determined by a Board of Medical Officers who are required to certify that his vision is sufficiently good to enable him to pass the tests laid down by the regulations. Every candidate must also be free from all organic disease and from constitutional weakness or other disability likely to unfit him for military service in India. The physical examination is otherwise in all respects the same as that detailed under Royal Army Medical Corps. Candidates who pass the physical examination will be required to pay a fee of £1 before being permitted to compete. No candidate will be permitted to compete more than three times. More detailed regulations as to the physical requirements can be obtained on application to the India Office. Candidates may, if they wish, have a preliminary medical examination at the India Office on application and payment of 2 guineas.

On proving possession of the foregoing qualifications the candidate will be examined by the Examining Board in the following subjects and the highest number of marks attainable will be distributed as follows:—

	Marks.
1. Medicine, including therapeutics...	1200
2. Surgery, including diseases of the eye	1200
3. Applied anatomy and physiology...	600
4. Pathology and bacteriology	900
5. Midwifery and diseases of women and children	600
6. Materia medica, pharmacology, and toxicology	600

N.B.—The examination in medicine and surgery will be in part practical and will include operations on the dead body, the application of surgical apparatus, and the examination of medical and surgical patients at the bedside. No syllabus is issued in the subjects of the examination, but it will be conducted so as to test the general knowledge of the candidate in all subjects. No candidate shall be considered eligible who shall not have obtained at least *one third* of the marks obtainable in each of the above subjects and *one half* of the aggregate marks for all the subjects.

For the clinical examinations each candidate should provide himself with notebook, pencil, stethoscope, and ophthalmoscope. In drawing up reports on cases the following points should be observed, viz.: (*a*) A brief history of the case as given by patient, including such points in the family or personal history as have a distinct bearing on patient's case. (*b*) A detailed account of the subjective symptoms and physical signs elicited by the candidate's personal examination of the patient, noting the absence of any which might be expected to be present in a similar case. (*c*) Where there is any reasonable doubt in the mind of the candidate as to the exact diagnosis he is to give the alternatives, with his reasons for making the selection. (*d*) A commentary upon the case as a whole, pointing out the symptoms which may be considered typical and those which appear to be unusual or only accidental complications. (*e*) Suggestions as to treatment, both immediate and possibly necessary at a later date. (*f*) A forecast of the progress and probable termination of the case.

After passing this examination the successful candidates will be granted about a month's leave and will then be required to attend two successive courses of two months each at Aldershot and at the Royal Army Medical College, Millbank. The candidate's commission as a lieutenant will bear the date on which the result of the entrance examination is announced, but his rank will not be gazetted until he has passed the final examination, held at the conclusion of his period of instruction.

The course at Aldershot will include instruction in (1) internal economy, (2) Indian military law, (3) hospital administration, (4) stretcher and ambulance drill, (5) equitation, and (6) map reading.

The course at the Royal Army Medical College will be in (1) hygiene, (2) military and tropical medicine, (3) military surgery, and (4) pathology of diseases and injuries incidental to military and tropical service.

From the day on which the result of the entrance examination is announced lieutenants-on-probation will receive an allowance of 14*s.* per diem, with quarters (where quarters are not provided they will obtain the usual allowances of a subaltern in lieu thereof), to cover all costs of maintenance, and he will be required to provide himself with uniform (viz., the regulation undress uniform and mess dress of a Lieutenant of the Indian Medical Service, with Sam Browne belt; a detailed list of the uniform and articles required will be sent to each successful candidate).

A lieutenant-on-probation who is granted sick leave before the completion of his course of instruction and final admission to the service will receive pay at the rate of 10*s.* 6*d.* a day for the period of his sick leave.

Candidates will be required to conform to such rules of discipline as may from time to time be laid down.

At the conclusion of each course candidates will be required to pass an examination on the subjects taught, and in order to qualify each lieutenant on probation must obtain 50 per cent. of the total marks. If he fails to qualify in either of these examinations he will be liable to removal from the service, but if specially recommended he may be allowed to undergo the course or courses again under certain restrictions as to pay and position.

Officers appointed to the Indian Medical Service will be placed on one list, their position on it being determined by the combined results of the preliminary and final examinations. They will be liable for military employment in any part of India, but in view to future transfers to civil employment, they will stand posted to one of the following civil areas:—(1) Madras and Burma; (2) Bombay with Aden; (3) Upper Provinces—i.e., United Provinces, Punjab, and Central Provinces; and (4) Lower Provinces—i.e., Bengal, and Eastern Bengal and Assam. The allocation of officers to these areas of employment will be determined upon a consideration of all the circumstances, including, as far as possible, the candidate's own wishes. Officers transferred to civil employment, though ordinarily employed within the area to which they may have been assigned, will remain liable to employment elsewhere according to the exigencies of the service.

A lieutenant who, within a reasonable period before the date at which he would otherwise sail for India, furnishes proof of his election to a resident appointment at a recognised civil hospital,[3] may be seconded for a period not exceeding one year from the date on which he takes up such appointment, provided that he joins it within three months of passing his final examination and that he holds himself in readiness to sail for India within 14 days of the termination of the appointment. While seconded he will receive no pay from Indian funds, but his service towards promotion, increase of pay, and pension will reckon from the date borne on his commission. In special cases permission may be granted to lieutenants to delay their departure for India, in order to sit for some further medical examination. Lieutenants remaining in England under such circumstances will receive no pay for any period beyond two months from the date of leaving the Royal Army Medical College, unless the period elapsing before the day on which the majority of the lieutenants of the same seniority sail to India exceeds two months, in which case lieutenants allowed to remain in England will receive pay up to that day. In such cases pay will re-commence on the day of embarkation for India. All the provisions of this clause are subject to the general exigencies of the service. Before the commission of a lieutenant-on-probation is confirmed he must be registered under the Medical Acts in force at the time of his appointment. Candidates who have been specially employed in consequence of a national emergency, either as an officer, or in a position usually filled by an officer, will be allowed, under certain circumstances, to reckon such service towards pension.

Officers on appointment are, when possible, provided with passage to India by troop transport; when such accommodation is not available passage at the public expense is provided by steamer, or a passage allowance granted if preferred. A charge for messing during the voyage is made at the rate of 2*s.* a day. This payment does not include the cost of liquors, which are charged for as extras. Any officer who may neglect or refuse to proceed to India under the orders of the Secretary of State for India within two months from the date of terminating his course of instruction, or within 14 days of the termination of his hospital appointment if the Secretary of State has permitted him to hold one, will be considered as having forfeited his commission unless special circumstances shall justify a departure from this regulation.

A course of instruction in sanitary methods, rules, and regulations as carried out in Indian cantonments has recently been instituted for young officers of the Indian Medical Service and the Royal Army Medical Corps on first arrival in the country. The nature of the diseases to be combated, the social and religious customs and prejudices of the various races, and the limited resources of money and material make large modifications from European methods necessary. Lieutenants of both services are now posted on arrival either to Rawal Pindi, Poona, Lucknow, or Bangalore for one month for this course, which is carried out under the supervision of the senior medical officer and sanitary officer. The instructors are medical officers nominated by the principal medical officer, India, and demonstrations on various subjects are given by other officers, staff, engineer, and medical. The course consists of demonstrations and inspections in all parts of the lines of British and Indian troops, bazaars, Government dairies, bakeries, slaughter-houses, trade premises of dairymen, bakers, butchers, and aerated water manufacturers and dhobies' houses, market and water-supplies, methods of washing clothes, surface drainage, removal and disposal of sewage and refuse, antimalarial measures, disinfection, cantonment hospitals, control of venereal diseases, plague

[3] The following is a list of recognised Civil Hospitals.—England and Wales.—London: St. Bartholomew's Hospital, Charing Cross Hospital, Guy's Hospital, King's College Hospital, London Hospital, Middlesex Hospital, St. George's Hospital, St. Mary's Hospital, St. Thomas's Hospital, University College Hospital, and Westminster Hospital. Birmingham: General Hospital and Queen's Hospital. Bristol: Royal Infirmary and General Hospital. Cambridge: Addenbrooke's Hospital. Cardiff: Cardiff Infirmary. Leeds: General Infirmary. Liverpool: Royal Infirmary and Southern Infirmary. Manchester: Royal Infirmary. Newcastle-on-Tyne: Royal Infirmary. Oxford: Radcliffe Infirmary. Sheffield: Royal Infirmary and Royal Hospital. Scotland.—Aberdeen: Royal Infirmary. Dundee: Royal Infirmary. Edinburgh: Royal Infirmary. Glasgow: Royal Infirmary and Western Infirmary. Ireland.—Belfast: Royal Victoria Hospital. Cork: North Infirmary and South Infirmary. Dublin: Adelaide Hospital, City of Dublin Hospital, Jervis Street Hospital, Mater Misericordiæ Hospital, Meath Hospital, Mercer's Hospital, Richmond, Whitworth, and Hardwicke Hospital, St. Vincent's Hospital, Sir Patrick Dun's Hospital, and Dr. Steeven's Hospital. Galway: The County Hospital and the Union Hospital.

prevention, methods of hospital administration, &c. The officers under instruction thus have an opportunity of learning something of native customs and are encouraged to learn the vernacular, so as to be less dependent upon their subordinates when first put in responsible positions.

PROMOTION.

A Lieutenant is promoted to the rank of Captain on completing three years' full-pay service from the date of first commission, provided he passes an examination in military law and military medical organisation. Captains are promoted to the rank of Major *without examination* after 12 years' full-pay service; this promotion may be accelerated by six months in the case of officers who fulfil certain specified conditions. A Major is promoted to Lieutenant-Colonel *without examination* on completion of eight years' full-pay service in the rank of Major. All promotions to higher grades are given by selection for ability and merit. In case of distinguished service a medical officer may receive special promotion. The ages for compulsory retirement are the same as those for the Royal Army Medical Corps.

LEAVE RULES.

Officers of the Indian Medical Service below the rank of Colonel may be granted: 1. Privilege leave under such regulations as may from time to time be in force. 2. Leave out of India for no longer period than one year, capable of extension to two years' absence from duty, on the following pay for officers in military employment (officers in civil employment are entitled to higher rates): After arrival in India, on first appointment, £250 a year; after the commencement of the tenth year's service for pension, £300 a year; after the commencement of the fifteenth year's service for pension, £450 a year; after the commencement of the twentieth year's service for pension, £600 a year; and after the commencement of the twenty-fifth year's service for pension, £700 a year. 3. Leave in India, but for the period of one year only, on full military pay and half the staff pay of appointment. No extension of leave involving absence from duty for more than two years, whether taken in or out of India, can be granted except on specially urgent grounds and without pay. An officer unable on account of the state of his health to return to duty within the maximum period of two years' absence, unless he is specially granted an extension of leave without pay, is placed on temporary half-pay or the retired list, as the circumstances of the case may require. An officer is also liable to be placed on half-pay or the retired list should his health require an undue amount of leave, whether in or out of India. Leave may be granted at any time, but solely at the discretion of the civil or military authorities in India under whom an officer may be serving. Officers of the Administrative grades may be granted one period of leave not exceeding eight months during their tenure of appointment. Extra leave (known as study leave) may be granted to officers desirous of pursuing special courses of study at the rate of one month's leave for each year's service up to 12 months in all. During such leave the ordinary furlough pay will be given with lodging allowances of 4*s*., 6*s*., and 8*s*. a day for Lieutenants, Captains, and field officers respectively. An officer on leave is required to join at once on being recalled to duty unless certified by a medical board as unfit to do so.

PAY AND ALLOWANCES.

The rate of pay drawn by Lieutenants of the Indian Medical Service previous to arrival in India is 14*s*. a day, but a Lieutenant (1) who has been permitted by the Secretary of State to hold a hospital appointment will receive no pay while holding it; (2) who is detained by illness in this country will be paid at the rate of £250 a year from the date on which he would otherwise have embarked until the date of embarkation, and at the rate of 14*s*. a day during the voyage to India.

Pay at the above rate is issued in this country up to the date of embarkation, and an advance of two months' pay at the same rate is also made prior to embarkation, which is adjusted in India.

The following are the monthly rates of Indian pay drawn by officers of the Indian Medical Service from the date of their arrival in India (N.B.—1 rupee = 1*s*. 4*d*.):—

Rank.	Unemployed pay.	Grade pay.	Staff pay.	In officiating medical charge of a regiment.	In permanent medical charge of a regiment.
	Rs.	Rs.	Rs.	Rs.	Rs.
Lieutenant	420	350	150	425	500
Captain	475	400	150	475	550
,, after 5 years' service	475	450	150	525	600
,, after 7 years' service	—	500	150	575	650
,, after 10 years' service	—	550	150	625	700
Major	—	650	150	725	800
,, after 3 years' service as Major	—	750	150	825	900
Lieutenant-Colonel	—	900	350	1075	1250
,, ,, after 25 years' service	—	900	400	1100	1300
,, ,, specially selected for increased pay	—	1000	400	1200	1400

NOTES.—(*a*) Unemployed pay is drawn by officers of less than seven years' service who are not holding officiating or substantive charge of native regiments *provided* they have passed the examination in Hindustani known as the "Lower Standard." Officers of more than seven years' service draw grade pay alone when unemployed. Staff pay is the pay of certain special appointments and is drawn in addition to grade pay.

(*b*) Horse allowance is granted to officers in charge of cavalry regiments at the rate of Rs. 90 a month to Lieutenant-Colonels and Majors, and Rs. 60 a month Captains and Lieutenants.

Exchange compensation.—Under present arrangements, officers of the Indian Medical Service who are not statutory natives of India receive exchange compensation allowance to compensate them for the fall of the value of the rupee. The allowance consists of an addition to their salaries (subject to certain limitations) equal to half the difference between their salaries converted at (1) 1*s*. 6*d*. the rupee, and (2) the standard Government rate, which has been fixed at 1*s*. 4*d*. the rupee until further notice.

No officer, however employed, can draw more than the grade pay of his rank until he has passed the "Lower Standard."

Officers holding the principal administrative appointments and substantive military charges of the Indian Medical Service receive the following consolidated salaries:—

	Rs. per mensem.
Colonel, 16 (some in civil employ) from	1800 to 2500
Surgeon-General, 1 @	2200
,, 2 @	2500
,, (the Director-General I.M.S.) 1 @	3000

Specialist pay at the rate of Rs. 60 a month is granted to officers below the rank of Lieutenant-Colonel who may be appointed to certain posts.

Except in the administrative grades and in certain special appointments officers are not debarred from taking private practice as long as it does not interfere with their proper duties.

POSTS IN CIVIL EMPLOY.

A large number of posts in civil employ are ordinarily filled up from officers of the Indian Medical Service. Officers are required to perform two years' regimental duty in India before they can be considered eligible for civil employment. The principal appointments, together with the salaries attached to each, are stated in the following table:—

Description of appointment.	Approximate number of appointments in each class.	Salary per mensem. When held by a Lieutenant-Colonel.	When held by a Major.	When held by a Captain.	When held by a Lieutenant.
		Rs.	Rs.	Rs.	Rs.
Inspectors-General of Civil Hospitals	6	2250-2500	—	—	—
Sanitary Commissioner with Government of India	1	2000-2500	—	—	—
Inspectors-General of Prisons	8	1500-2000	—	—	—
Principals of Medical Colleges	2	1650-1800	1200-1300	—	—
Professorial Appointments	23	1500-1650	1050-1150	800-950	750
Sanitary Commissioners	6	1500-1800	—	—	—
Deputy Sanitary Commissioners	13	1350-1500	900-1000	650-800	600
Bacteriological Appointments	5	1500-1600	1050-1150	700-900	650
Superintendents of Central Lunatic Asylums	6	1400-1550	1050-1150	700-900	650
Superintendents of First Class Central Jails	5	1400-1550	950-1050	700-850	650
Superintendents of Second Class Central Jails	5	1300-1450	850-950	600-750	550
Civil Surgeoncies (First Class)	37	1300-1450	850-950	600-750	550
Civil Surgeoncies (Second Class)	171	1200-1350	750-850	500-650	450
Probationary Chemical Examiner	1	—	—	600-750	550
Officers deputed to plague duty	—	1450	1000-1100	750-900	700

An allowance of Rs. 100 per mensem is also granted, in addition, to the chief plague medical officers in certain provinces.

There are also six Chemical Examiners with Rs. 800-1650 per mensem and a number of Port Health Officers with Rs 750-1950 per mensem. Other appointments of Resident Surgeons and Physicians at hospitals, &c., are on salaries ranging from Rs. 700 to 1650 per mensem. There are also a certain number of appointments under the Political Department on salaries ranging from Rs. 450 to 1450 per mensem, exclusive of local allowances.

Qualified officers of the Medical Service are also eligible for appointments in the Assay and Mint Departments. The salaries of these appointments are from Rs. 600-2250 per mensem.

POSTS IN MILITARY EMPLOY.

Approximately half the highest administrative posts in military medical employ are allotted to the Indian Medical Service. These include the appointments of Deputy Principal Medical Officer of His Majesty's Forces in India and Secretary to the Principal Medical Officer of His Majesty's Forces in India. Half the appointments of Principal Medical Officers are to Divisions and Brigades, the other half being filled by Royal Army Medical Corps Officers. In the junior ranks half the appointments to military staff surgeoncies, the medical charge of cantonment hospitals and Staff Officers for medical mobilisation stores in each of the nine divisions of the Army are allotted to the Indian Medical Service and the other half to the Royal Army Medical Corps. The appointments of Medical Storekeepers to Government, which supply the needs of the Civil and Military Departments, are reserved for the Indian Medical Service alone.

TENURE OF OFFICE IN ADMINISTRATIVE GRADES.

The tenure of office of Surgeon-Generals and Colonels is limited to five years. Colonels, if not disqualified by age, are eligible either for employment for a second tour of duty in the same grade or for employment in the higher grade of Surgeon-General by promotion thereto.

Absence on leave in excess of eight months during a five years' tour of duty involves forfeiture of appointment.

Surgeon-Generals and Colonels, on vacating office at the expiration of the five years' tour of duty, are permitted to draw *in India* an unemployed salary of Rs. 1350 per mensem in the former, and Rs. 1000 in the latter case, for a period of six months from the date of their vacating office, after which they are placed while unemployed on the following scale of pay:—

—	Surgeon-General. Per diem.	Colonel. Per diem.
	£ s. d.	£ s. d.
After 30 years' service on full pay	2 5 0	1 14 0
,, 25 ,, ,, ,, ...	2 5 0	1 10 0
,, 20 ,, ,, ,, or on promotion, should this period of service not be completed...	2 0 0	1 8 0

A Surgeon-General or Colonel who has completed his term of service and has reverted to British pay may reside in Europe, at the same time qualifying for higher pension.

RETIRING PENSIONS AND HALF-PAY.

Officers of the Indian Medical Service will be allowed to retire on the following scale of pension on completion of the required periods of service:—

After 30 years' service for pension...	£700 per annum + £350 after three years' active employment in India as a Surgeon-General, or + £250 per annum after five years' active employment as Colonel or £125 after three years as a Colonel. Eight months' absence on leave is allowed to count towards actual service in those grades.
,, 27½ ,, ,, ,,	£600 per annum.
,, 25 ,, ,, ,,	£500 ,,
,, 20 ,, ,, ,,	£400 ,,
,, 17 ,, ,, ,,	£300 ,,

Service for pension counts from date of first commission and includes all leave taken under the leave rules.

Time (not exceeding one year) passed on temporary half-pay reckons as service for promotion and pension, in the case of an officer placed on half-pay on account of medical unfitness caused by duty, military or civil.

Officers of the Indian Medical Service are liable after retirement on pension before completing 30 years' service to recall to military duty in case of any great emergency arising up to 55 years of age.

All officers of the rank of Lieutenant-Colonel and Major are placed on the retired list at the age of 55, and all Surgeons-General and Colonels at the age of 60, but the Director-General is allowed to serve until he has attained the age of 62 years. If a Lieutenant-Colonel has been especially selected for increased pay and he attains the age of 55 years before he becomes entitled to the pension of 30 years' service he may be retained until the completion of such service, and in any special case, where it would appear to be for the good of the Service that an officer should continue in employment, he may be so continued, subject in each case to the sanction of the Secretary of State for India in Council.

Officers placed on temporary or permanent half-pay are granted half-pay at the following rates.

—	Rates of Half-pay.* Per diem.	Per annum.
	£ s. d.	£ s. d.
Under 5 years' service	0 6 0	109 10 0
After 5 ,, ...	0 8 0	146 0 0
,, 10 ,, ...	0 10 0	182 10 0
,, 15 ,, ...	0 13 6	246 7 6
Lieutenant-Colonel, under 3 years' service as such	1 0 0	365 0 0
Lieutenant-Colonel, over 3 years' service as such	1 7 6	501 17 6

* Officers cannot retire *in India* on half-pay.

An officer of less than three years' service, although he may be transferred to the half-pay list under the general conditions of transfer, will not be granted any half-pay unless his unfitness has been caused by service.

INVALID PENSIONS

An officer who has become incapacitated for further service in India on account of unfitness caused by duty may, after he has been two years on temporary half-pay, be granted an Invalid Pension on the following scale:—

	Per annum.
After 16 years' pension service	£272
,, 15 ,, ,, ,, ...	252
,, 14 ,, ,, ,, ...	232
,, 13 ,, ,, ,, ...	212
,, 12 ,, ,, ,, ...	192

WOUND PENSIONS.

Officers are entitled to the same allowances on account of wounds received in action and injuries sustained through the performance of military duty as are granted to combatant officers of His Majesty's Indian Military Forces holding the corresponding military rank.

FAMILY PENSIONS.

The claims to pension of widows and families of officers are treated under the provisions of such Royal Warrant regulating the grant of pensions to the widows and families of British officers as may be in force at the time being.

The widows and families of officers are also entitled to pensions under the Indian Service Family Pension Regulations, for the benefits of which all officers must, as a condition of their appointment, subscribe from the date of their arrival in India, except in the case of natives of India, for whom it is optional.

HONOURS AND REWARDS.

Officers of the Indian Medical Service are eligible for the military distinction of the Order of the Bath and for other Orders, British and Indian, and for good service pensions. Six of the most meritorious officers are named Honorary Physicians and six are named Honorary Surgeons to His Majesty. On appointment as Honorary Physician or Surgeon an officer below the rank of Colonel is promoted to that rank, remaining supernumerary until absorbed.

The Royal Army Medical Corps is at the present time, we believe, a fairly contented service, although for some time back there has been a feeling of uneasiness and uncertainty amongst all ranks, but more especially in the senior ranks, as to their future prospects by the adoption of a system of promotion by so-called selection. It is felt that the spirit of the Royal Warrant for promotion has been departed from, thereby causing a block in promotion affecting all ranks. We had reason to refer to this condition of affairs in an annotation on the appointment of the present Director-General (*vide* THE LANCET, April 2nd, 1910, p. 936). The limitation of the tenure of the colonel's appointments to four years has caused heartburnings in this grade, as after this period, unless promoted, men are now placed on half-pay. Again, the reduction of the cadre establishment of lieutenant-colonels has adversely affected a large number of majors who are well worthy of promotion to the next rank; and it is felt that the rules recently introduced allowing of accelerated promotion from the rank of captain to major have not worked as fairly as it was intended they should have. Dissatisfaction is also caused by the inconvenience caused to officers under 12 years' service having to remain in military hospitals on orderly duty as often as every fourth night for night duty and carry out their day work as well.

The improvements that have been introduced by Sir Alfred Keogh, K.C.B., the late Director-General, have, however, been so substantial, both as regards emolument and as affecting the professional and military status of medical officers, that it would be ungracious to refrain from acknowledging the generous spirit that has actuated the War Department authorities in their attitude to the medical service. We feel sure that the good results of this are being, and will continue to be, manifested in an improvement in the health and efficiency of the army at large.

In the Indian Medical Service the recent introduction of the increased pension (£600 per annum) after 27½ years' service was an important concession; there is still, however, a block in promotion, administrative rank, which used to come after 26 or 27 years' being now generally deferred until over 30 years' service; limitation of the period of service in administrative rank, as recently adopted in the Royal Army Medical Corps in the case of the colonel's grade, would probably be an improvement. The order that an officer of the Indian Medical Service must refer the question of his fees when above a certain low limit to the civil authority is most objectionable: it might necessitate the violation of professional secrecy and it is professionally degrading. The neglect of the rule that the office of principal medical officer to His Majesty's forces in India may be held by an officer of the Indian Medical Service is also felt to be a grievance. On the whole it can hardly be said that the Indian service at the present time offers the advantages over the Royal Army Medical Corps, either professional or pecuniary, that it formerly possessed. If the changes foreshadowed by the Secretary of State (see THE LANCET, May 29th, 1909, p. 1537, and July 10th, 1909, p. 91) be carried out, it seems to be inevitable that the status, prospects, and influence of the Indian Medical Service will be affected injuriously. The objections to these proposals are, however, we venture to think, so serious on the grounds of general policy that we abstain from any criticism on their effect on the prospects of the Indian Medical Service; there is, indeed no concrete proposal to criticise. It is, however, a dangerous thing to introduce a feeling of distrust and uncertainty into any public service; if the duties hitherto performed by the Indian Medical Service are

in future to be shared with other medical men not of that service, then the privileges and emoluments of the Indian Medical Service will inevitably be diminished, with the natural result that men of the highest class will come forward in fewer numbers to compete for the service, and the service generally will deteriorate. Such a result would be disastrous.

PUBLIC HEALTH DIPLOMAS.

INSTRUCTION FOR DIPLOMAS IN STATE MEDICINE.

RESOLUTIONS, designed with a view of ensuring "the possession of a distinctively high proficiency, scientific and practical, in all the branches of study which concern the public health," have been adopted at various times by the General Medical Council from 1902 to 1910. The rules require that—"(1) A period of not less than twelve months shall have elapsed between the attainment of a registrable qualification in Medicine, Surgery, and Midwifery and the admission of the candidate to any examination or any part thereof for a diploma in Sanitary Science, Public Health or State Medicine; (2) every candidate shall produce evidence that after obtaining a registrable qualification he has during six months received practical instruction in a laboratory, British or foreign, approved by the licensing body granting the diploma, in which chemistry, bacteriology, and the pathology of diseases of animals transmissible to man are taught; (3) every candidate shall produce evidence that, after obtaining a registrable qualification, he has during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under Rule 2) been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health administration either under a whole-time medical officer of health or a medical officer of health who is also a teacher in public health in a recognised school, or in England and Wales under the medical officer of health of a county or of a single sanitary district of 50,000, or in one or more districts of 30,000 in Scotland or Ireland, or under a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps, district, command, or division recognised by the General Medical Council, provided that the six months may be reduced to three if a candidate produces evidence that after obtaining a registrable qualification he has for three months (which shall be distinct from the period of laboratory instruction required under (2)) attended a course of recognised instruction in sanitary law, sanitary engineering, vital statistics, and other subjects bearing on Public Health administration given by a teacher in the Department of Public Health of a recognised medical school; (4) every candidate shall produce evidence that after having obtained a registrable qualification he has attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration; (5) the examination shall be conducted by examiners specially qualified, and shall comprise laboratory work as well as written and oral examination; (6) the rules (2), (3), and (4) as to study shall not apply to medical practitioners registered, or entitled to be registered, on or before Jan. 1st, 1890." It was enacted by Section 18 (2) of the Local Government Act [England and Wales], 1888, that after Jan. 1st, 1892, no such appointment (that of medical officer of health) may be made in any county, or in any district or combination of districts with a population of 50,000 or upwards, unless the officer—having, of course, qualifications in Medicine, Surgery, and Midwifery—is registered as the holder of a diploma in Sanitary Science, Public Health, or State Medicine under Section 21 of the Medical Act, 1886, or has during any three consecutive years preceding 1892 been medical officer of a district or combination of districts with a population of 20,000 at least, or has for three years previously to August 13th, 1888, been a medical officer or inspector of the Local Government Board. With the sanction of the Local Government Board the same person may be appointed medical officer for two or more districts.

The regulations in question as to study may be procured at the office of the General Medical Council in London.

University of London.—Sanitary Science is included under the head of State Medicine in the M.D. degree, and a certificate has to be produced showing that a course of practical instruction has been attended for the prescribed period, and that the course has included such chemical, microscopical, and meteorological work and exercises as more especially relate to sanitation. The attendance includes six months' practical instruction in a laboratory and six months' instruction in public health administration under the supervision of a medical officer of health, and three months' attendance on the practice of a hospital for infectious diseases. In connexion with this degree the various metropolitan medical schools hold regular classes under teachers of Public Health and Sanitary Science such instruction being also used to obtain the various diplomas of other Universities and of those Royal Corporations which grant them.

University of Oxford.—An examination, conducted partly in writing, partly *viva voce*, and in each subject partly practical, is held in Michaelmas and Easter Terms in the following subjects:—General Hygiene, General Pathology (with special relation to Infectious Diseases), the Laws relating to Public Health, Sanitary Engineering, Vital Statistics. The examination is in two parts, which may be taken together or separately; but Part I. must be passed either before or at the same examination as Part II. The fee for admission to the examination is £5 for each part. Successful candidates are entitled to receive the Diploma in Public Health. Any person whose name is on the Medical Register is admissible as a candidate for this examination provided (1) a period of not less than twelve months shall have elapsed between the attainment of registrable qualification and the time when he presents himself for either part of the examination; (2) he produce evidence of having, after obtaining a registrable qualification, attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration; (3) he produce evidence of having, after obtaining a registrable qualification, attended during a period of six months on one or more courses, approved by the Syndicate, of practical laboratory instruction in Chemistry, Bacteriology, and the Pathology of those diseases of animals that are transmissible to man; and (4) he produce evidence of having, after obtaining a registrable qualification, for six months (of which at least three months shall be distinct and separate from the period of laboratory instruction) been associated day by day in the duty, routine and special, of public health administration under the supervision of: (*a*) in England and Wales either the medical officer of health of a county or of a single sanitary district having a population of not less than 50,000 or a medical officer of health devoting his whole time to public health work; or (*b*) in Scotland or Ireland the medical officer of health of a county or of one or more sanitary districts having a population of not less than 30,000; or (*c*) a medical officer of health who is a teacher in the department of public health of a recognised medical school; or (*d*) a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps or district; or (*e*) in the British dominions outside the United Kingdom a medical officer of health of a sanitary district having a population of not less than 30,000 who himself holds a registrable diploma in public health. A certificate of an assistant officer of health of a county or a large sanitary district may be accepted, provided the medical officer of health of a county or district consents to the assistant officer giving such instruction. Any candidate who shall produce evidence that he has himself held an appointment as medical officer of health under conditions not requiring the possession of a special sanitary diploma shall be exempt from this regulation. A candidate who produces evidence that he has himself held, for a period of not less than three years, an appointment as medical officer of health of a sanitary district within the British dominions and having a population of not less than 15,000 shall be exempt from the provision of paragraph (4). The provisions as to previous study shall not apply to medical practitioners registered, or entitled to be registered, on or before Jan. 1st, 1890.

The First Part of the examination will comprise (*a*) a written paper of three hours in Chemistry and Physics; (*b*) a three hours' practical and *viva voce* examination in Chemistry and Physics. The Written Examination: the subjects will be: Air (Examination, Recognition and Determination of Impurities); Water (Rainfall, Sources and

Characters of Waters, Purification and Softening, Methods of Analysis, Distribution and Supply); Soils; Ventilation and Warming; Removal and Disposal of Sewage, House Refuse, Trade Refuse; Offensive Trades in their Chemical and Physical Aspects; Disinfectants; and the Examination of Foods by Chemical and Microscopical Methods. The Practical Examination: Candidates will be expected to exhibit a practical acquaintance with the ordinary methods of analysis and examination used in investigations concerning the subjects of the Written Examination.

The Second Part of the examination will consist of the following parts:—(*a*) Two written papers, each of three hours, dealing with General Hygiene (including Sanitary Engineering, Vital Statistics, and the Laws relating to Public Health); (*b*) a practical and *viva voce* examination in General Hygiene; (*c*) a written paper of three hours in Pathology and Bacteriology; and (*d*) a three hours' practical and *viva voce* examination in Pathology and Bacteriology. The subjects of these examinations will be as follows:—General Hygiene.—The Written Examination: The construction, drainage, heating, and ventilation of dwellings, schools, hospitals, and other similar buildings; the general sanitation of villages and towns; influences which exercise or threaten to exercise an injurious effect on health and physical development; the etiology, symptoms, and methods of prevention of infectious and other preventable disease; the effects of food, season, soil, and climate upon health and disease; dangerous and offensive trades; the inspection of food; the principles and methods of Vital Statistics; the laws, statutes, memoranda, &c., relating to Public Health. The Practical and *viva voce* Examination: Candidates will be required to show a practical knowledge of outdoor sanitary work. Pathology.—The Written Examination: The general pathology of infection by any organism (including a general knowledge of parasitology and helminthology), immunity, the principles of prophylactic and curative inoculations, serum therapeutics; the special pathological characters of the common human infections; the pathology of the diseases of animals transmissible to man; the conditions affecting the existence of infective agents outside the animal body; the pathology of diseases dependent on occupation. The Practical *viva voce* Examination: Candidates will be expected (*a*) to be able to demonstrate the existence of infective agents in pathological material; (*b*) to recognise cultures of the ordinary pathogenetic bacteria; (*c*) to exhibit a knowledge of the ordinary methods of bacteriological investigation, and of the special methods applicable to the examination of air, water, food, soil, and sewage; (*d*) to be familiar with the appearances presented by food which for bacteriological reasons is considered unfit for consumption.

Candidates in Part I. of the examination will be required to produce a certificate (1) of Laboratory Work in Chemistry as applied to Hygiene.

Candidates in Part II. will produce the following further certificates: (2) of a Practical Knowledge of the Duties, Routine and Special, of Public Health Administration; (3) of having had Practical Instruction in Bacteriology, and the Pathology of the Diseases of Animals transmissible to Man; and (4) of having attended the practice of a Hospital for Infectious Diseases at which opportunities are afforded for the study of the Methods of Administration. The courses of instruction in Chemistry applied to Hygiene and in Pathology and Bacteriology may be taken in the laboratories of any University in the United Kingdom, of any school of the University of London, of the Royal Army Medical College, of University College, Bristol, of any extramural school in Edinburgh, of Anderson's College, Glasgow, The Royal Institute of Public Health, and in any such other laboratory as may, in the case of any particular candidate, be approved of by the Regius Professor of Medicine. In the cases of certificates (2) and (4), the certificates shall be given in such form as shall satisfy the secretary to the Boards of Faculties that the candidate has conformed to the rules of the General Medical Council. The names of candidates must be sent to the Assistant Registrar of the University, Clarendon Building, Oxford, to whom applications for any further information should be addressed.

University of Cambridge.—Two examinations in so much of State Medicine as is comprised in the functions of medical officers of health will be held during the year 1910–11 in Cambridge. Each examination will consist of two parts. Part I. will begin on Wednesday, April 5th, and Wednesday, Oct. 4th, respectively; Part II. will begin on the Monday following, April 10th and Oct. 9th respectively. Any person whose name is on the Medical Register is admissible as a candidate for this examination provided (1) a period of not less than twelve months shall have elapsed between the attainment of a registrable qualification in medicine, surgery, and midwifery, and the admission of the candidate to either part of the examination; (2) he produce evidence of having, after obtaining a registrable qualification, attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration, including therein the methods of dealing with patients at their admission and discharge as well as in the wards, and the medical superintendence of the hospital generally; (3) he produce evidence of having, after obtaining a registrable qualification, attended during a period of six months one or more courses, approved by the Syndicate, of practical laboratory instruction in Chemistry, Bacteriology, and the Pathology of those diseases of animals that are transmissible to man; and (4) he produce evidence of having, after obtaining a registrable qualification, during six months[1] (of which at least three months shall be distinct and separate from the period of laboratory instruction required under paragraph 3) been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of public health administration under the supervision of: (*a*) in England and Wales either the medical officer of health of a county or of a single sanitary district having a population of not less than 50,000 or a medical officer of health devoting his whole time to public health work; or (*b*) in Scotland the medical officer of health of a county or counties or of one or more sanitary districts having a population of not less than 30,000; or (*c*) in Ireland the medical superintendent officer of health of a district or districts having a population of not less than 30,000; or (*d*) a medical officer of health who is also a teacher in the department of public health of a recognised medical school; or (*e*) a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps district or command, recognised for this purpose by the General Medical Council[2]; or (*f*) in the British dominions outside the United Kingdom a medical officer of health of a sanitary district having a population of not less than 30,000 who himself holds a registrable diploma in public health. The certificate of an assistant officer of health of a county or of a large sanitary district having a population of not less than 50,000 may be accepted as evidence under paragraph 4, provided the medical officer of health of the county or district in question permits the assistant officer to give the necessary instruction and to issue certificates. A candidate who produces evidence that he has himself held, for a period of not less than three years, an appointment as medical officer of health of a sanitary district within the British dominions and having a population of not less than 15,000 shall be exempt from the provisions of paragraph (4). The provisions as to previous study (paragraphs 2, 3, and 4) shall not apply to medical practitioners registered, or entitled to be registered, on or before Jan. 1st, 1890.

Examinations in Tropical Medicine and Hygiene.—Two Examinations in Tropical Medicine and Hygiene are conducted yearly by the State Medicine Syndicate of the University of Cambridge. The examinations are held in Cambridge early in January and in the middle of August. Each examination will extend over four days.

Any person whose name is on the Medical Register is admissible as a candidate to the examination provided (I.) that a period of not less than 12 months have elapsed

[1] This period of six months may be reduced to a period of three months (which must be distinct and separate from the period of Laboratory Instruction required under paragraph 3) in the case of any candidate who produces evidence that, after obtaining a registrable qualification, he has during three months attended a course or courses of instruction in sanitary law, sanitary engineering, vital statistics, and other subjects bearing on Public Health Administration, given by a teacher or teachers in the Department of Public Health of a recognised Medical School.

[2] Districts recognised by the General Medical Council:—Aldershot, Salisbury Plain, Southern and South-Eastern, Western, Dublin and Belfast, Cork, Chatham and Woolwich, Home, Eastern, North-Eastern and North-Western, Scottish, Gibraltar Command, Western Command (late Bombay), Northern Command (late Punjab), Eastern Command (late Bengal), and Secunderabad and Burma Divisions (late Madras Command).

between his attainment of a registrable qualification and his admission to the examination; (II.) that he produce evidence, satisfactory to the Syndicate, that he has diligently studied Pathology (including parasitology and bacteriology) in relation to Tropical Diseases, Clinical Medicine, and Surgery at a Hospital for Tropical Diseases, and Hygiene and Methods of Sanitation applicable to Tropical Climates. As evidence of study and attainments a candidate may present to the Syndicate (1) any dissertation, memoir, or other record of work carried out by himself on a subject connected with Tropical Medicine or Hygiene; (2) any Certificate or Diploma in Public Health or Sanitary Science he may have obtained from a recognised Examining Body. Such evidence will be considered by the Syndicate in determining whether he is qualified for admission to the examination and by the examiners in determining whether, if admitted, he shall be included in the list of successful candidates.

The examination will be partly oral and partly practical, and will have reference to the nature incidence, prevention, and treatment of the epidemic and other diseases prevalent in tropical countries. It will comprise the following subjects: 1. The methods of pathological and bacteriological investigation. The examination of the blood. The characters, diagnosis, and life-history of animal and vegetable parasites. The examination, chemical and microscopic, of poisonous or contaminated foods and waters. 2. The origin, pathology, propagation, distribution prevention, symptoms, diagnosis, and treatment of the epidemic, endemic, and other diseases of tropical climates, including—malaria; blackwater fever; trypanosomiasis; relapsing fever; dengue; yellow fever; plague; tetanus; beri-beri; dysentery and hepatic abscess, cholera, enteric fever, Malta fever, and specific diarrhœal affections of the tropics; diseases due to cestode and other worms; filariasis; bilharzial disease; specific boils, sores, and other cutaneous affections; mycetoma; ophthalmic affections of the tropics; affections caused by poisonous plants and animals and by poisoned weapons; sunstroke. 3. The general effects on health in the tropics of seasons and climate, soil, water, and food. Personal hygiene, acclimatisation. Principles of general hygiene, with special reference to food- and water-supplies, sites, dwellings, drainage, and the disposal of refuse. The sanitation of native quarters, camps, plantations, factories, hospitals, asylums, jails, pilgrim, and coolie ships. Principles and methods of disinfection.

Every candidate who passes the examination to the satisfaction of the examiners will receive from the University a diploma testifying to his knowledge and skill in tropical medicine and hygiene.

The fee for the examination is £9 9s., and all applications for information should be addressed to Professor G. H. F. Nuttall, F.R.S., 3, Cranmer-road, Cambridge.

The first part of the examination will have reference to the general principles of sanitary science and will comprise the following subjects. The elements of chemistry and physics: methods of chemical analysis and in particular the analysis of food, air, water, and sewage. The laws of heat and the elements of pneumatics, hydrostatics, and hydraulics in their application to warming, ventilation, water-supply, and drainage. The geological and other conditions determining the healthiness of sites for dwellings. Sources, storage, and purification of water-supply. The elements of meteorology in relation to health. The general principles and chemistry of sewage disposal. Disinfectants, their chemistry and use. The microscopical examination of foods and the detection of the commoner forms of contamination. The methods of bacteriological investigation and analysis. The bacteriology of air, water, food, and soil. The general pathology of infection and of the diseases of animals that are transmissible to man. The second part of the examination will have reference to State Medicine and to the applications of Pathology and Sanitary Science, and will comprise the following subjects. Laws and Statutes relating to Public Health.[3] The model by-laws of the Local Government Board. Sanitation of dwellings, schools, factories, and workshops, and of villages and towns. Inspection of slaughter-houses, cowsheds, &c. Inspection of meat and other articles of food. Principles of building construction in their application to dwellings, hospitals, and schools. The general principles and practice of sanitary engineering. General epidemiology, with special reference to the origin, pathology, symptoms, propagation, geographical distribution, and prevention of the epidemic, endemic, and other infective diseases both of temperate and of tropical climates. The methods applicable to the medical investigation of epidemics. Effects on health of overcrowding, vitiated air, impure water, polluted soils, and bad or insufficient food. Unwholesome trades and occupations and the diseases to which they give rise. Nuisances injurious or dangerous to health. The effects on health of season and climate. The principles and methods of vital statistics in relation to public health. (N.B.—The foregoing schedule is not to be understood as limiting the scope of the examination, which will include every branch of sanitary science. No candidate will be approved by the examiners who does not show a high proficiency in all the branches of study, scientific and practical, which bear upon the duties of medical officers of health.) The examinations in both parts will be oral and practical, as well as in writing. Candidates may present themselves for either part separately or for both together at their option; but the result of the examination in the case of any candidate will not be published until he has passed to the satisfaction of the examiners in both parts. Every candidate will be required to pay a fee of £6 6s. before admission or re-admission to *either part* of the examination, but candidates who have presented themselves before the year 1896 will be re-admitted to either part on payment of a fee of £5 5s. Every candidate who has passed both parts of the examination to the satisfaction of the examiners will receive a diploma testifying to his competent knowledge of what is required for the duties of a medical officer of health. Marks of distinction will be placed opposite the names of candidates who have specially distinguished themselves either in (1) the general principles of hygiene, (2) bacteriology, (3) chemistry in Part I of the examination, or (4) the second part of the examination. All applications for information respecting this examination and the courses of study should be addressed to J. E. Purvis, M.A., Assistant Secretary to the State Medicine Syndicate, the Chemical Laboratory, Pembroke-street, Cambridge. Candidates who desire to present themselves for the examination must send in their applications on forms supplied for the purpose and transmit them with the fees to Mr. J. W. Clark, Registrary, University of Cambridge, for the April examination on or before March 24th[4] and for the October examination on or before Sept. 22nd.[4] The prescribed certificate must be sent to the Registrary so as to reach him not later than 10 A.M. on March 30th and Oct. 1st respectively. Cheques should be crossed "Barclay and Co., Ltd." The fee for either part of the examination cannot be returned to any candidate who fails to present himself; but he will be entitled, without an additional fee, to be a candidate on one subsequent occasion. Candidates must before admission to either part of the examination produce evidence of having satisfied provisions (1), (2), and (3), and before admission to Part II. having satisfied provision (4), above mentioned. The following is a list of colleges and schools of medicine at which the courses of laboratory instruction have, for the purposes of this examination, been already approved by the State Medicine Syndicate: The University Laboratories, Cambridge; London Hospital Medical College; St. Bartholomew's Hospital Medical College; King's College, London; University College, London; the Royal Army Medical College, London; the Victoria University of Manchester; the University of Durham Medical School, Newcastle-on-Tyne; University of Birmingham; University of Liverpool; St. Mary's Hospital Medical College; Charing Cross Hospital College; Westminster Hospital Medical School; University College, Bristol; the University of Leeds; Guy's Hospital Medical School; St. Mungo's College, Glasgow; Edinburgh University; Middlesex Hospital Medical School; Royal Southern Hospital, Liverpool; Royal Colleges, Edinburgh; Surgeons' Hall, Edinburgh; Trinity College, Dublin; Queen's College, Belfast; St. Thomas's Hospital Medical School; University College, Cardiff; University of Sheffield; Medical School, Catholic University, Dublin; St. George's Hospital Medical School; University of Glasgow; University

[3] All candidates will be examined in the provisions of the English Statutes relating to public health, but any candidate will be given an opportunity of showing a special knowledge of other sanitary laws in operation within the British Empire, provided that, *when applying for admission to the examination, he give notice* of his desire and indicate the special law he proposes to offer.

[4] These dates vary slightly from year to year.

of Aberdeen; Anderson's College, Glasgow; the Royal Institute of Public Health; the Royal College of Surgeons in Ireland; the Government Bacteriological Laboratory, Hong-Kong; North East London Post Graduate College; and the Government Bacteriological Laboratory, Cairo.

University of Durham.—Sanitary Science is the special object of the degrees in Hygiene. Candidates for the degree of Bachelor of Hygiene (B.Hy.) must be at least twenty-two years of age, registered, and a graduate in Medicine of a recognised university, and at least twelve months shall have elapsed after the date when the candidates obtained their first registrable qualification in Medicine, Surgery, and Midwifery before presenting themselves for examination. They shall spend six months at Newcastle-upon-Tyne studying Comparative Pathology, Practical Bacteriology, Sanitary Chemistry, and Physics. They have to pass an examination in Sanitary Chemistry, Physics, Comparative Pathology, Sanitary Legislation, Vital Statistics, Nosology, Climatology, Meteorology, Distribution of Health and Disease, Sanitary Medicine and Practical Hygiene. The fee for the examination for the degree of B Hy. is 10 guineas and for the degree £6 6*s*. The examination is divided into two parts and candidates may present themselves for either part or both together at their option. Candidates for the degree of Doctor of Hygiene (D.Hy.) must have acquired the degree of Bachelor of Hygiene, must for two years subsequently have been engaged in practice as a medical officer of health, and must write an essay upon some practical hygienic subject. The fee for the examination for the degree of D.Hy. is £5 and for the degree £6 6*s*. The regulations for education and examination for the Diploma in Public Health (D.P H) are the same as those for the degree of Bachelor of Hygiene, except that the candidate is not required to be a graduate in Medicine of a recognised University and the course of study need not be passed at Newcastle-upon-Tyne. The fee for the examination and Diploma in Public Health is 10 guineas.

Victoria University of Manchester.—An examination in Public Health is held twice yearly under the following regulations: The examination is in two parts and is written, oral, and practical. Candidates before entering for either part of the examination must have held for not less than twelve months a registrable qualification in Medicine, Surgery, and Midwifery, and must present satisfactory certificates of having attended courses of instruction in Public Health in the University, or in a college or medical school recognised for this purpose by the University; of having attended, after obtaining a registrable qualification, during at least six months, practical instruction in a laboratory approved by the University, the courses including Chemistry as applied to Public Health, Bacteriology, and the Pathology of those diseases of animals which are communicable from animals to man; of having, after obtaining a registrable qualification, attended for three months the clinical practice of an approved hospital for infectious diseases; of having, after obtaining a registrable qualification, practically studied the duties of outdoor sanitary work for not less than six months under the medical officer of health of a county or of a large urban district. Candidates may present themselves for Parts I. and II. separately or at the same time, provided that no candidate be admitted to Part II. unless he has already passed in Part I. No candidate's name will be published until he has satisfied the examiners in both parts of the examination. The fee for each part is £5 5*s*. and must be paid on or before July 1st in each year. For any subsequent examination in the same part the fee will be £3 3*s*. Every candidate who has passed both parts of the examination to the satisfaction of the examiners, and who is legally registered, will receive a Diploma in Public Health. The examinations will begin about the end of March and the middle of July in each year.

University of Birmingham.—The University grants a degree of B.Sc. in Public Health and also a Diploma in the same subject on the following conditions: Graduates in Medicine of this University may become candidates for the degree of Bachelor of Science in Public Health, by conforming to all the requirements laid down for candidates for the Diploma in Public Health, except that after graduating in Medicine all courses of study must be taken out in the University and they must, in addition, have attended a three months' course of Geology in the University. The following are the regulations for Diploma in Public Health (general conditions):—1. All candidates must be registered under the Medical Act. 2. The examinations will be held in the months of March and June and will consist of two parts. No candidate will be allowed to pass Part II. until he has passed Part I. 3. Candidates may enter for Parts I. and II. separately or at the same time. 4. The examination in each part will be written, oral, and practical. 5. Candidates intending to present themselves for either part of the examination must give notice in writing to the registrar of the University on the date prescribed in the calendar. 6. The fee for each part of the examination is £5. The conditions of admission to the examinations are identical with those approved by the General Medical Council.

Officers of the Royal Army Medical Corps who have studied Chemistry and Bacteriology at the Staff College and pursued the further course of study approved by the General Medical Council in December, 1902, will be admitted to the Examination for the Diploma in Public Health, whether they have previously been students of the Birmingham School or not.

University of Liverpool.—The University grants a Diploma in Public Health and every facility is afforded for training in Sanitary Science and State Medicine. The curriculum for the D.P H. Examination demands (1) a six months' course of practical instruction in Sanitary Science; (2) a six months' course of laboratory instruction in Chemistry and Bacteriology; and (3) practical instruction in Infectious Diseases. Fees.—Chemistry, £5 5*s*; Bacteriology, £5 5*s*; Practical Sanitation, £15; Infectious Diseases, £3 3*s*. The courses may be taken out at any time and students are allowed to work daily in the laboratories.

University of Leeds.—The University grants a Diploma in Public Health and every facility is afforded for training in Sanitary Science and State Medicine. The examination, which is held twice in each year—namely, in June and December—is in two parts, and is written, oral, and practical. Candidates, before entering for the first part of the examination, must have held for not less than 12 months a registrable qualification in Medicine, Surgery, and Midwifery and must present satisfactory certificates (1) of having attended an approved course of instruction in Public Health in the University, or in a college or medical school recognised for this purpose by the University; (2) of having attended, after obtaining a registrable qualification during at least six months practical instruction in laboratories approved by the University, the courses including Chemistry as applied to Public Health, Bacteriology, and the Pathology of those diseases of animals which are communicable from animals to man. Candidates before entering the second part of the examination must present certificates (3) of having, after obtaining a registrable qualification, attended during not less than three months the clinical and administrative practice of a hospital for infectious diseases approved by the University; (4) of having, after obtaining a registrable qualification, during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under 2), been diligently engaged in acquiring a knowledge of the duties, routine and special, of Public Health administration under the supervision of (*a*) the medical officer of health of a county or of a single sanitary district having a population of not less than 50,000, or (*b*) a medical officer of health devoting his whole time to Public Health work, or (*c*) a medical officer of health who is also a teacher in the Department of Public Health of a recognised medical school, or (*d*) a sanitary staff officer of the Royal Army Medical Corps having charge of an Army Corps, district, or command recognised for the purpose by the General Medical Council, *or* of having attended during three months as required above, and during three months after obtaining a registrable qualification, having attended a course or courses of instruction, approved by the University, in subjects bearing on Public Health Administration. Candidates may present themselves for Parts I. and II. separately or at the same time, provided that no candidate be allowed to pass in Part II. unless he has already passed in Part I. No candidate's name will be published until he has satisfied the examiners in both parts of the examination. Fees—The fee for each part is £5 5*s*., and must be paid at least 14 days before the commencement of the examination. For any subsequent examination in the same part the fee will be £3 3*s*. Every candidate who has passed both parts of the examination and who is legally registered will receive a Diploma in Public Health. Medical practitioners registered or entitled to be

registered on or before Jan. 1st, 1890, may be exempted from producing the above required certificates of study.

University of Sheffield.—This University grants a Diploma in Public Health and courses of instruction have been arranged for it. These qualify for the Cambridge University Diploma, for that given by the Conjoint Board of England, and for the degree of M.D. in State Medicine of the University of London.

University of Edinburgh.—Two degrees in Science in the Department of Public Health are conferred by the University of Edinburgh, viz., Bachelor of Science in Public Health and Doctor of Science in Public Health. Candidates for the degree of B.Sc. in Public Health must be graduates in Medicine of a University of the United Kingdom, or of some other University recognised for the purpose, and must pass two examinations, for the first of which they must, after graduation in Medicine, have worked for at least 20 hours per week during a period of not less than eight months, of which at least five consecutive months must be in the Public Health Laboratory of the University of Edinburgh and the remainder either there or in a laboratory recognised by that University; they must also have attended courses of instruction in Physics and Geology in some Scottish University. Candidates are not admitted to the Second Examination sooner than six months after having passed the First Examination, nor sooner than 18 months after having taken their degree in Medicine, and they must have attended two separate courses in Public Health in some University of the United Kingdom or in such medical school or Indian, Colonial, or Foreign University as may be approved for the purpose by Edinburgh University, each course consisting of 40 lectures at least; one of which courses shall deal with medicine and the other with engineering, each in its relation to public health. They must also give evidence that, subsequent to graduation in medicine, (1) they have during three months, which must be separate and distinct from the period of laboratory instruction, been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health administration under the supervision of (*a*) a medical officer of health recognised for this purpose by the General Medical Council; (*b*) a sanitary staff officer of the Royal Army Medical Corps, having charge of an army corps, district, or command, recognised for this purpose by the General Medical Council; (2) that they have attended during three months the practice of a hospital for infectious diseases, at which opportunities are afforded for the study of methods of administration; and (3) that they have had three months' instruction in mensuration and drawing. The subjects of examination include Laboratory work, Physics, Geology, Medicine in its application to Public Health, Sanitation, Sanitary Law, and Vital Statistics. Graduates who have held the degree of B.Sc. in Public Health from the University of Edinburgh for a term of five years may offer themselves for the degree of D.Sc. in Public Health in that University. They must then present a Thesis and pass an examination in Public Health. The fees are £3 3*s*. for the First and £3 3*s*. for the Second B.Sc. Examinations, and £10 10*s*. for the degree of D.Sc.

University of Aberdeen.—The Diploma in Public Health (D.P.H.) is conferred only on graduates in Medicine of a University in the United Kingdom; and a period of not less than 12 months must elapse between medical graduation and entrance to the examination for the diploma. Every candidate must produce evidence of having attended, after graduation in Medicine, during a period of six months, practical instruction in Hygiene and Bacteriology in laboratories approved of by the University, together with having during six months (whereof three months must be distinct from the period of laboratory instruction) been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health administration under the medical officer of health of a county or large urban district. He must have regularly attended for three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration. He must also have obtained practical instruction in the drawing and interpretation of plans. Every candidate who is not a graduate in Medicine of this University must have attended a course of instruction in the University in one or more of the subjects embraced in the examination for the diploma. The diploma is conferred after an examination in Public Health held in March and July of each year. Candidates must send in their names, with the necessary fee, to the Secretary of the Medical Faculty a fortnight before the examination. The fee is £5 5*s*. The examination is conducted by specially qualified examiners appointed by the University. Candidates may enter for the whole examination at one period or they may enter for Part I. at one period and for Part II. at another and subsequent period.

University of Dublin (Trinity College).—The Diploma in Public Health is conferred, after examination, on the following conditions. The candidate must be a Doctor in Medicine or a Graduate in Medicine, Surgery, and Midwifery of Dublin, Oxford, or Cambridge. The candidate must have obtained a registrable qualification at least 12 months before the examination. The candidate must have completed (unless registered as a practitioner on or before Jan. 1st, 1890), subsequently to obtaining a registrable qualification, six months' practical instruction in a chemical and bacteriological laboratory or laboratories approved by the University, must have studied practically outdoor sanitary work for six months under an approved officer of health (at least three months of this period being distinct from the time spent in laboratory work), and must have spent three months in a fever hospital where opportunities are afforded for the study of methods of administration. The subjects of examination are:—Part I.: Chemistry, Bacteriology, Hygiene, Pathology (including methods of post-mortem examinations), Physics, and Meteorology. Part II.: Hygiene and Epidemiology, Vital Statistics, Public Health Law, and Sanitary Engineering and Reports.

National University of Ireland.—At this University there is a Diploma in Public Health and a B.Sc. in Public Health. The Diploma may be granted to matriculated students of the University who shall have completed approved courses of study and shall have passed the prescribed examinations, provided that it shall not be granted except to a registered medical practitioner.

Candidates may present themselves for the examination after an interval of not less than 12 months from the time of obtaining a registrable qualification in Medicine, Midwifery, and Surgery. Every candidate when entering for the examination must produce a certificate that, after obtaining a registrable qualification, he has attended during a period of six months practical instruction in a laboratory, approved by the University, in the subjects of Chemistry, Bacteriology, and the Pathology of the diseases of animals transmissible to man. Every candidate must also produce evidence that, after obtaining a registrable qualification, he has during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction mentioned above) been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health Administration, under the supervision of:—(*a*) In England and Wales, the medical officer of health of a county or of a single sanitary district having a population of not less than 50,000, or a medical officer of health devoting his whole time to public work; or (*b*) in Scotland, a medical officer of a county or counties, or of one or more sanitary districts having a population of not less than 30,000; or (*c*) in Ireland, a medical superintendent officer of health of a district or districts having a population of not less than 30,000; or (*d*) a medical officer of health who is also a teacher in the department of public health of a recognised medical school; or (*e*) a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps, district, or command, recognised for this purpose by the General Medical Council.[5] Every candidate must produce evidence that, after obtaining a registrable qualification, he has attended during three months the practice of a Hospital for Infectious Diseases at which opportunities are afforded for the study of methods of administration, which shall include the methods of

[5] The certificate of an assistant medical officer of health of a county or of a single sanitary district having a population of not less than 50,000 may be accepted as evidence of having received instruction in the practical duties and routine of a medical officer of health, provided the medical officer of health of the county or district in question permits the assistant officer to give the necessary instruction and to issue certificates. It is provided also that the period of six months may be reduced to a period of three months, which shall be distinct and separate from the period of laboratory instruction, in the case of any candidate who produces evidence that, after obtaining a registrable qualification, he has during three months attended a course or courses of instruction in Sanitary Law, Sanitary Engineering, Vital Statistics and other subjects bearing on public health administration, given by a teacher or teachers in the department of public health of a recognised medical school

dealing with patients at their admission and discharge, as well as in the wards, and the Medical Superintendence of the Hospital generally; and in the case of a Medical Officer of the Royal Army Medical Corps a certificate from a principal Medical Officer under whom he has served, stating that he has during a period of at least three months been diligently engaged in acquiring a practical knowledge of hospital administration in relation to Infectious Diseases.

The examination extends over not less than four days, one of which is devoted to practical work in a laboratory, and one to practical examination in, and reporting on, subjects which fall within the special out-door duties of a medical officer of health.[6] Candidates must answer questions in the following subjects: (1) Chemistry; (2) Meteorology and Climatology; (3) Sanitary Engineering and Architecture; (4) Bacteriology; and (5) Hygiene, Sanitary Law, and Vital Statistics. In connexion with this part of the examination candidates will be required to draw up a sanitary report upon the condition of dwelling-houses or other buildings selected for the purpose, and read plans, scales, sections, &c.

The examination consists of two parts, which may be passed separately or together. Part I. comprises the following subjects: Chemistry, Meteorology and Climatology, and Sanitary Engineering and Architecture. Part II. comprises the following subjects: Bacteriology, Hygiene, Sanitary Law, and Vital Statistics. The examination in each part will be oral and practical as well as written.

For the B.Sc. in Public Health, a candidate shall not be admitted unless he (*a*) shall have received the degrees of M.B., B.Ch., and B.A.O. at least one year previously; (*b*) shall have pursued an approved course of study in the Faculty of Medicine; and (*c*) shall have passed the prescribed examination. In addition to D.P.H. course the candidate will be required to take up (1) a Special Course of Pathology; (2) Bacteriology; and (3) Advanced Course in Hygiene. Each of these courses lasts three months.

University of Belfast.—A Diploma in Public Health is given by examination to every candidate, who must produce evidence that, after obtaining a registrable qualification, he has during six months received practical instruction in a laboratory or laboratories, British or foreign, approved by the Licensing Body granting the diplomas, in which Chemistry, Bacteriology, and the Pathology of the diseases of animals transmissible to man are taught.[7] He must also produce evidence that, after obtaining a registrable qualification, he has during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction mentioned above) been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health Administration, under the supervision of:—(*a*) In England and Wales, the medical officer of health of a county or of a single sanitary district having a population of not less than 50,000, or a medical officer of health devoting his whole time to public health work; or (*b*) in Scotland, a medical officer of a county or counties, or of one or more sanitary districts having a population of not less than 30,000; or (*c*) in Ireland, a medical superintendent officer of health of a district or districts having a population of not less than 30,000; or (*d*) in the British Dominions outside the United Kingdom, a medical officer of health of a sanitary district having a population of not less than 30,000, who himself holds a registrable Diploma in Public Health; or (*e*) a medical officer of health who is also a teacher in the department of public health of a recognised medical school; or (*f*) a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps, district, or command, recognised for this purpose by the General Medical Council.[8]

After obtaining a registrable qualification every candidate must produce evidence that he has attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration.[9] The examination must have extended over not less than four days, one of which shall have been devoted to practical work in a laboratory, and one to practical examination in, and reporting on, subjects which fall within the special outdoor duties of a medical officer of health.

Examinations.—One examination will be held yearly and will consist of two parts. Candidates may present themselves for either part separately, or for both parts together at their option. The first part of the examination will have reference to the general principles of sanitary science, and will comprise the following subjects: Principles and methods of volumetric and gravemetric chemical analysis and their application to the analysis of air, water, milk, butter, beverages (alcoholic), foods, &c., ventilation, warming, water-supply, and drainage. Conditions determining the healthiness of sites for dwellings. Sources, storage, and purification of drinking water. Elements of meteorology and climatology. Building construction in relation more particularly to dwellings, hospitals, and schools. The disposal and purification of sewage and the disposal of refuse. The general principles of sanitary engineering. Disinfectants. Methods of bacteriological investigation and analysis. Pathology of infection and of the diseases of animals transmissible to man. The second part of the examination will have reference to State Medicine and to the applications of Pathology and Sanitary Science, and will comprise generally the following subjects:—Laws and statutes relating to public health. Model By-laws of the Local Government Board. Sanitation of dwellings, schools, factories and workshops; and of villages and towns. Inspection of slaughter-houses, cow-sheds, &c. Inspection of meat and other articles of food. General epidemiology, with special reference to the origin, pathology, symptoms, propagation, geographical distribution, and prevention of the epidemic, endemic, and other infective diseases, both of temperate and tropical climates. The methods applicable to the medical investigation of epidemics. Effects of overcrowding on health, also those of vitiated air, impure water, polluted soils, and of bad or insufficient food. Unwholesome trades and occupations and the resulting diseases. Nuisances injurious or dangerous to health. Relations of season and climate to health. The principles and methods of vital statistics in relation to public health. All candidates will be examined in the provisions of the statutes relating to public health in Ireland, but any candidate will be given an opportunity of showing a special knowledge of other sanitary laws in operation within the British Empire, provided that, when applying for admission to the examination, he give notice of his desire and indicate the special law he proposes to offer.

The certificates of study required by the regulations must be produced before admission to the examination. The fee prescribed for each part of the examination is 1 guinea, and cannot be returned to any candidate who fails to present himself; but he will be entitled without an additional fee to be a candidate on one subsequent occasion.

Royal College of Physicians of London and the Royal College of Surgeons of England.—The following are the regulations for obtaining the Diploma in Public Health: Section 1: Candidates must be registered under the Medical Act. The examination consists of two parts. The fee for each part is £6 6*s.*[10] A candidate intending to present himself must give 14 days' written notice to the Secretary, at the Examination Hall, Victoria Embankment, W.C. A candidate registered under the Medical Act on or before Jan. 1st, 1890, will be admissible to Part I. of the examination on producing evidence of being at least 23 years of age, and to Part II. on producing evidence of being

[6] The rules as to study shall not apply to medical practitioners registered, or entitled to be registered, on or before Jan. 1st, 1890.

[7] Provided that the period of six months may be reduced to a period of three months (which shall be distinct and separate from the period of laboratory instruction) in the case of any candidate who produces evidence that, after obtaining a registrable qualification, he has during three months attended a course or courses of instruction in sanitary law, sanitary engineering, vital statistics, and other subjects bearing on public health administration, given by a teacher or teachers in the department of public health of a recognised medical school.

[8] The certificate of an assistant medical officer of health of a county or of a single sanitary district having a population of not less than 50,000 may be accepted as evidence, provided the medical officer of health of the county or district in question permits the assistant officer to give the necessary instructions and to issue certificates. A candidate who shall have produced evidence that he has himself held for a period of not less than three years an appointment as medical officer of health of a sanitary district within the British dominions, and having a population of not less than 15,000, may be exempted from the requirements of these regulations.

[9] Methods of administration shall include the methods of dealing with patients at their admission and discharge, as well as in the wards, and the medical superintendence of the hospital generally. In the case of a medical officer of the Royal Army Medical Corps a certificate from a principal medical officer under whom he has served, stating that he has during a period of at least three months been diligently engaged in acquiring a practical knowledge of hospital administration in relation to infectious diseases, may be accepted as evidence. These regulations as to study do not apply to medical practitioners registered or entitled to be registered on or before Jan. 1st, 1890.

[10] On and after July 1st, 1911, the fee for each part will be raised to £10 10*s.* for those candidates only who are not Diplomates of the College.

at least 24 years of age. A candidate registered under the Medical Act after Jan. 1st, 1890, will be admissible to examination in Part I. on producing evidence (1) of having been in possession of a registrable qualification in Medicine, Surgery, and Midwifery for at least 12 months; (2) of having attended, after obtaining such registrable qualification, practical instruction in a laboratory recognised by the Examining Board in England during a period of six months; and (3) of being at least 23 years of age. A candidate will be admitted to Part II. of the examination on producing evidence (1) of having been associated day by day in the duty, routine and special, of Public Health administration during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under Par. 2 for Part I.) under the supervision of a medical officer of health who fulfils certain conditions which can be ascertained on application to the secretary [11]; (2) of having attended the clinical practice of a hospital for infectious diseases recognised by the Examining Board in England, after obtaining his registrable qualification in Medicine, Surgery, and Midwifery; and (3) of being at least 24 years of age.

The Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow.—All candidates for the Diploma in Public Health must have been qualified for at least one year. Those qualified before 1890 do not require to produce evidence of attendance on any special courses. All other candidates must have attended, after qualifying, six months' practical instruction in a recognised laboratory or laboratories, and must have studied for six months the duties of outdoor sanitary work under the medical officer of health of a county or large urban district or a medical officer of health who is also a teacher of Sanitary Science in a Medical School, or a sanitary staff officer of the Royal Army Medical Corps having charge of an Army Corps District or command. There are two examinations, and candidates may enter for both at one period or for either separately. The First Examination includes (*a*) Laboratory Work (Chemistry and Bacteriology), (*b*) Physics, and (*c*) Meteorology; and the Second Examination embraces (*a*) Report on Premises visited, (*b*) Examination at Fever Hospital, (*c*) Examination at Public Abattoir, (*d*) Written and Oral Examinations on Epidemiology and Endemiology, (*e*) Vital Statistics and Sanitary Law, and (*f*) Practical Sanitation. The fee is 12 guineas for both examinations, or 6 guineas for either of them. A fee of 3 guineas is payable by rejected candidates for either examination. The examination is held twice yearly, in May and October. The published regulations provide detailed synopses of the subjects of examination. The Registrar for Edinburgh is Mr. James Robertson, solicitor, 54, George-square, and for Glasgow Mr. Alexander Duncan, LL.D., 242, St. Vincent-street.

Royal College of Physicians of Ireland and Royal College of Surgeons in Ireland.—Stated examinations for the Diploma in Public Health are held in the months of February, May, July, and November. A special examination for the diploma may, at the discretion of the Committee of Management (except during the months of August and September), be obtained on payment of £15 15*s.*, in addition to the ordinary fees mentioned below, and on giving notice at least one fortnight before the date of the proposed examination. Every candidate for the Diploma in Public Health must be a registered medical practitioner. (Candidates registered or entitled to be registered prior to January, 1890, are exempt from the rules as to study.) He must subsequently to qualification (1) receive six months' laboratory instruction in Chemistry, Bacteriology, and the Diseases of Animals transmissible to man; and (2) during six months practically study outdoor sanitary work under a medical officer of health and shall as an additional requirement attend a hospital for infectious diseases. Candidates are examined on four days, commencing on the first Monday of February, May, and November. Each candidate must return his name to the secretary of the Committee of Management under the Conjoint Scheme two weeks before the examination, and lodge with him a testimonial of character from a Fellow of either of the Colleges, or of the Royal Colleges of Physicians or Surgeons of London or Edinburgh. The fee for the examination is £10 10*s.* The examination for the Diploma in Public Health comprises the following subjects:—Hygiene, Chemistry, Meteorology and Climatology, Engineering, Vital Statistics, Sanitary Law, and Bacteriology. For further particulars apply to Alfred Miller, Secretary, Committee of Management; Office, Royal College of Physicians, Dublin.

[11] Provided that the period of six months may be reduced to a period of three months (which shall be distinct and separate from the period of laboratory instruction required under Regulation 2) in the case of any candidate who produces evidence that after obtaining a registrable qualification, he has during three months attended a course or courses of instruction in sanitary law, sanitary engineering, vital statistics, and other subjects bearing on public health administration given by a teacher or teachers in the department of public health of a recognised medical school.

DENTAL SURGERY.

ANYONE who is on the Medical Register is entitled to practise as a dentist, although he cannot register as such without the special licence; but it is of eminent advantage to take the L.D.S., otherwise few dental appointments at general or special hospitals or dispensaries are available, and, what is still more important, the manual dexterity requisite for the successful practice of dentistry can only be gained by long and careful training; and, this having been attained, it is but little trouble to pass the special examinations. The subjects beyond those included in the general qualification are—Dental Anatomy and Physiology (Human and Comparative), one course; a separate course of Dental Histology, including the preparation of microscopical sections; Dental Surgery, one course; a separate course of Practical Dental Surgery; a course of not less than five lectures on the Surgery of the Mouth; Dental Mechanics, one course; a course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns; Dental Metallurgy, one course; a course of Practical Dental Metallurgy; Practice of Dental Surgery at a recognised school, two years, and a certificate of having been engaged during a period of not less than two years in acquiring a knowledge of Dental Mechanics (this may be obtained by apprenticeship to a duly qualified dental practitioner or in the mechanical department of a recognised dental hospital). The Dental Schools in London are the Royal Dental Hospital of London, the National Dental Hospital, and Guy's Hospital Dental School. Most of the large provincial towns have now dental hospitals. A convenient arrangement by which the M.R.C.S., L.R.C.P., and L.D.S. can be taken is as follows:—The Preliminary Examination in General Education having been passed the student should commence his mechanical training at a dental school or with a qualified dentist and register as a dental and medical student. (This instruction, however, may be taken prior to the date of registration as a dental student.) During the mechanical tuition the student should receive instruction in Chemistry and Physics, together with Biology, and should pass the First Professional Examination for the Conjoint Diploma during his first year. He should then obtain instruction in Pharmacy and, having passed the examination, should complete his work for the First Professional Dental Examination and pass this at the end of his second year. On the completion of the mechanical training the student should join the general and dental hospitals and at the expiration of 18 months at the general hospital should pass the Second Examination for the Conjoint Diploma. The Final Examination for the L.D.S. can be taken at the end of two years from joining the hospital. The student during these two years will have been attending simultaneously both the general and dental hospitals. During the remainder of his time he should devote himself to Surgery, Medicine, Midwifery, &c., in which subjects he may be examined at the expiration of the required time from the passing of the Second Examination. When time is not a great object, a better course is to join only the general hospital at the completion of the mechanical tuition, and complete the Second Examination for the Conjoint Diploma and also his "Dressing" and "Clerking" appointments before commencing his surgical training at the Dental Hospital. The best course, however, is entirely to finish the curriculum for the M.R.C.S. and L.R.C.P. and then take the special Dental work. The regulations for the Dental Licence of the Royal Colleges of Ireland and Edinburgh and of the Faculty of Physicians and Surgeons of Glasgow are very similar to those of the English Colleges. The L.D.S. can also be obtained alone.

The Registration of Dental Students is carried on at the Medical Council Office in London in the same manner as the existing registration of medical students, and subject to the same regulations as regards Preliminary Examinations. Candidates for a diploma in Dental Surgery must produce certificates of having been engaged during four years in professional studies and of having received two years' instruction in mechanical dentistry. The two years of instruction in mechanical dentistry, or any part of them, may be taken by the dental student either before or after his registration as a student, but no portion of such mechanical instruction will be counted as one of the four years of professional study unless taken after registration.

It is now necessary for anyone practising Dental Surgery in this country to be on the Register and no foreign qualifications are admitted.

The Royal College of Surgeons of England grants a diploma in Dental Surgery under the following regulations, which apply to all candidates who have registered as dental students after Jan. 1st, 1897. Candidates are required to pass three examinations: the Preliminary Science Examination, the First Professional Examination, and the Second Professional Examination. I. Preliminary Science Examination.—Before admission to this examination the candidate must produce a certificate of having received instruction (which may be taken prior to the date of registration as a dental student) at a recognised institution in Chemistry, Physics, and Practical Chemistry. The examination consists of these subjects and is identical with Part I. of the First Examination of the Examining Board in England. II. The First Professional Examination.—The candidate must produce the following certificates: 1. Of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of mechanical dentistry, under the instruction (which may be taken prior to registration as a dental student) of a competent practitioner or under the direction of the superintendent of the mechanical department of a recognised dental hospital. 2. Of registration as a dental student by the General Medical Council. 3. Of having attended at a recognised Dental Hospital and School (*a*) a course of Lectures on Dental Metallurgy; (*b*) a course of Practical Dental Metallurgy; (*c*) a course of Lectures on Dental Mechanics; and (*d*) a course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns. Candidates may present themselves for the First Professional Examination on production of the required certificates. The Examination consists of Mechanical Dentistry and Dental Metallurgy, the examination in Dental Metallurgy being by written paper. III. The Second Professional Examination.—The candidate must produce the following certificates: 1. Of having been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a dental student. 2. Of having attended at a recognised dental hospital and school (*a*) a course of Dental Anatomy and Physiology; (*b*) a separate course of Dental Histology, including the preparation of microscopical sections; (*c*) a course of Dental Surgery; (*d*) a separate course of Practical Dental Surgery; (*e*) a course of not less than five lectures on the Surgery of the Mouth, which lectures may be given at a dental hospital or at a recognised medical school; in the latter case they may form part of the course of lectures on Surgery; (*f*) a course of Dental Materia Medica; and (*g*) a course of Dental Bacteriology. 3. Of having attended at a recognised dental hospital or in the dental department of a recognised general hospital the practice of Dental Surgery during two years. 4. Of having attended at a recognised medical school (*a*) a course of lectures on Anatomy, (*b*) a course of lectures on Physiology, (*c*) a separate Practical Course of Physiology, (*d*) a course of lectures on Surgery, and (*e*) a course of lectures on Medicine. The lectures on Surgery and Medicine must be attended after the completion of the courses of lectures on Anatomy and Physiology. 5. Of having performed Dissections at a recognised medical school during not less than 12 months. 6. Of having attended at a recognised hospital the practice of Surgery and Clinical Lectures on Surgery for twelve months during the ordinary sessions. 7. Of being 21 years of age. The certificates of professional study will be required to show that students have attended the courses of professional study to the satisfaction of their teachers. All students joining the Dental Hospitals after Oct. 1st, 1909, will be required to attend a course of practical instruction in the anæsthetics in common use in the practice of Dental Surgery. Candidates may present themselves for the Second Professional Examination after the completion of four years' professional study from the date of registration as a dental student and after the lapse of not less than six months from the date of passing the First Professional Examination. The Second Professional Examination consists of: Part I., General Anatomy and Physiology, General Surgery and Pathology; Part II., Dental Anatomy and Physiology, Dental Pathology and Surgery, and Practical Dental Surgery. The written examination in Part I. comprises General Anatomy and Physiology, General Pathology and Surgery, and in Part II., Dental Anatomy and Physiology, and Dental Pathology and Surgery. At the Practical Examination candidates may be examined (*a*) on the treatment of Dental Caries and may be required to prepare and fill cavities or to do any other operation in Dental Surgery (candidates must provide their own instruments); (*b*) on the Treatment of the various irregularities of Children's Teeth. There is also an Oral Examination. Candidates may take the two parts of the examination together or separately. Candidates must pass Part I. before proceeding to Part II. If they fail in Part I. they are not allowed to proceed with Part II. Exemption from the Preliminary Science Examination is granted to candidates who have passed an Examination in Chemistry and Physics for a degree in Medicine at a University in the United Kingdom, in India, or in a British colony. Exemption from Examination in Anatomy and Physiology is granted to candidates who have passed the Second Examination of the Examining Board in England or the corresponding Examination for any degree or qualification in medicine or surgery registrable under the Medical Act of 1886. Exemption from Examination in General Surgery and Pathology is granted to candidates who have passed the Examination in Surgery of the Examining Board in England or the corresponding Examinations of the Colleges and Universities above mentioned. The fee for the diploma is 20 guineas and is payable as follows:—Preliminary Science Examination, 3 guineas; First Professional Examination, 2 guineas; Second Professional Examination, 5 guineas; the balance to be paid on the completion of the Examinations. The Preliminary Science Examination is held in January, March, or April, July, and October in each year. The First and Second Professional Examinations are held in May and November in each year. Candidates must give 21 clear days' notice of their intention to present themselves for examination.

Royal College of Surgeons, Edinburgh.—For the Licence in Dental Surgery all candidates must pass a Preliminary Examination in General Knowledge and have their names inscribed in the Register of Dental Students of the General Medical Council. A copy of regulations giving a list of Preliminary Examinations recognised for obtaining this Licence, as well as of the subjects of the Professional Examinations, may be obtained from Mr. D. L. Eadie, Clerk to the Royal College of Surgeons, at 54, George-square, Edinburgh. Candidates must produce certificates of having, subsequently to the date of registration, been engaged for four years in professional studies and of three years' instruction in Mechanical Dentistry from a registered dental practitioner, except in the case of previously registered medical practitioners, when two years will be considered sufficient. Candidates must have attended the following curriculum: Anatomy, one course of six months; Practical Anatomy, twelve months; Chemistry, with Laboratory Instruction, one course of six months; Physics, with Laboratory Instruction, three months; Physiology, with Laboratory Instruction, one course of six months; Surgery, including Surgical Pathology, one course of six months; Medicine, including Medical Pathology, one course of six months; and attendance on the practice of a recognised general hospital, with Clinical Instruction on Surgery and Medicine, twelve months. These courses must have been attended at a University or in an established school of medicine or in a provincial school specially recognised by the College as qualifying for the diploma in Surgery. In addition to these courses candidates will be required to have attended in a recognised dental hospital, or with teachers recognised by the College, the following special courses of lectures and instruction: Dental Anatomy and Physiology (Human and Comparative) (not less than 24 lectures), with Practical Dental Histology, three months; Dental Surgery and Pathology (not less than 20 lectures), with the Materia Medica and Therapeutics applicable to Dental

Surgery, three months; Dental Mechanics (not less than 12 lectures), Theoretical and Practical, with Dental Metallurgy, three months—one course each; two years' attendance at a dental hospital or the dental department of a general hospital recognised by the College. Practical instruction in Mechanical Dentistry from a registered Dentist, or in the Mechanical Department of a recognised dental hospital and school, as apprentices or otherwise, either before or after registration, for *three* years. Certificates of attendance on such of these courses as may be respectively required will entitle candidates to appear either for the First Dental Examination or for the First and Second Examinations for the Triple Qualification, as they may select, and subject to the existing regulations for each qualification. Candidates who have passed the First and Second Examinations for the Triple Qualification will be exempt from the First Dental Examination and will have the advantage of being admissible either to the Final Dental Examination or to the subsequent Examination for the Triple Qualification, or to both. But the First Dental Examination will not be held as equivalent to the First and Second Triple Examinations and will admit to the Final Dental Examination only. Candidates who are Licentiates of this College or who may be registered medical practitioners will be required to produce certificates of attendance on the special subjects only and will be examined in these only for the dental diploma. First Professional Examination: The candidate must have attended the courses on Anatomy, Physiology, Chemistry, and Physics. The examination embraces Anatomy, Physiology, Chemistry, and Physics. The fee is £5 5*s*., for re-entry £3 3*s*. Second Examination: The candidate must have attended the remaining courses of the curriculum, must produce certificates showing that he is 21 years of age, and must pay a fee of £10 10*s*., for re-entry £5 5*s*. The examination embraces Surgery, Medicine, Therapeutics, and the special subjects of Dental Anatomy and Physiology, Dental Surgery and Pathology, and Dental Mechanics with Dental Metallurgy, with a Practical Examination. Candidates who claim exemption from the First Dental Examination on the ground of having passed the First and Second Triple Qualification Examinations or other recognised examinations will, before being admitted to the Second Dental Examination, be required to pay the total fee of £15 15*s*. payable for the dental diploma. Fees and schedules must be lodged not later than one week before the examination with Mr. D. L. Eadie, 54, George-square, Edinburgh, Clerk to the College.

Royal Faculty of Physicians and Surgeons of Glasgow.—The regulations as to certificates, curriculum, number, and subjects of examinations, fees, &c., are in effect similar to those of the Royal College of Surgeons of Edinburgh, but embrace Dental Bacteriology. Candidates can enter for the First Examination in three divisions, the first embracing Physics and Chemistry, the second Dental Metallurgy and Dental Mechanics, and the third Anatomy and Physiology. The examination in Dental Mechanics is practical; and there is at the Final Examination an examination in Practical Dentistry conducted in a dental hospital.

Royal College of Surgeons in Ireland.—Candidates for the Licence in Dental Surgery are required to pass two professional examinations, and to produce the following certificates before admission to the several examinations:—

First Dental Examination.—(A) Of having attended courses of instruction in the following subjects at an institution recognised for the purpose: (*a*) Theoretical Chemistry; (*b*) Practical Chemistry, including Metallurgy (three months); (*c*) Physics (six months). The courses for these certificates need not be completed within one year, nor need they run concurrently; and they may be commenced or attended before the candidate registers as a medical or dental student. (B) 1. Of having passed a recognised Preliminary Examination in general education, and of having been registered as a medical or dental student by the General Medical Council. 2. Of having, subsequently to registration as a dental or medical student, attended courses of instruction in the following subjects at a recognised school of medicine: (*a*) Anatomy Lectures. (*b*) Dissections with Demonstrations (the candidates must dissect the head and neck three times) (12 months). (*c*) Physiology, including Dental Physiology. Lectures (six months). (*d*) Practical Physiology and Histology, including Dental Physiology and Histology, Human and Comparative (three months).

Final Dental Examination.—1. Of having been engaged during a period of two years in acquiring a practical familiarity with the details of Mechanical Dentistry under the instruction of a registered dentist, or under the direction of the superintendent of the Mechanical Department of a recognised Dental Hospital where the arrangements for teaching Mechanical Dentistry are satisfactory to the Council of the College. This instruction may be commenced or attended before the candidate registers as a medical or dental student. 2. Of having passed the First Dental Examination. 3. Of having attended, at institutions recognised by the College for the purpose, the following courses of instruction: (*a*) Dental Surgery and Pathology, Orthodontia, and the Materia Medica and Therapeutics applicable to Dental Surgery. Lectures. Two courses. (*b*) Dental Mechanics. Lectures. Two courses. (*c*) Dental Anatomy. Lectures. One course. (*d*) The practice of a Dental Hospital, or of the Dental Department of a General Hospital. Two years. 4. Of having attended Clinical instructions at a recognised General Hospital during the ordinary teaching sessions (nine months). 5. Of having been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a medical or dental student. One year's *bonâ fide* apprenticeship with a registered dental practitioner, after being registered as a medical or dental student, may be counted as one of the four years of professional study. 6. Of being 21 years of age. All certificates of instruction and evidences of age and registration shall be submitted at least seven days before the commencement of the examination to the Registrar of the College.

In the First Dental Examination candidates will be examined in (A) Physics and Chemistry, including Practical Chemistry and Metallurgy. (B) Anatomy, Physiology, and Histology—General and Dental. All the subjects may be passed at the same time, or they may be passed in two groups, (A) and (B). Before presenting themselves for examination in either group, candidates must have attended the required courses of instruction in the subjects of the group for which they present themselves. The examination is partly written, partly *vivâ voce*, and partly practical.

In the Final Dental Examination candidates will be examined in General Pathology, Medicine, and Surgery; Dental Surgery, and Dental Pathology, with the Materia Medica and Therapeutics applicable to Dental Surgery; Dental Mechanics and Metallurgy; Orthodontia. Candidates must pass in all the subjects at one examination. The examination is partly written, partly *vivâ voce*, and partly practical, and includes the examination of patients and the performance of dental operations. Candidates are required to provide their own instruments and gold for filling. The First Dental Examination will commence on the first Mondays in the months of February, May, and November. The Final Dental Examination will commence on the second Mondays in the months of February, May, and November. The fee for the Diploma in Dental Surgery is 20 guineas, and is payable in the following manner, viz., First Dental Examination, Part (*a*), each admission, £3 3*s*.; Part (*b*), each admission, £4 4*s*.; Final, each admission, £5 5*s*.: amount payable before grant of Diploma, £8 8*s*.; total, £21. Fees for re-examination will not be allowed to count as part of the fee of £21 payable for the Diploma. Fees will not be refunded under any circumstances. Candidates must pay the fees for examinations from which they are exempted, unless when such exemptions have been granted in virtue of examinations passed before the Conjoint Board in Ireland.

University of Birmingham.—The teaching of Dentistry is undertaken by the University acting in association with the Birmingham Dental Hospital and the Birmingham Clinical Board, so that the students may fully qualify themselves for the Dental diploma (L.D.S.) of this and other universities and licensing bodies. There is a special and well-equipped Dental Museum and Laboratory. An Entrance Exhibition, value £37 10*s*., is awarded annually at the commencement of the winter session. The following are the regulations for Degrees in Dentistry:—1. The degrees conferred by the University are those of Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.). 2. All candidates for these degrees must pass the same Matriculation Examination as that required from candidates for Medical Degrees. 3. The degree of Bachelor of Dental Surgery is not conferred upon any candidate who has not obtained a Licence in Dental Surgery. The candidate is not eligible for the degree until a period of 12 months has elapsed from the passing of his examination for the Licence in Dental Surgery. Of this period at least six months must be spent in the dental

epartment of a general hospital approved by the University. . *A.* In addition to the Licence in Dental Surgery the andidate must produce evidence that he has attended the ourses required by medical students of the University in hc following subjects and passed the Examinations held in he same for Medical and Surgical Degrees: (*a*) Chemistry nd Practical Chemistry, (*b*) Physics and Practical Physics, (*c*) Elementary Biology, (*d*) Anatomy and Practical Anatomy, nd (*e*) Physiology and Practical Physiology. *B.* That he has ttended the following courses and passed the class examinaions in each of these subjects: (*f*) One Special Course of ectures on Medicine, (*g*) One Special Course of Lectures n Surgery, and (*h*) Pathology and Bacteriology. *C.* That ie has attended courses and passed the class examinaions in: (*k*) Dental Histology and Patho-Histology, (*l*) Comparative Dental Anatomy, and (*m*) Dental Surgery and Prosthetic Dentistry. *D.* That he has received instruction n the Clinical Examination of living cases at the dental lepartment of a general hospital for a period of not less than ix months. 5. The Final Examination will deal with the ubjects in Classes *C* and *D*. 6. On the expiration of 12 months from the date of passing the Examination for he Degree of Bachelor of Dental Surgery, the candilate will be eligible for that of Master of Dental Surgery. 7. For this degree candidates will be required to submit a hesis containing original work and investigations in some ubject connected with Dentistry, which thesis shall be submitted to examiners to be nominated by the Dental Advisory Board. The degree will be awarded or withheld according to the report of these examiners.

University of Durham.—A Diploma in Dental Surgery is granted. The conditions are as follows:—Every candidate for the Diploma must pass the necessary examination required by the General Medical Council for registration as a dental student There are four Examinations—viz., First, Second, Third, and Final. The subjects of the Examinations are:—*First:* (*a*) Chemistry; and (*b*) Physics. *Second:* (*a*) Dental Mechanics, Theoretical and Practical; (*b*) Dental Metallurgy; and (*c*) Dental Materia Medica. *Third:* (*a*) Anatomy; (*b*) Physiology and Histology; and (*c*) Dental Anatomy and Dental Histology. *Final:* (*a*) Surgery; (*b*) Dental Surgery, including Prosthetics and Orthodontia; (*c*) Operative Dental Surgery, Practical Examination; and (*d*) Dental Pathology and Bacteriology. A candidate before presenting himself for examination is required to furnish certificates of instruction in the following subjects, attended after registration as a dental student at recognised University Colleges, Medical or Dental Schools:—*First Examination:* Chemistry, lectures and practical work (nine months); and Physics, lectures and practical work (nine months). *Second Examination:* Dental Mechanics (not less than 20 lectures); Dental Metallurgy (not less than 12 lectures and 30 hours practical work); and Dental Materia Medica (not less than 12 lectures). *Third Examination:* Anatomy (six months); Dissections (12 months); Physiology (six months); Histology (three months); Dental Anatomy and Physiology (a course of not less than 20 lectures); and Dental Histology (not less than 12 lectures). *Final Examination:* Dental Hospital Practice (two years); General Hospital Practice (nine months); Medicine Lectures (six months); Surgery Lectures (six months); Dental Surgery and Pathology (a course of not less than 20 lectures); Dental Bacteriology (not less than 12 lectures); Operative Dental Surgery (not less than 12 lectures); and Anæsthetics (a course of not less than one month).

Before admission to the Final Examination each candidate must furnish evidence (1) of having attained the age of 21 years, (2) of having undergone a three years' pupilage in Mechanical Dentistry with a registered dentist, and (3) of having been engaged in professional study for at least four years subsequent to registration as a dental student. He must also sign such declaration as the University may determine, binding himself not to advertise for professional purposes. The examinations will be held concurrently with the medical examinations, and the fees payable by candidates are as follows: First Examination, £2 10*s.*; Second Examination, £2 10*s.*; Third Examination, £3 10*s.*; Final Examination, £3 10*s.*; fee for Diploma, £3; total, £15. For re-examination: First Examination, £1 10*s.*; Second Examination, £2; Third Examination, £2; Fourth Examination, £2. The practical examinations in dentistry will be conducted at the Newcastle Dental Hospital.

University of Leeds.—The degrees in Dental Surgery are Bachelor of Dental Surgery (B.Ch.D.) and Master of Dental Surgery (M.Ch.D.). All candidates for the degree of Bachelor of Dental Surgery shall be required to have passed the Matriculation examination, to have pursued thereafter approved courses of study for not less than five academic years, two of such years at least having been passed in the University subsequently to the date of passing Parts I. and II. of the first examination, and to have completed such period of pupilage or hospital attendance, or both, as may be prescribed by the regulations of the University. No candidate will be admitted to the degree who has not attained the age of 21 years on the day of graduation. All candidates are required to have passed the following examinations: the first examination, the second examination, and the final examination. Each examination will include practical work in the subjects offered. All candidates shall be required, before presenting themselves for examination, to furnish to the registrar certificates testifying that they have attended the prescribed courses of instruction in accordance with the regulations of the University in each of the subjects which they offer, and that they have fulfilled the other requirements of the ordinance and regulations in respect of such examination. Candidates for the diploma in Dental Surgery (L.D.S.) are required to present certificates showing that they have attained the age of 21 years, that they have attended courses of instruction approved by the University, extending over not less than four years, and that they have completed a pupilage of three years, two of such years at least having been taken before the First Professional examination. Candidates are required to satisfy the examiners in the several subjects of the following examinations: A preliminary examination in Arts; a preliminary examination in Science; the First Professional examination; and the Final examination. The classes in the Department of Dentistry will begin on Oct. 1st. The instruction in the Preliminary subjects of Chemistry, Physics, and Biology will be given at the University in College-road. The classes in the other subjects and the systematic courses in Dental subjects will be held in the School of Medicine of the University in Thoresby-place. The systematic instruction in the School of Dentistry will be given by the following:—Anatomy: Professor J. K. Jamieson. Physiology: Professor de B. Birch. Pathology: Professor A. S. Grünbaum. Medicine: Professor T. W. Griffith. Surgery: Professor R. L. Knaggs. Dental Surgery: Mr. A. G. G. Plumley. Operative Dental Surgery: Mr. T. S. Carter. Dental Anatomy and Physiology: Mr. A. Alan Forty. Dental Mechanics: Mr. C. Rippon. Dental Metallurgy: Mr. W. Lowson. Dental Materia Medica: Mr. J. H. Gough. The clinical instruction will be given in the Dental Department of the Leeds Public Dispensary, which is recognised by the University and by the Royal College of Surgeons. Applications for the prospectus should be made to the Dean of the Faculty of Medicine.

University of Liverpool (Liverpool Dental Hospital and School of Dental Surgery).—The University grants a diploma in Dental Surgery (L.D.S.) and degrees in Dental Surgery (B.D.S. and M.D.S.). The courses of systematic instruction are given in the University buildings, five minutes' walk from the Dental Hospital. The two institutions are now closely associated and the management of the curriculum is in the hands of the Board of Dental Studies. This school offers advantages to students which are not excelled anywhere for their practical nature. On Jan. 16th, 1909, the Earl of Derby laid the foundation stone of a new Dental Hospital in Pembroke-place, immediately opposite the University and Royal Infirmary, and covering a site of 672 square yards. The new Dental Hospital was opened in March, 1910, equipped in each department with every modern accessory. The ground floor contains a large waiting-hall, examination room, extraction and anæsthetic rooms, with special waiting and recovery rooms for each, staff room, and special room for nurses. A large lecture hall with library and museum, prosthetic room adjoining a lofty and well lighted laboratory divided into special rooms to accommodate over 30 pupils, and smaller laboratory for advanced students, plaster and smelting rooms, are situated on the first floor. The whole of the top floor (470 square yards) is devoted to conservation work, and lighted entirely from the north, and contains 50 pump operating chairs, each provided with water-flushed spittoons, brackets, and electric light. Provision is also made for the use of electric motors. Portions are reserved for porcelain inlay work, orthodontia, and the use of the demonstrator. The students' room, with cloak room and lavatories, is placed in the mezzanine immediately below the conservation (filling) room, and provision

is made in the basement for cycles. The whole of the building is heated by hot-water pipes and radiators, and specially ventilated and lighted throughout by electricity. The laboratory is in charge of a skilled dental mechanic under the supervision of the Warden, and students are able to undertake at the hospital the whole of their training in Mechanical Dentistry. The times of the lecture at the University are arranged to meet the convenience of students, thus allowing the maximum time for attendance upon Dental Hospital practice. The staff of the hospital includes 12 honorary Dental Surgeons, a Demonstrator, six Anæsthetists, two House Surgeons, and a Curator. Fees for two years' hospital practice, £21. Apprenticeship.—A limited number of apprentices are admitted annually. Fees for three years, £105. Further information may be had from the Warden, Mr. W. H. Gilmour. The various medical and dental lectures are given at the University of Liverpool. The Anatomical Department has been removed to a new building, comprising a spacious dissecting room and a museum which contains an excellent collection of skulls illustrative of human and comparative dental anatomy. Fees: The composition fees are as follows: Diploma course (L.D.S.): Composition fee £58 10*s.*, for diploma course of other licensing bodies £61 10*s.*, payable in two equal instalments the first on entry, the second 12 months later. Two years' instruction in Mechanical Dentistry (pupilage) and two years' Dental Hospital Practice (combined) £100. Degree course (B.D.S.): £67 10*s.* for all lectures (including Chemistry, Physics, and Zoology) in three instalments. Two years' dental hospital, £21; general hospital practice, £10 10*s.*; three years' mechanical instruction (pupilage), £105.

University of Manchester.—In the University of Manchester the Dental Department forms an integral part of the Faculty of Medicine. This contains a series of laboratories, lecture rooms, and museums which will bear comparison with those of any other school in the kingdom, and the fullest opportunities for study are offered to students preparing for any of the professional examinations. Instruction adapted to the requirements of students preparing for the B.D.S. Degree and the Dental Diplomas of the University, the Royal College of Surgeons of England, and of other licensing bodies is given during the Winter and Summer sessions both at the University and at the Dental Hospital of Manchester in Oxford-street. The required general hospital practice is taken at the Manchester Royal Infirmary. Women students are admitted to the classes in the Dental Department and for them a separate laboratory for Practical Anatomy and common rooms are provided. The composition fee for candidates for the University degree of Bachelor of Dental Surgery is 60 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. The composition fee for candidates for the University Diploma in Dentistry is 55 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. The composition fee for candidates for the L.D.S. of England is 60 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. Students who have already served their apprenticeship with a private practitioner, and who propose to complete the final portion of their attendance at the University and at an approved dental hospital, will be required to pay the composition fee in two equal instalments at the commencement of the first and second years of studentship. The payment of any of the above composition fees will entitle the student to attend all the classes in the following list which are required for their respective examinations. The composition fee does not include the hospital fees, the examination fees, the fee for the conferment of the degree or the diploma, the registration fee, nor the fees for chemicals and chemical apparatus (£1 1*s.*).

National University of Ireland.—This University grants the degrees of Bachelor of Dental Surgery and a degree of Master of Dental Surgery. A student may not be admitted to the Degree of Bachelor of Dental Surgery unless a period of not less than four years shall have elapsed from the date of his matriculation, during which period he must have pursued an approved course of study of not less than nine terms. For the degree of Bachelor of Dental Surgery candidates must pass four examinations, the first two being the same as those for the first and second examination in Medicine. The subjects of the third examination are Dental and Practical Pathology, Dental Surgery, and Dental Medicine, the subjects of the fourth being Dental Surgery and Pathology, Dental Mechanics, Operative Dentistry, Orthodontia, and Dental Materia Medica. A candidate for the degree of B.D.S. must produce evidence of apprenticeship to a registered dentist for a period of two years. A portion of or the entire period may be served before commencing study for the degree of B.D.S., but no portion so taken prior to commencement of study shall count as part of the four years of Dental Study. The degree of Master of Dental Surgery will not be granted until three years after the B.D.S. has been obtained.

TEACHING INSTITUTIONS IN DENTISTRY.

See also under Universities of Birmingham, Leeds, Liverpool, and Manchester above.

LONDON.

Royal Dental Hospital of London and School of Dental Surgery, Leicester-square.—The school provides the special dental education required by the Royal College of Surgeons for the Licence in Dental Surgery. The general part of the curriculum may be taken at any general hospital. The hospital is open from 9 A.M. to 5 P.M., there being one staff for the morning and another for the afternoon of each day. Pupils are received for the mechanical training recognised by the curriculum. The demonstrators at the commencement of each session give a course of lectures on Operative Dental Surgery. The five house surgeoncies are held for six months each and are open to all qualified students. The lecturers, in addition to their lectures, give special demonstrations on the Microscopy of Dental Anatomy and Dental Surgery. The lecturer on Dental Mechanics also gives practical demonstrations in the mechanical laboratory. There are two Entrance Scholarships in Chemistry and Physics of the value of £50 and £25 respectively. One Entrance Scholarship in Dental Mechanics and Metallurgy value £25, open to pupils of the Hospital only. One Entrance Scholarship of £25 in Dental Mechanics, open to pupils of private practitioners. The Saunders Scholarship awarded to second year students. The Storer Bennett Research Scholarship for Scientific Research in any branch of Dental Surgery, value £50, is awarded triennially. The Alfred Woodhouse Scholarship of £35 and the Robert Woodhouse Prize of £10 for Practical Dental Surgery. Prizes and certificates are awarded by the lecturers for the best examinations in the subjects of their respective courses, at the end of the summer and winter sessions. Consulting Physician: Sir Richard Douglas Powell, Bart. Consulting Dental Surgeons: Mr. T. Arnold Rogers, Mr. Morton Smale, and Mr. C. S. Tomes, F.R.S. Dental Surgeons: Mr. J. F. Colyer, Mr. W. H. Dolamore, Mr. G. Hern, Mr. J. G. Turner, Mr. N. G. Bennett, Mr. D. P. Gabell, Mr. A. Hopewell Smith, and Mr. H. Austen. Assistant Dental Surgeons: Mr. R. McKay, Mr. W. W. James, and Mr. F. Coleman. Anæsthetists: Dr. Dudley Buxton, Dr. R. J. Probyn-Williams, and Mr. H. Hilliard. Demonstrators: Mr. A. L. Whitehouse, Mr. L. C. Ball, Mr. F. Butler, Mr. G. H. Curtis, Mr. H. C. Colyer, and Mr. L. F. Guanziroli. Lecturers:—Dental Anatomy and Physiology (Human and Comparative): Mr. A. Hopewell Smith. Dental Surgery and Pathology: Mr. J. G. Turner. Operative Dental Surgery: Mr. W. H. Dol. Mechanical Dentistry: Mr. D. P. Gabell. Metallurgy in its application to Dental Purposes: Mr. P. Ellis Richards. Dental Bacteriology: Mr. Howard Mummery. Dental Materia Medica: Mr. H. A. Austen. Anæsthetics: Dr. Dudley Buxton. During the sessions the surgeons of the day will give demonstrations at stated hours. The house surgeons attend daily while the hospital is open. Fee for two years' hospital practice required by the curriculum, including lectures, £53 3*s.* in one payment, or £55 13*s.* in two yearly instalments. The curriculum requires two years to be passed at a General Hospital; the fee for this is about £60. Both hospitals can be attended simultaneously. The fee for the instruction in Dental Mechanics and the two years' hospital practice required by the curriculum is £150 if paid in one instalment, or 150 guineas if paid in three equal instalments. The fee for tuition in Mechanical Dentistry is 50 guineas per annum; for one year's hospital practice £21. The Dean attends at the hospital every Thursday morning from 9.45 to 11 o'clock, or he can be seen at other times by appointment. Letters to be addressed—The Dean, 32, Leicester-square. The Winter Session opens on Oct. 3rd.

National Dental Hospital and College.—Corner of Great Portland and Devonshire-streets, W.—Consulting

urgeon: Sir Victor Horsley. Consulting Dental Surgeon: r. Sidney Spokes. Visiting Physician: Dr. James Maughan. isiting Surgeon: Mr. E. W. Roughton. Dental Surgeons: r. K. W. Goadby, Mr. W. Weiss, Mr. Rushton, Mr. H. R. ing, Mr. A. E. Relph, and Mr. H. Creemer Cooper. ssistant Dental Surgeons: Mr. H. W. Turner and Dr. J. W. are. Anæsthetists: Mr. H. P. Noble, Mr. C. J. Ogle, Mr. ivian B. Orr, Dr. J. Maughan, Dr. Cecil Hughes, and Mr. R. . Delbruck. Lecturers:—Dental Anatomy and Physiology: r. J. W. Pare, Tuesdays and Thursdays, 5 P.M., in October, ovember, and December. Dental Metallurgy: Mr. Hugh andy, Tuesdays, 5 P.M., in January, February, and March, nd May, June, and July. Dental Mechanics: Mr. H. W. urner, Wednesdays, 5.30 P.M., in May, June, and July, and ctoher, November, and Decemher. Dental Materia Medica: r. Charles W. Glassington, Tuesdays, 6 P.M., October, ovemher, and December. Dental Surgery and Patho- gy: Mr. H. J. Relph, Thursdays, 5 P.M., during anuary, Fehruary, and March. Bacteriology of the Mouth: r. K. W. Goadhy, Tuesdays, 4 P.M., during May, une, and July. Practical courses to comply with ie R.C.S. curriculum are also held. The hospital lighted throughout hy electricity and warmed and entilated by approved methods. Clinical Lectures and emonstrations are given from time to time, and each student n entering passes through a preliminary course under a emonstrator. The stopping rooms have accommodation or 50 chairs. Dressershins in the extraction and stop- ing rooms are re-arranged every three months. Two ntrance Exhibitions, of the value of £40 and £20, re open for competition. Prizes are open for competition t the end of each course of lectures. Certificates of honour re also open in each class. The Rymer Medal for General roficiency, value £5, is awarded annually to the most eritorious student; and the Ash Prize, value £3 3*s*., for Thesis on a subject in Dental Surgery. Total fee for the pecial Lectures and Hospital Practice required, 40 guineas. composition fee covering the two years' mechanical upilage and the two years' hospital practice required y the Royal College of Surgeons, £120. Single ourses: Dental Anatomy and Physiology, Dental Surgery nd Pathology, Dental Mechanics, Dental Metallurgy, acteriology of the Mouth, Dental Materia Medica, emonstration of Dental Mechanics, £5 5*s*. each. Hos- ital Practice to registered practitioners by special per- nission of Committee, 12 months, £15 15*s*. Information especting the Hospital Practice and the College may be btained from the Dean, Mr. Sidney Spokes, who attends t the Hospital, Great Portland-street, on Tuesday mornings.

Guy's Hospital.—The work of the Dental Department egins daily at 9 A.M. both in the extraction rooms and in he conservation room. *The Extraction Rooms:* A new Dental Out-patient Department has been provided. There s ample accommodation for ordinary extractions and anæs- hetic extractions, together with waiting- and retiring-rooms. Patients are admitted between 8.45 and 9.30 A.M., and are een hy the dental surgeon for the day, the dental house urgeon, the assistant dental house surgeon, and the dressers. Such patients as are suitable for conservative treatment re transferred to the conservation room, taking with them a chart to indicate the treatment required. *The Conservation Room:* This room is open from 9 A.M. till 5 P.M. There are 55 Morrison chairs, each fitted with a saliva ejector, for the use of the Dressers, who, under the supervision of the Staff, perform the various operations of Dental Surgery. The members of the staff attend every morning and afternoon to give demonstrations and otherwise assist students in their work in the Conservation Room and Mechanical Lahoratory. Pupils in Dental Mechanics are received, and a graded, systematic, and full course of instruction, extending over two years, is carried out. The control and supervision of the *Pupils' Laboratory* is in the hands of the following staff: The Demonstrator of Dental Mechanics, Two Staff Demon- strators of Prosthetic Dentistry, Two Skilled Mechanics and their Assistants. Dental students have the opportunity of attending at this hospital the whole course of instruction required hy the examining board for the L.D.S. Eng., viz., two years' pupilage in dental mechanics, the special lectures and practice of the Dental Department and the general lectures and practice of the Medical School. The fees for these two courses may he paid separately or together, or they may he combined with the fees required to be paid for the course for a medical diploma. Students who enter for a medical as well as a dental diploma are allowed to pursue their study of Dentistry during any period of their medical course most convenient to themselves without further charge. Two Entrance Scholarships in Dental Mechanics of the value of £20 each are offered for competition annually, one in September and one in April, and prizes of the aggregate value of £47 are awarded for general proficiency and for skill in Practical Dentistry. Dental students are eligible for admission to the Residential College and enjoy the privileges of students in the Medical School.

Staff.—Consulting Dental Surgeon: Mr. F. Newland-Pedley. Dental Surgeons: Mr. W. A. Maggs, Mr. Wynne Rouw, Mr. H. L. Pillin, and Mr. M. F. Hopson. Assistant Dental Surgeons: Mr. J. B. Parfitt and Mr. J. L. Payne. Demonstrators of Practical Dentistry: Mr. E. B. Dowsett, Mr. F. J. Pearce, Mr. H. P. Aubrey, Mr. H. Chapman, and Mr. H. C. Malleson. Demonstrators of Prosthetic Dentistry: Mr. S. W. Charles and Mr. E. A. Tomes. Anæsthetists: Dr. H. F. Lancaster, Mr. C. J. Ogle, Mr. R. Davies-Colley, Dr. F. E Shipway, Mr. H. M. Page, and Mr. T. B. Layton. Lecturers:—Dental Anatomy and Physiology: Mr. Maggs. Dental Surgery and Pathology: Mr. Wynne Rouw. Operative Dental Surgery: Mr. Parfitt. Dental Mechanics: Mr. Payne. Practical Dental Mechanics: Mr. Pillin. Dental Materia Medica: Dr. A. P. Beddard. Dental Bacteriology: Dr. Eyre. Dental Microscopy: Mr. Dowsett and Mr. Kennaway. Metallurgy: Dr. J. Wade. Practical Dental Metallurgy: Mr. Hopson. Curator of Dental Museum: Mr. Dowsett. Dean: Dr. Eason.

London Hospital.—Mr. F. M. Farmer and Mr. J. Scott MacFarlane give practical instruction during the winter and summer sessions daily at 9 A.M. Dental Dressers are appointed every three months. A course of lectures, specially arranged for Medical students, will be delivered during May and June. The lectures will be supplemented by demonstrations of practical work and will be specially directed to meet the requirements of the medical practitioner. They will comprise a short description of the Anatomy and Physiology of the Teeth, special attention being given to Oral Hygiene; Irregularities of the Teeth, with special reference to cases which may be treated by surgical means as distinguished from those requiring dental appliances; Dental Caries and its Treatment, which will be specially directed to palliative dressings and simple fillings; Diseases of the Dental Pulp and Periosteum and their Treatment; and Neuralgia and other Affections arising from dental causes. The practical work will include exercises in the extraction of teeth and the preparation of cavities and simple fillings on models specially prepared. 7354 dental cases were treated during 1909.

PROVINCIAL.

University of Bristol.—Laboratories for instruction in Mechanical Dentistry and in Dental Metallurgy have been established in the University and Dental students can enter for the full curriculum at Bristol. The Lectures are delivered at the University. Practical instruction is given at the *Royal Infirmary* by Mr. Ackland and at the *General Hospital* by Mr. Dowling, both institutions being recognised by the Dental Board of the Royal College of Surgeons of England. Full information may be obtained of the Dean of the Medical Faculty, Professor Edward Fawcett, the University, Bristol.

Devon and Exeter Dental Hospital, 24, Southernhay, West, Exeter.—Established 1880.—The hospital is open daily (Sundays excepted) and patients are admitted between the hours of 9 and 11 A.M. Students attending the practice of the hospital must consider themselves strictly under the control of the medical officers and must not undertake any operation without the consent of the dental surgeon for the day. Hon. treasurer, Mr. J. M. Ackland; secretary, Mr. W. Alfred Hooker.

SCOTLAND.

The Incorporated Edinburgh Dental Hospital and School.—The Edinburgh Dental Hospital and School is located in a spacious and well-equipped building at 31, Chambers-street and offers special advantages to dental students. The General Courses required for the Dental Diploma may be taken in the Medical School of the Royal Colleges of Physicians and Surgeons or in the University schools. The hospital attendance and clinical instruction are taken at the Royal Infirmary. The University, Medical Schools, and Royal Infirmary are within three minutes' walk of the Dental Hospital. The special courses are taken in the hospital. The Dental Hospital practice, extending

over two years, affords a student ample opportunity for a full acquaintance with every branch of dentistry. The hospital admits a limited number of indentured pupils. They receive their instruction in Mechanical Dentistry concurrently with the general and special courses. A premium of 60 guineas is payable with each such pupil. The practice and lectnres of the hospital are recognised by, and qualify for, all the Licensing Boards. For the special classes, both theoretical and practical, required by dental students the directors have secured the services of an efficient staff of dental officers and lecturers. There will also be a course of demonstrations in Mechanical Dentistry. Students will receive iustruction in Practical Dental Mechanics under the mechanician. The cost of the hospital outfit of instruments is included in the Dental Hospital fee of £31 10*s*. The minimum cost of classes and Diploma for the whole course of dental instruction amounts to £90 7*s*. Those students who desire to take a Medical and Surgical Diploma in addition to the L.D.S. have in this school admirable facilities for so doing. The triple qualification of the Royal College of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow is recommended. The minimum cost of the Professional Education Triple Qualification and Licence in Dental Surgery amounts to £169 7*s*. The mechanical department is large and airy and furnished with all modern tools and appliances. The winter session commences Oct. 1st. The Museum is open to students for study. Further particulars can be obtained from the Dean, Mr. W. Guy.

Incorporated Glasgow Dental Hospital and School, 15, Dalhousie-street, Garnethill, Glasgow.—The winter session will begin in October and the lectures will be delivered as follows. In Dental Mechanics on Tuesday and Thursday at 7 P.M., by Dr. Hugh McKay, and in Dental Metallurgy on Monday and Wednesday at 7, by Mr. W. Bruce Hepburn, L.D.S. Fee for each of the above courses of lectures, £3 3*s*. Lectures will also be delivered on the following subjects: Dental Surgery and Pathology, by Mr. J. M. Macmillan; Dental Anatomy and Physiology, by Dr. W. Wallace; Dental Materia Medica and Therapeutics, by Mr. W. W. Dickie; Dental Bacteriology, by Mr. J. F. Webster; Anæsthetics, by Dr. R. Home Henderson; Operative Technique, by Mr. Adam Cubie. The lectures and instruction at the Glasgow Dental Hospital and School are recognised by all the licensing bodies in the United Kingdom. The fees for two years' hospital practice are £15 15*s*. Intending students before commencing to attend the lectures or hospital practice must produce evidence of having passed the preliminary examination prescribed by the regulations of the General Medical Council for registration of dental students. The hospital is opened daily from 5 to 7 P.M. (Saturdays excepted). Students may only enrol during the months of April or October. Summer session begins in April.

Glasgow Royal Infirmary (Dental Department).—Mr. Wm. Taylor attends at the Royal Infirmary at 3.30 P.M. on Mondays, Wednesdays, and Fridays, and gives a course of instruction in Dental Surgery on these days. The following course in the curriculum can be taken at St. Mungo's College: Anatomy, six months; Practical Anatomy, nine months; Physiology, six months; Chemistry, six months; Practical Chemistry with Metallurgy, three months; Surgery, six months; Medicine, six months; Materia Medica. three months; Clinical Surgery, six months; Dental Surgery, six months, and attendance for two years on the dental department of the hospital. The attendance on the Dental Clinic is free to students of the hospital. The winter session opens Monday, Oct. 17th.

ANCILLARY SCIENTIFIC INSTITUTIONS.

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY, London (including as integral parts the ROYAL COLLEGE OF SCIENCES, the ROYAL SCHOOL OF MINES, and the CITY AND GUILDS COLLEGE).—Mechanics and Mathematics: Professor J. Perry, F.R.S., Professor O. Henrici, F.R.S., and Dr. A. R. Willis. Biology: (Zoology) Professor A. Sedgwick, F.R.S., and Professor J. B. Farmer, M.A., F.R.S. (Botany). Chemistry: Professor Sir Edward Thorpe, F.R.S., Professor H. E. Armstrong, F.R.S, Dr. M. O. Forster, F.R.S., Dr. J. C. Philip, M.A., Ph.D., D.Sc, and Dr. G. T. Morgan, D.Sc, A.R.C.S. Physics: Professors H. L. Callendar, F.R.S., the Honourable R. J. Strutt, F.R.S., Dr. W. Watson, F.R.S., and Mr. A. Fowler, F.R.S. Geology Professor W. W. Watts, F.R.S., and Dr. Cullis. Metallurgy Professor W. A. Carlyle, M.E., M.I.M.M. Mining: Professor S. H. Cox, A.R.S.M., M.I.M.M. Civil and Mechanical Engineering: Professor W. E. Dalby, M.A. Electrical Engineering: Professor T. Mather, F.R.S. The College reopens on Tuesday, Oct. 4th, 1910. Communications should be addressed to the Secretary, Imperial College, South Kensington, S.W.

ELECTRICAL STANDARDIZING, TESTING, AND TRAINING INSTITUTION, Faraday House, 62–70, Southampton-row, W.C.—Principal, Alexander Russell, M.A. Cantab, D.Sc. Glasg., M.I.E.E. Instructor in Electrical Machine Design: W. Buchanan, B.Sc., A.R.C.S., and Whitworth Scholar, M.I.E.E. Instructor in Chemistry: Mr. J. Thomas, B.Sc. Lond. Instructor in Mechanical Engineering: Mr. Walter H. Bell, A.M.Inst.C.E. This institution, in addition to its ordinary course of training in electrical engineering, which occupies four years, also arranges for special instruction in all branches of electricity either by private tuition or by a specially arranged course at the College or at the works of the companies with which it is associated. There are Entrance Scholarships of the value of 150 and 100 guineas. Particulars may be obtained on application to the Secretary, Faraday House, Southampton-row, W.C. Session begins Sept. 20th.

SCHOOL OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—Chemistry and Physics: Professor Arthur W. Crossley, F.R.S. Botany: Mr. H. J. Jeffery, A.R.C.Sc. Pharmaceutics: Professor Greenish. The session commences on Wednesday, Oct. 5th, on which day the inaugural address will be delivered. Medical students, or pupils intending to enter the medical profession, are admitted to the lectures and laboratory work in any or all the courses. Certificates of instruction in this school are received by the Conjoint Board of the Royal Colleges. Application for admission to the school, or for further information, may be made to the Dean, Professor Crossley, F.R.S., 17, Bloomsbury-square, London, W.C.

ROYAL SANITARY INSTITUTE (WITH WHICH IS INCORPORATED THE PARKES MUSEUM), 90, Buckingham Palace-road, S.W.—The objects of the Royal Sanitary Institute are to promote the advancement of sanitary science in all or any of its branches and to diffuse knowledge relating thereto. It was founded in 1876 and incorporated in 1888. Sessional meetings are held in London and in various provincial centres from time to time for the reading of papers and for discnssions upon subjects connected with sanitary science, and lectures and demonstrations are arranged for sanitary officers; in sanitary science as applied to buildings and public works, suitable for foremen of works, builders, and those engaged in the allied trades; for army officers and professional men on food and meat inspection; for meat inspectors; for women health visitors and school nurses; and for school teachers. Examinations are held in London, provincial, and colonial centres and certificates of competency in sanitary knowledge are granted. The Parkes Museum, which is maintained by the institute, contains a great variety of the most approved forms of apparatus and appliances relating to health and domestic comfort. Professors and teachers of hygiene are allowed the use of the museum for demonstrations to their students on application to the committee. The museum is open daily free of charge from 9.30 A.M. to 5.30 P.M. and on Mondays to 8 P.M. There are also a large library of sanitary literature which contains, in addition to standard works on sanitary science, a collection of reports of medical officers of health over the whole country, and a reading room supplied with the principal sanitary periodicals, both home and foreign. The institute is under the patronage of the King, and the officers are: President, the Duke of Northumberland; chairman of council, Mr Louis Parkes, M.D., D.P.H.; treasurer, Colonel J. Lane Notter, R.A.M.C., M.A., M D.; registrar, Mr. A. Wynter Blyth, M.R C.S.; and secretary and director, Mr. E. White Wallis. The lecturers are Dr. C. Porter, Dr. G. F. McCleary, Dr. A. Wellesley Harris, Dr. E. J. Steegmann, Dr. E. Petronell Manby, Professor H. R. Kenwood, M.B., Dr. C. J. Thomas, Dr. H. Meredith Richards, Miss Alice Ravenhill, Colonel J. Lane Notter, R A.M.C., Mr. J. Osborne Smith, F.R.I.B.A., Mr. W. C. Tyndale, M.Inst.C.E., Mr. J. E. Worth, M.Inst. C.E., Mr. J. Wright Clarke, Professor H. Addison Woodruff. F.R.C.V.S, Professor Henry Adams, M.Inst.C.E., Mr. C Chambers Smith, Mr. Percy Griffiths, M.Inst.C.E., Mr. H. Percy Boulnois, M.Inst.C.E.,

Mr. Ainsworth Wilson, F.R.C.V.S., Mr. T. Dunlop Young, M.R.C.V.S., Mr. W. G. Barnes, M.R.C.V.S., Dr. Eric C. Pritchard, Dr. A. Beresford Kingsford, and Dr. Marian Hunter-Vaughan. For members the annual subscription is £2 2s. and for associates £1 1s, but members and associates holding certain qualifications only pay half the ordinary rate of subscription.

THE ROYAL INSTITUTE OF PUBLIC HEALTH.—The Royal Institute of Public Health, 37, Russell-square, W.C., was founded in the year 1886 with the object of obtaining the registration of public health diplomas and the further statutory requirement that all medical officers of health should possess such a qualification. In 1905 the Fellows and members of the Institute, now numbering nearly 2000, decided to create a central public health institution in London and have erected bacteriological, parasitological, and chemical laboratories in which researches of a public-health character are undertaken for municipal and other authorities and for private medical practitioners and the necessary training for obtaining public health diplomas is provided, together with a library, lecture room, and common room. The Royal Institute of Public Health is recognised by the University of London as a public educational institution, and its course of instruction for the diploma by the universities and other examining bodies of the United Kingdom. The Institute is under the patronage of His Majesty the King, and the Right Hon. Lord Strathcona and Mount Royal is President. The teaching staff consists of—the Principal, Professor William R. Smith, M.D., F.R.S.Ed.; demonstrators of chemistry, Ernest Garratt, M.Sc., and Alan Stewart, D.Sc.; demonstrator of bacteriology, Dr. R. Trommsdorff and Dr. A. E. Porter. Occasional lectures are given by eminent sanitarians. The Harben lecturer for 1910 was Lieutenant-Colonel Sir W. B. Leishman, R.A.M.C., and the Harben lecturer for 1911 is Professor Angelo Celli, M.D. Rome.

THE BRITISH MEDICAL MAN ABROAD.

THE conditions of medical practice have much altered in this country of late, as we have been able to point out in THE LANCET during the past decade. Professional incomes in many places have been lowered seriously by the unfair tactics of so-called medical aid societies, and the position of servant to which some of these associations would reduce their medical officer is one that liberally educated gentlemen do not welcome with enthusiasm. Improvement has taken place recently, but there is yet a time of severe struggle ahead. Again, the expenses of living have gone up for medical men as they have for all the middle and upper middle classes of this country, while more money is required to secure the necessary medical degrees and diplomas owing to the lengthy curriculum and the more expensive equipment. These facts account, though only partially, for the increased number of medical men who having obtained British medical qualifications desire to settle abroad. Other factors at work are the spirit of adventure, the feeling that in a new country there is more elbow-room and more chances of getting out of the ruck, and the increased facilities of transport. Newspapers and books galore nowadays make us familiar with life in other lands, while trains and steamers will take us all over the world in a short time and at a comparatively small expense. For this reason or that, the number of medical men who make inquiry from us as to their legal and professional position in a foreign country continues to increase, and in the following columns we attempt to give the information.

Speaking generally, our colonies make it easy for medical men from home to practise there, but the same is not the case on the continent, where there is an obvious tendency towards protection. But in the colonies there are not many openings for practice except for those who are willing to "rough" it and work hard. In Canada there are outlying districts where a good start might, perhaps, be obtained; but it must be remembered that Canada possesses advanced medical schools and is a sparsely populated country as yet. In Australia and New Zealand the prospect for the British practitioner is not greater than that which faces him in Great Britain. The medical profession is, in fact, crowded in all places at home and abroad where the circumstances of practice are favourable, and many practitioners who have gone out from the mother country have had to leave the colonies unsuccessful, or have been very hard pushed to make both ends meet. The graduates of the colonial universities every year tend to more than meet the usual vacancies. It used to be generally believed that, even where there was a large supply of general practitioners in the big colonial towns, there would still be good openings for men who have specialised in such branches of practice as the treatment of eye and ear diseases. This is partially true. There are openings of which good men can take advantage. But as a rule the openings in the colonies for new comers are in country districts where the medical man, besides being proficient in every branch of the profession, must be ready to lead a hard life. It is desirable that every colonial practitioner, intending to start in a country district, should be of good physique and not only able to ride but able to take care of his horses.

There are, of course, certain colonial appointments made in this country, particulars of which will be found in our columns. These appointments are sometimes made with permission to practise privately, and sometimes this is not permitted. Candidates for the post should apply to the Colonial Office for information, and their chances of success will be much increased by having passed through one of the schools of tropical medicine. The duties of colonial medical officers involve medical charge of a district, including as a rule the charge of a hospital and a lunatic asylum. The medical officers also supervise the sanitation of their districts, and as a rule give gratuitous attendance to all Government officials.

The United States of America form a rich and well-populated country to which, as speaking our language, it is natural for the British medical man to desire to go. The regulations for practice in the various States differ much, but it will be found that wherever the social conditions are pleasant and the opportunities for emoluments good there will be plenty of competition. There is an enormous number of medical men in the United States, and the British medical man contemplating starting in medical practice there will be prudent to make full inquiry before deciding on the locality, while his chance of success will be increased by his having some good introductions.

FRANCE.

The law that regulates the conditions of the practice of medicine in France is that of Nov. 30th, 1892, passed by the Senate and the Chamber of Deputies and signed by Carnot, President, and Poincaré, the Minister of Public Instruction, at that date:—

> No one may practise medicine in France unless he hold a diploma of the doctorate of medicine given by the French Government after examinations duly passed in the State institution of higher medical education.

The fifth article of this law specifically refers to foreigners:—

> Physicians who have taken their degree abroad, of whatever nationality, can only practise in France on condition of having obtained in France the degree of doctor of medicine.

This article was modified by a special decree, signed in July, 1893, referring to certain concessions to be made to such foreigners:—

> Physicians with a foreign degree who desire the French degree of doctor of medicine may obtain partial or complete dispensation of medical study and partial exemption from the examinations required. In no case will candidates be exempted from more than three examinations. Such exemption is accorded by the Minister of Public Instruction on the recommendation of the competent Faculty and the Committee of Public Education.

While this last quotation may be considered the actual state of the law in the formal sense of the word, further and much less liberal projects have since been considered by the legislative bodies and adopted in the form of *arrêt ministériel*, of *circulaire* issued by the Minister of Public Instruction, or of *décrêt* adopted by Parliament. Presumably too much advantage was taken of the generosity of the concessions of July, 1893, although it must be remembered that the exclusive policy since adopted is by no means aimed at English physicians, but rather against graduates of little-known universities the value of whose qualifications it is difficult to estimate. Be that as it may, in July, 1896, a certain number of exemptions were granted—among whom the writer was fortunate to find himself—and a circular was issued repealing—in substance—the concessions of 1893. No foreign qualifications were to be recognised as deserving of any dispensations, and physicians holding foreign degrees and desirous of practising medicine in France were obliged not only to matriculate as medical students, but also to produce evidence

of having obtained the French diploma of Bachelor in Classical Education (Arts and Philosophy) and the certificate in physical, chemical, and natural science.

The refusal that for the last ten years has almost invariably met the request made by foreign physicians for the right to practise in France is based upon this *arrêt ministériel*. Such requests are answered in the formula—"Depuis 1896, époque à laquelle il y a en une décision du Parlement, il n'est accordé aucune dispense aux étrangers désireux d'obtenir le diplôme d'etat: ils doivent tous produire le baccalauréat." The simplicity and clearness of this statement make translation unnecessary. This exclusive attitude was not, however, wholly maintained. While withdrawing nothing of the exclusiveness of 1896, the Minister could grant leave to foreigners to possess themselves of a formal academic medical degree which, while it entitled the possessor to call himself docteur en médecine de la Faculté de Paris (de Montpelier, Nancy, Bordeaux, Lille, Lyon, or Toulouse), gave him no right whatever to practise on French territory. To obtain this degree the postulant must formulate his request to the Minister on *papier timbré*, enclosing a copy of his birth certificate, his diplomas, and class certificates, formally translated. This honorary degree is readily obtained, and from English candidates it is probable that an appearance in so-called "final" subjects would alone be required.

Up to Dec. 29th, 1906, it was possible to transform the university or academic diploma into a Government degree by becoming a naturalised French subject. On account of the large number of young Russian girls who married in France and thereby became French and claimed the State diploma it has been decided to insist upon the possession by foreigners of the *license-ès-sciences* before this transformation can be granted. The fees for this degree amount to between £60 and £70.

The authority conferred on the Minister empowered him to exempt a certain number of students from the necessity of taking the diploma of bachelor, but this at last gave rise to such abuses that various associations both of medical men and of students protested against what they felt to be an injustice, as the proportion of exemptions was 20 per cent. in some of the faculties. A decree of May 12th, 1909, announced that no exemption would from that time be granted to any student. As, however, there was no desire to create obstacles for foreign students who come to Paris in continually increasing numbers, an official circular of June 2nd, 1909, stated that foreign students (but no others) might be granted exemption under the same circumstances as before, provided, that is to say, that their object is to take merely the diploma of the university and not the State diploma, which alone gives the right to practise medicine in France.

ITALY.

Some years ago the British and American consuls at the great centres of Italian population and commerce combined to form an estimate of the money brought annually into the kingdom and spent within its borders by the English-speaking world. That estimate, an approximate one necessarily, which they carefully checked by every qualifying consideration conceivable, amounted to £20,000,000 sterling, about one-third of Italy's whole revenue at that time. Since then the yearly influx of English and especially of American visitors has greatly increased, so that were a similar calculation to be made now the estimate would doubtless be still larger. This is a fact of great importance from whatever side it is contemplated, and it implies a large and continuous demand for English-speaking practitioners. It is true that of late years an active agitation, having for its object the expulsion of all foreign practitioners from the country, has been carried on by a section of the medical profession in Italy, but the movement has proved only partly successful, the public at large being well aware of the injury which the adoption of such a measure would inflict upon its interests. The British medical men and their American *confrères* form a prominent reason for Italy continually to attract that portion of the travelling public from which she derives so much of her annual revenue.

The question of the foreign practitioner in Italy, which for so many years has agitated medical circles in this country, has now been settled in what appears to be a fair and satisfactory manner by the Bill which has lately been passed by the Chamber of Deputies. Approved a year ago by the Senate, this Bill, on account of the fall of the Giolitti Ministry, has only now reached the Lower House and bee placed upon the statute book, under the title of "Sug Ordini dei Sanitari." The object of the Bill as described b its promoter, Signor Giolitti, is the institution of organise bodies for the legal representation of the sanitary classe similar to those already existing for the members of the leg profession. There was at first some idea of uniting th medical profession with veterinary surgeons and pharmacis for this purpose, but this proposal had to be abandone as, for obvious reasons, impracticable, and provision mad for a separate organisation for each of the three categories.

Article 1 of the new law therefore provides for the institu tion of an "Ordine dei Sanitari" in each province of th kingdom for each of the three classes above mentione This will be accomplished by means of a register for eac category, in which the names of all belonging to tha category must be inscribed.

According to Article 2, the enjoyment of civil an political rights and the possession of a professional diplom granted by a recognised institution of the kingdom are th qualifications necessary for registration. To this rule ther are certain exceptions. The first regards women with civ rights who have taken a professional diploma entitling ther to practise and whom it would therefore be illogical t exclude merely because of their political disability. Th same consideration holds good for foreigners who have civ rights and have taken a professional diploma in a competen institution of the kingdom. A third exception is made i favour of citizens and foreigners who have taken a pro fessional diploma abroad. But in this case registration i permitted only to the possessors of foreign diplomas fro universities in those states which grant reciprocal rights t diplomates of Italian universities. To obviate injustice bein done to foreign practitioners settled in Italy under the ol law, Article 10, however, authorises such persons to continu provisionally the exercise of their profession, but onl amongst foreigners, and only on condition that for more tha two years before the promulgation of the new law they hav been enrolled on the list of tax-payers paying taxes on thei professional income.

Article 3 makes inscription on the provincial register th *conditio sine quâ non* for the unrestricted exercise of the pro fession in the kingdom and in its colonies and protectorates except in the case of sanitary officials connected with th public administration of the State, or of the provinces, o of the communes, and who do not engage in private practice Such officials are only subject to the discipline of th "Ordine" in so far as may concern their private practice.

By Article 4 no one is permitted to inscribe contempo raneously in more than one provincial register, but hi name may be transferred from one register to another unde certain conditions.

Article 5 limits the registration fee to a maximum o 25 lire (£1).

Article 6 regulates the election of an excecutive council fo each provincial "Ordine."

Article 7 defines the duties, functions, and disciplinary powers of these executive councils. *Inter alia* they ar empowered when requested to intervene in disputes betwee members, or between a member and his client in regard t charges, fees, or other professional questions, to repres abuses, and to punish those guilty of unprofessiona conduct.

Articles 8 and 9 refer to appeals from the "Ordini" and their councils and to various details of administration.

As will be seen, the position of foreign practitioners is considerably affected by the new law. Up to the present the possession of a diploma from any recognised foreign medical school has been sufficient to secure all the privi leges the foreign practitioner wanted—namely, the right to practise amongst foreigners. Henceforward, only those whose respective countries grant reciprocity of medica practice to Italy will be admitted to exercise their pro fession there. As at the present moment Britain is the only foreign country which has conceded such reciprocity. British practitioners are the only ones whose foreign diplomas can gain them admission to the Italian register. The new law, therefore, affects the British practitioner in Italy favourably, since it gives him complete freedom to practise amongst Italians as well as amongst foreigners. Other foreign practitioners will be variously affected. None of them will be entitled to practise amongst Italians unless they possess an Italian diploma, but those already

tablished and who have been enrolled for more than two ears as contributories to the tax on professional incomes ill, for the present at all events, be allowed to continue ie exercise of their profession, although only amongst reigners. Finally, all eligible foreign practitioners must come members of the new "Ordini," or associations of the rovinces in which they practise, and consequently become ibject to the discipline of these "Ordini." Altogether, the ew regulations must be acknowledged to be equitable and ist, even by those—and they are very few in number—on hom they fall most heavily. New arrivals, indeed, possess- ig diplomas of countries which do not grant reciprocity to aly will be excluded henceforth from practice, but even to iese it remains open to qualify themselves by taking an talian degree, which is still obtainable under comparatively asy conditions.

As to the career Italy offers, it is in some respects etter, in other respects worse, than it was some years ago. t is better inasmuch as Italian medicine and surgery have reatly improved of late years, and the foreign practitioner, articularly in those cities which are the seat of medical chools, is not in danger, as he used to be, of getting out of uch with the advance of the profession. Indeed, the British medical man may keep himself *au courant* with the atest accession to medical doctrine as conveniently in the talian as in any other kingdom. By graduating at one or ther of the many Italian schools he can obtain the *entrée* to he medical societies, the congresses (provincial and national), he hospitals, the class-rooms open to the native practi- ioners, and also become entitled to the reduced railway and teamboat fares conceded on occasion to all duly qualified talians. Indeed, he is generally welcome to them on the round of professional *fratellanza* (brotherhood), but the raduation above indicated gives him a right to what he ould otherwise owe merely to courtesy. On the other hand, he career is less favourable than formerly on account of he larger number of English-speaking competitors whom it ow attracts and who comprise not only Englishmen and Americans, but Swiss, Germans, and other nationalities s well. Their harvest (generally limited to three or four nonths of the "season") entails immense, almost excessive, ctivity, compensating the comparative idleness of the nonths before and after it. Upon this short period of emunerative work the practitioner must therefore rely to arry him through the entire year, and with heavy expenses o meet for housekeeping, house rent, servants' wages, axes, &c., it becomes a serious matter for him when he "season," as it often happens, turns out a poor one. Nevertheless, for a well-qualified man with sufficient private means to tide him over the first years, and who is possessed of good social introductions, there are always openings where he can still find a profitable *clientèle*, although his possible income at any of the smaller health or pleasure resorts will necessarily be limited.

One word of warning in conclusion. Let anyone who is tempted to buy a practice in Italy proceed with even more caution than he would in negotiating in his own country. In the first place, the foreign population of nearly all Italian towns is largely a floating one, composed chiefly of people who remain for but a few weeks, often for only a few days in one resort, and many of whom never come back again. The vendor of a practice in a place of this sort will have many patients on his books whom he cannot possibly introduce in any way to his successor, and a good many others whom he may introduce but who will never return to the locality, or at best do so only at long intervals, and can therefore form no permanent or profitable part of his successor's *clientèle*. His hold upon the practice is, in fact, of a peculiarly personal kind and cannot, in the nature of things, be easily transferred to another. Secondly, the purchaser himself must be a man fitted for this particular class of work, or he may discover too late that he cannot make it pay and that the capital which he has expended bas been spent to no purpose. A similar remark is doubtless true with regard to all such transactions, but it applies with special force in the circumstances now under consideration, where the physician has to deal with patients of such varying types and diverse characteristics as are to be met with amongst the travelling public in an Italian health or pleasure resort. To achieve a full measure of success the foreign practitioner in Italy must not only be a man of good all-round attainments, conversant with all branches of his profession, but should be possessed of an unusual share of sympathy and tact, for the exercise of which he will have daily scope amongst patients on whom illness falls with peculiar sadness, alone, as they so often are, and helpless in a foreign land.

GERMANY.

Foreign diplomas are not legally recognised in Germany as entitling their owners to practise medicine, so that British medical men desiring to settle in that country have to attend all the classes and pass all the examinations. A young German before commencing the study of medicine must pass an *Abiturienten-Examen* requiring a knowledge of French, Latin, Greek, mathematics, history, and theology. Or the examination of a *Real-Gymnasium* or an *Oberrealschule* may be passed. In the latter event more stress is laid on modern languages, mathematics, and natural history, and English is required instead of Greek. Foreigners have, as a rule, to pass this examination, but if they have already passed a similar one in their own country they may be exempted from it by a special order to be obtained from the Minister of Public Instruction for each individual case. Medicine can only be studied at a university; the curriculum lasts five years, after the second of which the examination called the *Tentamen Physicum* must be passed; it includes anatomy, physiology, chemistry, physics, and natural history. After the end of the fifth year the student presents himself for the "State Examination," which is practical as well as theoretical, and includes medicine, surgery, obstetrics, gynæcology, pathology, materia medica, and hygiene. After passing the State examination the medical man, previously to obtaining his qualification, has to perform his practical year as clerk and dresser at a university clinic or a recognised hospital. If the medical man wishes to have the title of "doctor" he has to pass another examination, which is little more than a formality, but the degree of doctor without the State examination does not legally confer the right to practise. This title of doctor is granted by every German university to foreigners, but the conditions differ according to the university. Some universities demand a special course of study and others do not, and the intending candidate must in every case make inquiries of the authorities. The law does not allow qualified British practitioners any exceptional facilities in passing the examinations; the time of study may possibly be made a little less than five years for those who have already studied abroad, but a special order, very difficult to obtain, is always required for this purpose. A thorough knowledge of German is essential. The fees for lectures are at least £130 and the examination fees about £12. The fees for the degree of M.D. vary from £10 to £20, being highest at Berlin University, which is the degree that is most popular with alien medical men. There is sometimes no prohibition set against holders of British diplomas practising in Germany provided they do not make use of any professional titles resembling those of qualified German medical men. Medical men practising in this way must, however, understand that the law regards them as unqualified and that they have to comply with certain conditions which are rather vexing. A detailed description of these conditions may be found in THE LANCET, 1909, vol. ii., p. 183.

AUSTRIA-HUNGARY.

In order that foreigners may legally practise medicine in Austria it is necessary for them to become naturalised Austrian subjects, which necessitates five years' residence in the country. For such instances a new regulation is being drawn up, but it is not yet sanctioned. In special cases the Minister of the Interior, conjointly with the Minister of Education, may grant exemptions from that rule and may permit foreign holders of diplomas to practise in Austria if they comply with the other requirements. These are: The production of a so-called Maturitätszeugnis or certificate of having passed the final examination of the gymnasium, at which the candidate must show a satisfactory knowledge of Latin and Greek, as well as of German or one of the other languages spoken in the Austrian Empire, such as Polish, Bohemian, Italian, also of mathematics, history, natural history, chemistry, geography, and physics. If a British medical man or student has passed a similar examination in his own country he may apply for exemption, which is sometimes granted; he has to produce proof of his having passed such an examination, in the shape of a certificate, to be translated into German by a properly recognised translator. The medical curriculum lasts

11 semesters, or five and a half years. The holders of foreign diplomas may, however, obtain permission to pass their examinations at shorter intervals than are necessary for the students, so that from 18 months to two years may be reckoned as sufficient. After passing the first theoreticum, or first examination, which comprises biology, anatomy, physiology, and chemistry, and which, as a rule, is passed at the end of the fourth semester, the student is allowed to commence hospital work; at the end of the tenth semester he may present himself for the second theoreticum. This and all other examinations (altogether three in number) are both practical and theoretical and must be completed within eight days. Only one subject is taken each day. It comprises internal medicine, surgery, and pathology, whilst the third and last examination comprises gynæcology, obstetrics, hygiene, materia medica, and ophthalmology; pædiatrics, otology, dermatology, and laryngology are examined in alternately. This last examination the student is expected to pass not later than five years after the first, otherwise he has to present himself again for certain subjects of the first examination, especially anatomy. The fees for the three examinations are £15, and then comes the fee of £6 5*s.* for the degree of M.D., without which degree nobody is allowed to practise. The fees for the lectures are about £35 for the five years, and about £15 for special classes may be added, so that the entire cost of obtaining the degree of M.D. would be from £70 to £75. All the universities, of which there are seven in Austria and two in Hungary, confer the degree of M.D., and no distinction is made here as regards the place where the title has been gained, although the University of Vienna is most favoured because it offers the best opportunities for studying. In special cases the Minister of the Interior may allow a foreign qualification to be recognised as entitling its holder to practise, only a mere formal examination being required; such a special order is, however, very difficult to obtain. The examinations are entirely oral and are conducted in various languages according to the locality—namely, German in Vienna, Innsbruck, Graz, and Salzburg; German and Bohemian in Prague; and Polish in Cracow and Lemberg. These seven universities are the only ones in Austria, and only they may grant degrees, as the medical schools are invariably integral parts of the universities. If a British medical man wishes to practise in one of the frontier spas or in Karlsbad he will have little difficulty in obtaining permission to do so if he applies for it, especially if he gives an assurance that he will only attend his fellow-countrymen and only for the season. However, since last year greater obstacles have been placed in the way of foreign doctors wishing to practise in such places.

As regards Hungary, the medical curriculum is for practical purposes similar to that in Austria, and the foreigner, whether a holder of a diploma or a student who wishes to practise legally, must become a naturalised subject and must pass the three above-mentioned examinations in the Hungarian language. Applications for admission must be addressed to the Minister of Education, who decides upon the conditions of admission after consultation with the medical faculty of Budapest. Usually the applicant has to pass three medical examinations after having proved his qualification for admission by a Maturitätszeugnis, or testimonial of sufficient preliminary instruction in two classical languages, chemistry, arithmetic, geometry, and physics. The examination is allowed only in the Hungarian language. The total fees amount to 295 kronen (about £12), and the fee for "promotion"—i.e., for the M.D. degree—is similar to that in Austria. Besides the university in Budapest there is another university in Klausenburg for which the same rules hold good. Only these two universities may confer medical degrees in Hungary. In 1906 new regulations were drawn up which are now in the hands of the Minister, but they have not been ratified. In these rules the Professional Committee demands the passing of the second and third practical examinations from those who gained their diploma before 1901. Those who gained their diploma after that year are compelled to pass the second and third examinations, and in addition to pass one year in a hospital which is designated for that purpose. The subjects of the old second examination are as follows: clinical medicine, surgery, operative surgery, ophthalmology, obstetrics, and operative obstetrics. The old third practical examination embraces the following subjects: clinical medicine (theoretical), surgery (theoretical), forensic medicine, and public hygiene. The new third examination embraces the following subjects: clinical medicine, surgery, operative surgery, obstetrics and gynæcology, operative obstetrics, ophthalmology, operative ophthalmology, dermatology, pædiatrics, and psychology (from the latter three only one is compulsory, decided by lottery). The new second examination embraces pharmacology, general pathology, forensic medicine, public hygiene (all theorectical), and pathological anatomy (theoretical and practical). The Minister has the right to allow settling in Hungary without demanding the passing of these examinations, but it is questionable whether he will exercise this right.

DENMARK.

In Denmark only those who have passed the Danish Medical Examination are entitled to practise. In Iceland it suffices to have been examined at the Medical School in Reykjavik. The medical student before beginning his studies must present a diploma of *Examen artium*—an examination very similar to the German *Abiturienten examen*. At the close of the first year he must pass an *Examen philosophicum*. The medical studies proper require from six to seven years. The foreign student will find one agreeable difference from what is customary in other countries—namely, that all University lectures and clinical courses are free, payment of class fees being unknown, but a few pounds are required for the examination. On passing the examination the young man becomes entitled to practise and not a few commence at once. The majority, however, prolong their practical training by accepting an appointment as (salaried) junior house physician or house surgeon in one of the numerous hospitals of the country. The most highly valued appointments—namely, those at the Kommune hospital or at the State Hospital of Copenhagen—were, however, formerly in so great demand that not rarely four, five, or even more years elapsed before an aspirant could secure the coveted position, when he served for one or two years in the different departments of the hospital. This unreasonably long waiting time is now considerably reduced, as the Association of Junior Medical Men has arranged with the faculty and other authorities for the establishment of a larger number of appointments, which are to be officially considered as equivalent to the older appointments at the two hospitals.

The only academical degree for medical men known in Denmark is the degree of M.D. It is granted exclusively by the University of Copenhagen, and only to those who have submitted to the faculty an original investigation of undoubted scientific value, the consequence being that only a comparatively small number of Danish practitioners possess the degree in contradistinction to what is customary, for example, in Germany. In fact, the Danish degree of M.D. must be considered as equal to the German title of *Privatdocent* or the French title of *professeur agrégé*, as it authorises its possessor to teach publicly in the university.

The only portion of Danish territory where a foreign medical man is permitted to make use of his diploma are the Danish islands in the West Indies, the Governor being empowered to grant such permissions; but he is not likely to do so except during epidemics or when other abnormal conditions obtain.

BELGIUM.

Application should first be made to M. le Ministre de l'Intérieur et de l'Agriculture in Brussels. The qualifications already possessed by a foreign practitioner are considered by a committee of the University which decides the nature and number of the examinations that must be passed by the applicant. A fee of about £4 is charged for each examination, and there is an annual fee which varies in different parts of the country.

NETHERLANDS.

A medical practitioner holding British qualifications cannot practise in the Netherlands without being also qualified in the Netherlands. For this purpose it is necessary to pass the medical examinations of one of the universities. The examinations are in the Dutch language.

SWITZERLAND.

Foreign practitioners must pass the first, third, and fourth State Examinations. These examinations are held in either French (at Lausanne and Geneva) or German (at Berne, Basle, and Zürich). In addition to the British five years' curriculum practitioners would require one or two years' additional study. The examination fees amount to about £9.

SPAIN.

To practise in Spain it is necessary for the holder of British qualifications to apply to the Royal Council of Public Instruction and Fine Arts and enclose the degrees, diplomas, or similar credentials which he possesses, and request permission to appear before an examining body. The above documents must be translated by the Interpretation Bureau of the Ministry of State and afterwards presented in the Ministry of Public Instruction, together with a petition to the Minister, clearly stating the applicant's requirements. We are informed that the examination which confers a licence to practise consists of three parts: 1. A written examination lasting two hours. 2. A *vivâ voce* examination. 3. Clinical examination of a patient and a report upon his condition. The fee for the examination is 40 pesetas (£1 12*s.*). The fee for the diploma is 814.50 pesetas (£32). The length of time between the presentation of the documents to the Ministry of State and Public Instruction and the granting of the diploma is variable on account of the time occupied in the necessary legal formalities. The expenses of translation of the documents likewise vary with their length and the consequent work entailed to be done by the Bureau.

PORTUGAL.

Holders of foreign diplomas must apply for examination at the schools of Lisbon or Oporto or the Faculty of Coimbra. For the last examination the presentation of a *printed* dissertation is required.

GREECE.

In Greece the foreign qualification which entitles to practise legally is the possession of a degree or diploma from a recognised university or corporation of a state where practical examinations in Pharmacology, Surgery, Obstetrics, and Forensic Medicine are demanded, which means that registered British practitioners by supplying documentary proof to the medical secretary of the Ministry of the Interior in Athens can obtain the right to practise. All persons possessing no qualifications outside Greece have to submit to the practical examinations of which the doctors of medicine in the university are subject, but if ignorant of Greek examination can be taken in French, German, or Italian. There is no entrance fee, but there is an annual fee or tax dependent upon the amount of practice.

TURKEY.

Every foreign medical practitioner desirous of settling in Turkey for the purpose of practising his profession must undergo the ordeal of the so-called "colloquium." This is a sort of professional examination very easy in itself but a source of annoyance and vexation to Europeans by the dilatory propensities of Orientals and their habit of conducting business in an indolent and easy-going way. The "colloquium" itself takes about half an hour's time, whereas the preliminary steps and arrangements and the subsequent formalities necessary for the final obtainment of the medical permit lasts for weeks and even months. The "colloquium" must at the present time be passed either in French or Turkish without any interpreter, the choice of the language being left to the examinee. The possessor of a foreign diploma is tested, as a rule, in four subjects, and the testing consists in three or four questions in each subject, which the candidate has to answer orally. It has not yet happened that a European physician failed to pass the "colloquium." The fee for it used to be about £8. Two or three years ago it was raised to about £20. I am informed that this was done in order to increase the revenue of the rather inefficiently equipped Medical School at Haidar Pasha and to diminish the influx of the numerous medical men flocking to the Turkish metropolis from almost every country adjoining the Ottoman Empire. A far better means of effectively doing the latter would be to raise the rather low standard of the "colloquium." There are numbers of medical men in Constantinople and in other parts of Turkey whose qualification is doubtful. This is especially the case with regard to the so-called "surgical dentists." With the new *régime* of the free constitutional government new alterations and improvements will undoubtedly be introduced into the rules regulating the practice of foreign medical men. The Young Turkish Parliament has lately already touched upon some important medical questions, such as the service of non-Mussulman practitioners in the Ottoman army. I learn that strict measures will be taken against all those who do not possess necessary qualifications, that the standard of the medical curriculum will be raised, and that the manner of conducting the "colloquium," as well as its character, will be completely changed. Regenerated Turkey intends to organise everything in accordance with modern lines of European efficiency.

RUSSIA.

The law relating to foreign medical practitioners desirous to practise in Russia is contained in the two following paragraphs of the *Vratohebny Ustav* or medical statute:—Section 93 (*a*): No one, whether a Russian subject or a foreigner, who has not a diploma or certificate from a university or from an Army Medical Academy, has the right to follow any branch of medical or veterinary practice in Russia; (*b*) foreign medical practitioners who wish to practise medicine in Russia must, without exception, know the Russian language. Section 94: Of foreign practitioners who shall be invited or who may come to Russia the right to decide which of them shall be permitted to free practice here and under what conditions is in the hands of the Medical Council of the Ministry of the Interior; some shall be permitted only after the usual examinations and consequent granting to them of a learned degree; others more distinguished after an oral examination in the Medical Council; lastly, others who have made a name in the scientific world by their writings or unusually successful practice, or who have occupied professorial chairs or other important medical appointments in other countries, may be permitted to practise without any examination, solely on the decision of the Medical Council, confirmed by the Minister of the Interior, as to the worthiness of such practitioners.[1] Previous residence in the country before practice would not be necessary except in the case of the first group mentioned, who would have to pass through the usual five years' course of a Russian medical curriculum. As to the prospects of a British practitioner in Russia, the country and the smaller towns can present no attraction to an English medical man, even if the fees obtainable would support him, which they would not. In the two capitals, Moscow and St. Petersburg, the field is wider. Competition is, however, great, fees are as a rule small, and bad debts many. The frequency of bad debts results from the unwritten law by which medical men do not send in accounts, but leave the patient to pay what he considers a suitable amount.

EGYPT.

Any person in possession of a diploma from a recognised school of medicine is allowed to practise his profession in Egypt after having presented his diploma to the Director-General of the Sanitary Department at Cairo for verification and paid a small fee of 6 piastres. From a recent report of the department it appears that the influx of medical men into Egypt of late years has been very great, so that it is difficult to understand how some are able to gain a livelihood from their profession. The effective control of diplomas which emanate from so many different foreign schools must be at times somewhat difficult, as the Public Health Department has no means of identifying the person who presents the diploma as the person who underwent the examinations which entitled him to it—e.g., there is nothing to prevent a person who has come into possession of a diploma by fraudulent means personifying the legitimate owner of the diploma and obtaining a licence to practise. It is true that in addition to the diploma a certificate of good conduct is necessary from the applicant's Consul before a licence to practise is granted, but in many cases the Consul finds himself in the same difficulty as the department with regard to ascertaining if the person in possession of the diploma is the rightful owner or not. We recommend any one of our readers who is attracted by the idea of medical practice in Egypt to obtain introductions to a resident in Egypt so that he may ascertain the chances of finding a remunerative opening and be provided with a witness to his identity. A knowledge of French or Italian and Arabic would be essential to any new-comer desirous of practising all the year round, for the tourist season only lasts from November to April.

JAPAN.

According to the regulations for medical licence "persons holding either diplomas of foreign universities, or medical schools, or foreign licences for practising medicine may be granted licences for practising medicine in Japan, without

[1] This Section dates from 1836; it was amended in 1842, 1845, and 1867.

being subject to the usnal medical examination, upon producing such diplomas or licences obtained in foreign countries to the satisfaction of the home authorities." English medical practitioners will therefore have no difficulty in obtaining a licence in Japan. A local rate, which would be a small fee only, may have to be paid on opening a practice, but no charge is made for the right to practise. We have been informed that English practitioners in the foreign quarters of Japan are at some disadvantage for the reasons that the druggists, who are now nearly all Japanese, sell their drugs at a cheaper rate to native practitioners; and, moreover, living is cheaper for the native than for the foreigner. Foreign practitioners depend largely upon shipping and contract business work.

SOUTH AMERICA.

Argentine.—An examination which is held in the Spanish language must be passed. The fee for the examination is about £79, and there is an annual fee of about £8 15*s*.

Brazil.—Legally the consent of the Faculty of Medicine and Pharmacy must be obtained, but the law is somewhat lax. Certain small fees are demanded.

UNITED STATES OF AMERICA.

The laws regulating the practice of medicine in the various States and territories of the United States of America differ to a considerable extent in detail. In spirit, however, they are beginning to assume that uniformity which all medical reformers must desire for them. It has long been pointed out that one of the most open doors to abuse of medical practice in the United States was the fact that while in some States an excellent medical curriculum was required before admission to legal practice, in other States but little scientific training was exacted and freedom to practise was extended to dangerous forms of quackery. This position of affairs had its origin, of course, in the evolution of the United States, certain divisions of the country being in the forefront of civilisation, while others were, to say the least, in a rudimentary plight; but of late a great process of levelling-up has been witnessed. The progress of the United States is in no way better shown than in the fact that throughout its vast length and breadth there is now an attempt to secure for the people of the country adequate medical treatment based on scientific grounds. A *résumé* of the legal regulations for medical practice in the States and territories of the United States of America can be secured by sending 30 cents to the *American Medical Association*, 535, Dearborn-avenue, Chicago, Illinois. In this digest of the medical laws of the various States, which has been brought quite recently up to date, existing legislation is explained on broad grounds so far as it pertains to medical practice. If the information with regard to some particular State is anywhere scanty in detail it is always possible for the intending practitioner to communicate with the secretary or executive officer of the medical board at the capital of the State.

We must continne to warn the British medical man desiring to practise his profession in the United States of America that in all the more enviable centres he will find a vast number, almost a plethora, of medical men, the great proportion of whom have been thoroughly well educated and trained. He must remember also that in the more important States, generally speaking, although the remuneration may rule high, the expense of living is proportionate. He will understand that the less highly the State is developed the more easy will it be for him to obtain a footing, but the less pleasant in all probability will be his professional career. Examinations are now required of all applicants in all States.

CANADA.

As a general rule, the possession of British diplomas and degrees entitles the holders to practise in Canada after having obtained a licence from the provincial medical boards and paid certain fees.

Ontario.—Registration by the Council of the College of Physicians and Surgeons of Ontario is necessary, and it is optional for the Council to admit to registration all persons who are du y authorised to practise medicine, surgery, and midwifery in the United Kingdom and Ireland upon terms which the Council may deem expedient.

Quebec—Practitioners must be licensed and registered by the Provincial Board, which may license without examination holders of medical qualifications from British universities or corporations.

New Brunswick—Practitioners in New Brunswick mus be registered by the Medical Council of the province. candidate for registration (1) must pass an examination i English, arithmetic, algebra, geometry, Latin, elementar mechanics, elementary chemistry, history, geography, an two of the following languages, Greek, French, and Germa unless he has already matriculated at some College in th United Kingdom, Canada, United States of America, c Europe, or holds a first-class teacher's licence from th Board of Education of New Brunswick; (2) he must afte wards have studied for four years and attended som university or college or school of medicine for four session of not less than six months each and have attende lectures on anatomy, pharmacy, &c.; (3) he must hav attended the general practice of a hospital for 12 months (4) he must have obtained a degree in the above subject from a university, college, or school requiring such- fou years' course of study or must have passed an examinatio in them before the examiners in New Brunswick; and (5) h must be over 21 years of age. A fee of $10 is required an medical practitioners are liable to an annual fee of from $1.

Nova Scotia.—Registration and a licence from the Pr vincial Medical Board are required, which admits to th privileges of practice, upon payment of the registration fe all persons who are duly registered by the General Medica Council of Great Britain. The fee is $30.

Prince Edward Island—No one can practise medicine surgery, or midwifery in Prince Edward Island unless regis tered or licensed by the Council of the Medical Society c Prince Edward Island. The Council admits to the registe any person who is duly registered by the General Medica Council of Great Britain.

British Columbia.—No person may practise medicine surgery, or midwifery in British Columbia unless registere by the College of Physicians and Surgeons of Britis Columbia. The Council admits to the register any perso "who shall produce from any college or school of medicin and surgery, requiring a four years' course of study, diploma of qualification," on proof of identification and o passing an examination as to his competency. The fee fo registration appears to be rather indefinite, as we learn tha it "must not exceed $100." Licences to practise are issue to women.

Manitoba—Registration by the Council of the College o Physicians and Surgeons of Manitoba is necessary an applicants for registration must be members of an inco porated medical body in Canada giving similar privileges t persons incorporated in Manitoba. Application should b made to the Council by British medical men desiring t practise in the province. The fee is $75. Licences to practis are issued to women upon the same terms as men.

Alberta.—Medical practitioners must be registered by th Council of the "College of Physicians and Surgeons of th Province of Alberta." The Council admits to the registe anyone who (1) produces a diploma of qualification from an college or school of medicine and surgery which exacts fo such diplomas attendance on at least a four years' course o lectures of at least six months each; (2) gives proof o identification; (3) passes before them a satisfactory examina tion appertaining to the profession of medicine and his fitnes and capacity to practise medicine, surgery, and midwifery and (4) pays $50, and another $50 for registration.

Saskatchewan.—No one may practise in Saskatchewa unless registered (fee $50) by the Council of the "College o Physicians and Surgeons of the Province of Saskatchewan." The Council admits to the register anyone who produces diploma of qualification from any college or school of medi cine and surgery recognised by the Council, which require attendance at a four years' course of lectures, and wh passes an examination (fee $50) before the Council.

AUSTRALIA.

Legally qualified British medical men can practise in al parts of Australia. Proof of registration by the Genera Medical Council of Great Britain must be submitted to th medical board of the particular State selected when certificate to practise is granted. The medical man wit British qualifications who desires to practise in Australi must communicate with the medical board as soon as h intends to settle, so that he may regularise his position fro the beginning.

NEW ZEALAND.

Registration in the colony of New Zealand is obtained b the legally qualified British practitioner on prodncing hi

proof of registration by the General Medical Council of Great Britain and on paying a fee of £1 5*s*.

BRITISH SOUTH AFRICA.

The position of the legally qualified British practitioner in South Africa is much the same whichever colony he proposes to practise in.

Cape Colony.—No person may practise in Cape Colony as a medical practitioner without a licence signed by the Colonial Secretary of the province and the recommendation of the Colonial Medical Council is required. The fee for the licence is £5 and women are eligible for the licence. Applications should be made to the Colonial Medical Council at Cape Town.

Natal.—Here also application for a licence to practise medicine in the colony must be made to the Colonial Secretary of the province. The application will be granted upon the approval of the Natal Medical Council.

Southern Rhodesia.—The admission fee for the practice of medicine in Rhodesia is £5 and application for the licence should be made to the Chief Secretary, Salisbury, Rhodesia. It would be well also to write to the Secretary of the British South Africa Company, London Wall, E.C. In *North-Western Rhodesia* the fee is also £5.

Transvaal and the Orange River Colony.—The Transvaal Medical Council (Pretoria) and the Medical and Pharmacy Council of the Orange River Colony, Bloemfontein, grant a licence to practise on payment of £10 and £7 10*s*. respectively. Proof of registration by the General Medical Council of Great Britain must be supplied.

THE COLONIAL MEDICAL SERVICE.

In the following countries there are medical departments regulated from the Colonial Office:—British Guiana, Jamaica, Trinidad, Tobago, Windward and Leeward Islands, British Honduras, Fiji, Ceylon, Straits Settlements, Federated Malay Straits, Hong-Kong, Mauritius, Seychelles, Gibraltar, St. Helena, Falkland Islands, Cyprus, Gambia, Sierra Leone, the Gold Coast, Northern and Southern Nigeria. The last four of the countries enumerated have been formed into the West African Medical Staff, a definite and well-organised service. The majority of the West Indian appointments involve medical charge of a district, including, as a rule, the care of a hospital, poorhouse, asylum, or other institution, and free attendance on the aged and children. Passage money is granted to medical officers on first appointment, an annual vacation on full pay is given not exceeding three months in two years, and there are pensions, as a rule, where private practice is not permitted. In Ceylon, Straits Settlements, the Federated Malay States, Hong-Kong, and Mauritius all permanent Government servants are called upon to contribute 4 per cent. of their salaries towards the pensions of the widows and orphans of public officers.

British Guiana.—There are 40 appointments. After two years' probation at a salary of £300 per annum, when quarters are provided but private practice is not allowed, the officer is appointed to the permanent staff with a salary of £400 per annum, rising by annual increments to £700. He can carry on private practice and receives a travelling allowance varying with the range of the duties from £100 to £150 per annum. The governor of the colony can also make appointments to the service in favour of local practitioners, who act as supernumeraries upon temporary agreements. The salary of the surgeon-general is £900, with travelling expenses and consulting practice, and that of the medical inspector £800, with travelling expenses and private practice.

Jamaica.—There are 54 appointments, mainly district appointments, with private practice allowed. The salary paid by Government varies from £100 to £250 per annum, and in most cases is £200. Newcomers may be attached temporarily to the public hospital in Kingston, on a salary of £200 per annum, private practice not being allowed.

Trinidad and Tobago.—In Trinidad there are 35 appointments. After two years' probation at a salary of £250 per annum, with furnished quarters, during which time they are usually attached to the Government hospital, the surgeons obtain district appointments to which they are promoted as vacancies occur. The pay is £300 per annum, which is increased to £400 and upwards by various allowances for horse, house, or other purposes. These posts carry the right to private practice. After every five years an officer is given an additional personal allowance at the rate of £50 per annum. In a few districts the Government has introduced a system by which the work is performed by private practitioners under temporary contracts. In these colonies there is a Civil Service Widows' and Orphans' Fund established by law, to which all medical officers must contribute 4 per cent. of their salaries.

Windward Islands (Grenada, St. Lucia, St. Vincent).—The 22 appointments are, with few exceptions, district appointments with the right to private practice attached. The salaries paid by Government vary from £250 to £400, with allowances in certain cases.

Leeward Islands (Antigua, St. Christopher and Nevis, Dominica, Monserrat, Virgin Islands).—The 25 appointments are of the same nature as in the Windward Islands. The Secretary of State reserves the power to transfer a medical officer from one island to another in each case. The medical officers receive fees for successful vaccinations, post-mortem examinations, attendance and giving evidence at courts of justice, certificates of lunacy, and, in the larger islands, for burial certificates. They are also allowed private practice.

British Honduras.—There are five medical appointments, besides the principal post of colonial surgeon, in all of which private practice is allowed if it does not interfere with the public duties of the officer. The pay varies from £150 to £300. Two of the medical officers are also district commissioners and receive £300 for the combined posts of medical officer and district commissioner.

Fiji.—The Government medical officers receive a salary of £300, rising by annual increments of £25 to £500. They will be allowed private practice so far as is consistent with the proper discharge of their duty, and will have charge of hospitals or of districts at the discretion of the authorities. The posts will be pensionable, but an allowance in lieu of free quarters will not be pensionable. There are 15 Government medical officers in addition to a chief medical officer, who receives £700, rising to £800, a year.

Ceylon.—The principal civil medical officer receives £1250, rising by annual increments of £50 to £1400 per annum. There are an assistant principal civil medical officer with a salary of £750, rising by annual increments of £50 to £850, and a medical superintendent of the lunatic asylum with a salary of £600, rising to £800. The Registrar of the Medical College, Colombo, and the Director of the Bacteriological Institute receives £450, rising to £600; the medical superintendent of the General Hospital, Colombo, £600, rising to £800. There are 9 provincial surgeons (Rs.6000–Rs.8400), 30 first grade medical officers (Rs.3600–Rs 5400), 34 second grade (Rs.1800–Rs 3000), and 70 third grade (Rs.1200–Rs.1800). Private practice is allowed to the subordinate officers, but the colonial surgeons may take only consultation practice. The Medical Service of Ceylon is mainly recruited from among gentlemen born in the island but possessing British diplomas.

Straits Settlements.—Two house surgeons in the General Hospital, Singapore, and two in the General Hospital, Penang, receive £300, rising to £360, with free quarters. There are ten other subordinate posts in the medical department with salaries varying from £300 (rising to £360) to £780 (rising to £900). Some of these posts have free quarters attached and the holders of some are allowed private practice within limits. The salary of the principal civil medical officer is £1000.

West African Medical Staff.—The medical services of the West African Colonies and Protectorates—namely, the Gambia, Sierra Leone, the Gold Coast (including Ashanti and the Northern Territories), Southern Nigeria, and Northern Nigeria, form one service under the above name. All the medical officers for the service are selected by the Secretary of State for the Colonies, and are on one list for employment and promotion. Preference will be given to unmarried candidates. Married ones are not excluded, but it should be remembered that passages for wives and children are not provided by the Government, and that houses for them are rarely available. Officers should not take their wives out with them until they have acquired experience of the local conditions, and have obtained the sanction of the Governor.

The grades and emoluments of officers of the staff are as follows:—

Principal Medical Officer.—The principal medical officers receive salary as follows: In Northern Nigeria and Southern Nigeria, £1000 a year, rising by annual increments of £50 to

£1200 a year, with a duty allowance[2] at the rate of £200 a year. In the Gold Coast £1000 a year, without increments, but with a duty allowance at the rate of £200 a year. In Sierra Leone £800 a year, rising by annual increments of £50 to £1000 a year, with a duty allowance at the rate of £160 a year. There is no principal medical officer in the Gambia.

Deputy Principal Medical Officer.—There are three appointments of this grade, in Northern Nigeria, Southern Nigeria, and the Gold Coast respectively. Salary at the rate of £800 a year, rising by annual increments of £25 to £900 a year, is attached to these appointments, together with a duty allowance at the rate of £160 a year.

Senior Sanitary Officer.—Three appointments of this grade have been created, in Northern Nigeria, Southern Nigeria, and the Gold Coast respectively, and it is intended that one senior sanitary officer shall be appointed for Sierra Leone and the Gambia. Salary at the rate of £800 a year, rising by annual increments of £25 to £900 a year, is attached to these appointments, together with a duty allowance at the rate of £160 a year.

Provincial Medical Officer.—Four appointments (two in Southern Nigeria and two in the Gold Coast) bearing this title are being created, with salary at the rate of £700 a year, rising by annual increments of £25 to £800 a year, and duty allowance at the rate of £140 a year.

Senior Medical Officer.—There are 11 appointments of this grade, with salary at the rate of £600 a year, rising by annual increments of £25 to £700 a year, and a duty allowance at the rate of £120 a year.

Junior Sanitary Officer.—Three appointments of this grade have been created, with salary at the rate of £600 a year, rising by annual increments of £25 to £700 a year, and a duty allowance at the rate of £120 a year.

Medical Officer.—The salary attached to this grade is at the rate of £400 a year, rising by annual increments of £20 to £500 a year. There is no duty allowance. Medical officers who have served for five years and are recommended for a higher rate of salary are required to take a special course of study for three months. If they obtain satisfactory certificates at the end of the course they are placed, on completing six years' service, on a scale of salary at the rate of £525 a year, rising by annual increments of £25 to £600 a year.

Every candidate selected for appointment will, unless the Secretary of State decides otherwise, be required to undergo a course of instruction for two or three months either at the London School of Tropical Medicine, Royal Victoria and Albert Docks, E., or at the Liverpool School of Tropical Medicine at University College, Liverpool. The cost of the tuition fees, board, and residence during such instruction, amounting to a maximum of £48 8*s.* 10*d.*, for three months, will be borne by the Government in the case of the London school; at Liverpool the cost of tuition will be borne by the Government, but candidates must make their own arrangements for board and lodging; an allowance of £2 a week will be paid to them monthly in arrear for this purpose.

The ordinary tour of residential service is one year, followed by leave with full pay during the voyages to and from England, and for four or two months clear in England, according as the officer is returning for further service in West Africa or not. Free passages are given to all officers who are granted leave, and free passage is also given on first appointment, subject to the officer signing an agreement under which he is liable to refund its cost if he relinquishes his appointment for any other reason than physical or mental infirmity, or is removed for misconduct, within three years from the date of his arrival in West Africa.

All officers of the staff, except principal medical officers, deputy principal medical officers, and sanitary officers are allowed to take private practice, provided that it does not interfere with the faithful and efficient performance of their official duties, but it is within the power of the Governor to withdraw or suspend the privilege in such places and for such periods as he may consider desirable. It should, however, be noted that private practice does not exist at the majority of stations.

Federated Malay States.—Appointments are graded as follows:—Principal medical officer, £1200; senior medical officer, Perak, £900, by annual increments of £20 to £1020; senior medical officer, Selangor, £780, by annual increments of £20 to £900; eight medical officers, Grade I., £600, b £20 annually to £720, with free unfurnished quarters; 1 medical officers, Grade II., £420, by £15 annually to £600 with free unfurnished quarters; house surgeons, £300, risin to £420, with free furnished quarters without privat practice. A medical officer is attached to the regiment o Malay States Guides, his salary being £360 to £480. Th two senior medical officers and the two Grade I. medica officers in charge of Negri Sembilan and Pahang are allowe consulting practice only. Other medical officers are pro hibited from private practice except in very special case where the Resident-General is satisfied that, owing to th absence of private practitioners, it is absolutely necessary t allow the Government medical officer to attend to privat patients. The posts of medical officer, Grade II., in th Federated Malay States and the corresponding appointment in the Straits Settlements are filled by the promotion of officer who have entered the service as house surgeons.

Hong-Kong.—The principal civil medical officer receive £800 per annum, rising to £1000. There are five medica officers, two health officers of the port, and two medica officers of health, with salaries of £480, rising to £720 Most of these appointments are pensionable. Privat practice is not allowed, and free quarters are only given in few cases. The Government bacteriologist receives £480 rising to £720, and his assistant £360, rising to £420 Vacancies in Hong-Kong are almost invariably filled by pro motion or by transfer from other colonies.

Mauritius.—There is a headquarters staff consisting of director with a salary of Rs.10,000, an assistant directo with a salary of Rs.8000, two sanitary wardens with a salar of Rs.6000, one assistant sanitary warden with a salary o Rs.5000, an assistant medical officer (Port Louis) with salary of Rs.5000, a police and prisons surgeon with a salar of Rs.6000, and a health officer with a salary of Rs.5000. There is also a medical inspector attached to the Immigratio Department. In the rural districts there are various medica officers, most of whom receive Rs.6000 a year, and are no allowed private practice. Free quarters are not given i most cases. The service is mainly recruited locally. Officer in the service of Mauritius are required annually to con tribute 2 per cent. of their salaries towards their pensions.

Seychelles.—There are four medical appointments. Th Government medical officer receives Rs.4500. The assistant Government medical officers receive Rs.3000. The holder of these latter appointments have free quarters. Private practice is allowed.

Gibraltar.—There is a surgeon of the colonial hospita receiving £275, £55 as medical officer of the civil prison an lunatic asylum, and horse allowance of £42, with private practice. There is also an assistant surgeon with a salary o £300 per annum, but without private practice, who is police surgeon, port surgeon, and surgeon to the post office without additional emoluments.

St. Helena.—The colonial surgeon receives £270 pe annum and £27 horse allowance. Private practice is allowed

Falkland Islands.—There are two appointments, one o which is paid at the rate of £300 per annum, with £25 a health officer, and the other at the rate of £200 per annum Private practice is allowed in both cases.

Cyprus.—There is a chief medical officer paid at the rat of £500 per annum, three district medical officers paid at the rate of £275 per annum, all enjoying private practice, except the chief medical officer, who is allowed consulting practice only, and receiving 2*s.* per diem forage allowance. These are the only medical appointments in the island which are open to English candidates, and they are made by the Foreign Office.

All applicants for medical employment in these colonies must be between the ages of 23 and 35 years, and must be qualified for registration. Preference will be given to those who have held appointments as house physicians and house surgeons; certificates of moral character and of sobriety will be required, and every officer before being appointed will be medically examined by one of the consulting physicians of the Colonial Office.

East Africa, Uganda, Nyasaland, and Somaliland Protectorates.—The salary of a medical officer on the permanent establishment in these Protectorates is £400 per annum rising to £500 per annum by annual increments of £20. There are 14 appointments of this rank in the East Africa Protectorate, 11 in Uganda, 7 in Nyasaland, and 2 in Somaliland. In the East Africa Protectorate there are certain special appointments—viz., a medical officer o

[2] A duty allowance is payable to the holder of the appointment to which it is attached only while he is actually performing its duties, and during his absence or incapacity it is paid, at the discretion of the Governor, to the officer performing them for the time being. A duty allowance is not a pensionable emolument.

ıealth at Mombasa (£500, by £20 to £600) and two senior ıedical officers (£500, by £20 to £600). The salary attached o the appoin'ment of principal medical officer in the East \frica Protectorate and in Uganda is £750 per annum, rising o £850 per annum by annual increments of £25, and £500 ıer annum, rising to £600 per annum by annual increments ıf £25, in the case of Nyasaland. Medical officers are ıermitted to take private practice on the understanding that hey give precedence to their official dutics. Free passages ıre provided to the Protectorates.

POST-GRADUATE STUDY.

POST-GRADUATE study is divided into three main divisions —the general study of professional subjects (including the special study of some branch), the study of State medicine, and the study of tropical medicine. We have already described the provision made for instructing graduates in the last two divisions, mentioning the procedure necessary to obtain diplomas or certificates for proficiency in them. The following article shows the principal arrangements existing for general post-graduate instruction, and some little repetition has been necessary:—

LONDON.

The London Post-Graduate Association.—The London Post-Graduate Association is now so well known that it is hardly necessary to remind our readers that it is composed of the following hospitals and medical schools (general and special)—viz.: *General Hospitals:* Charing Cross, Guy's, King's College, St. George's, St. Mary's, St. Thomas's, University College, and Westminster. *Special Hospitals:* The Brompton Hospital for Consumption and Diseases of the Chest, the Hospital for Sick Children (Great Ormond-street), the London School of Tropical Medicine, the National Hospital for the Paralysed and Epileptic (Queen-square), the Royal London Ophthalmic Hospital, late Moorfields (City-road), St. Mark's Hospital for Diseases of the Rectum, and the Medical Graduates' College and Polyclinic. One ticket (the charge for which is 10 guineas for a three months' course, or 15 guineas for six months) admits the holder to the clinical instruction in the wards and out-patients' departments, the operations, necropsies, and other hospital practice of all the institutions mentioned above. For the purpose of enabling qualified medical men to keep up to date in their work we can heartily recommend the scheme offered by the London Post-Graduate Association, which thus places the best of all the hospital work in London at the disposal of its ticket-holders. The office of the association is now at 20, Hanover-square. Further particulars may be obtained by writing to the Secretary, the London Post-Graduate Association, 20, Hanover-square, London, W., or by personal application between the hours of 10.30 A.M. and 1 P.M. any week-day except Saturday.

Medical Graduates' College and Polyclinic.—This institution affords to medical practitioners special facilities for acquiring technical skill and for advancing their clinical and scientific knowledge. The building contains lecture- and consulting-rooms, a pathological and clinical laboratory, a Roentgen-ray room, an ophthalmoscope-room, a museum, a library, and reading- and waiting-rooms, &c. Cliniques are given on each working day of the week except Saturday at 4 P.M., and a lecture on medicine, surgery, or their special branches, is delivered daily except on Fridays and Saturdays, at 5.15 P.M. Classes are also held in Otology, Laryngology, Rhinology, Ophthalmology, Radiography, Anatomy, Nervous Diseases, Microscopy, Urinary Analysis, Gynæcology, Practical Bacteriology, Sigmoidoscopy, Cystoscopy, Mental Diseases, Hygiene and Public Health, and Operative Surgery. Extra classes in any subject are formed to suit the convenience of practitioners unable to attend those already provided. Special tutorial classes are held for practitioners reading for the higher examinations. A monthly journal, the *Polyclinic*, recording the work done in the college, is issued free to subscribers and members. The annual subscription for medical practitioners of either sex is 1 guinea. Full information can be obtained from the Medical Superintendent at the College, 22, Chenies-street, Gower-street, W.C. The autumn session will commence on Monday, Sept. 12th.

The Hospitals of the Seamen's Society.—In connexion with these hospitals there are two post-graduate schools—viz., (*a*) the London School of Tropical Medicine; and (*b*) the London School of Clinical Medicine.

(*a*) *The London School of Tropical Medicine.*—The school buildings, laboratories, museum, library, &c., are within the grounds of the Branch Hospital, Royal Victoria and Albert Dock (Station, Connaught-road, Great Eastern Railway). Opportunities are afforded to students and others who may be desirous of studying diseases incidental to tropical climates before entering the service or going abroad. In the hospitals of the society are to be found cases of tropical diseases such as may be met with in actual practice in the tropics. There are three courses in the year, each lasting three months, beginning on Oct. 1st, Jan. 15th, and May 1st respectively. The laboratory, museum, library, &c., are open daily and clinical instruction is given daily in the wards of the hospitals. The School Course is recognised by the University of Cambridge for its Diploma of Tropical Medicine and Hygiene. Classes are arranged for advanced Helminthology, Protozoology, and Entomology. The lecturers in the School are: Sir P. Manson, F.R.S., Dr. Andrew Duncan, Dr. C. W. Daniels, Dr. L. Westenra Sambon, Dr. J. M. H. Macleod, Professor R. Tanner Hewlett, Mr. James Cantlie, Mr. E. Treacher Collins, Dr. F. M. Sandwith, Mr. K. W. Goadby, and Professor W. J. Simpson. The Director is Mr. H. B. G. Newham. Certificates are granted after examination to those who complete a full course. Resident chambers are available for students who must be qualified or in the fifth year of their medical studies. Prizes: the Craggs prize of £50 and the Hon. Edward John Stanley Memorial Fund, £60, are awarded yearly.

(*b*) *The London School of Clinical Medicine* (for qualified practitioners only).—The lecture rooms, pathological laboratories (two), museum, and operative surgery class-rooms are in the *Dreadnought* Hospital at Greenwich, and the whole hospital of 250 beds with its out-patient departments is open to students from 10 A.M. till 5 P.M. Medical, Surgical, and Special Department In patient Clinics are held upon every afternoon except Saturday by the senior members of the staff, and operations are performed daily, whilst out-patients in the Medical, Surgical, and Special Departments are demonstrated by the assistant physicians and assistant surgeons daily in the forenoon. Practical classes are arranged each session in the following subjects: The Practice of Medicine, the Practice of Surgery, Diseases of the Eye, Diseases of the Throat, Nose, and Ear, Diseases of the Skin, Diseases of the Nervous System, Operative Surgery, Clinical Pathology, Microscopy and Bacteriology, Mental Diseases, Radiography, Dental Surgery, the Administration of Anæsthetics, Hygiene and Public Health, Gynæcology, Surgical Diseases of Women, Surgical Diseases of Children, Medical Diseases of Women, Medical Diseases of Children, Applied Anatomy, and Midwifery. Three sessions of three months' duration are held in each year, beginning on Jan 5th, April 15th, and Oct. 1st. Every variety of disease may be studied in the wards and out-patient rooms of the hospital, at the dispensaries, and at the affiliated hospitals. Male patients chiefly are received as in-patients by the Seamen's Hospital Society, but arrangements have been entered into with the Royal Waterloo Hospital for the reception of graduates who desire instruction in Diseases of Women and Children; with the Bethlem Royal Hospital for those who require tuition in Mental Diseases; and with the General Lying-in Hospital, York-road, for the prosecution of study in Midwifery. These hospitals are situated on the south side of the river, are directly linked to the *Dreadnought* by both railway and tramway, and are affiliated to the London School of Clinical Medicine. The certificates of the School are recognised by the Admiralty, the War Office, the India Office, the Conjoint Examining Board of the Colleges of Physicians and Surgeons, the Colonial Service, and the University of London (for the higher degrees). The supply of material affords exceptional facilities for practical instruction in Operative Surgery and in Pathology on the cadaver. The hospital also offers a wide field for the study of Venereal Diseases, and there is a special department with open-air wards for the treatment of Tuberculosis.

The teaching staff consists of: Sir Dyce Duckworth, Dr. Frederick Taylor, Dr. J. Rose Bradford, F.R.S., Professor R. Tanner Hewlett, Dr. Guthrie Rankin, Dr. S. Russell Wells, Sir William H. Bennett, Mr. William Turner, Mr. Lawrie H. McGavin, Mr. E. Rock Carling, Mr. L. Vernon Cargill, Sir Malcolm Morris, Mr. Richard Lake, Dr. Sale-Barker, Dr. Frederick Langmead, Dr. Gordon Holmes, Dr. Charles Singer, Mr. C. C. Choyce, Mr. H. Curtis, Mr. R. Bickerton, Dr. Wilfrid Fox, Mr. G. N. Biggs, Dr. Maynard Horne, Dr. Cecil Hughes, and Dr. R. E. Delbruck.

The extra mural lecturers are: Dr. James Taylor, Dr.

W. H. B. Stoddart, Professor W. J. R. Simpson, Mr. James Cantlie, Dr. William J. Gow, Dr. Herbert Williamson, Mr. Russell Howard, Mr. Herbert S. Pendlebury, Dr. Alexander Haig, Dr. R. O. Moon, Dr. Charles O. Hawthorne, Dr. Thomas D. Lister, and Dr. William R. Dakin.

The Syllabus and other particulars of the School can be obtained on application to Mr. C. C. Choyce, the Dean, Seamen's Hospital, Greenwich, S.E.

West London Post-Graduate College, West London Hospital.—The West London Post-Graduate College was started in 1895 and three years later its basis was enlarged by the provision for the post-graduates of lecture-, reading-, and waiting-rooms, &c., while owing to the continued growth of the college these were transferred in 1901 to a building especially constructed for the purpose. Over 2000 post-graduates have been enrolled since its establishment, the yearly entry being now about 200. The hospital, which contains 160 beds, is in the main Hammersmith-road, about three miles from Hyde Park Corner, and very accessible by omnibus, tram, or train. The physicians and surgeons attend daily at 2.30 P.M. Post-graduates accompany the staff and the junior staff on their visits to the wards. Instruction is given in the out-patient department daily at 2.15 P.M. by the assistant physicians and assistant surgeons. The out-patient department has recently been enlarged, and there is now ample accommodation for post-graduates to see and to examine the patients in all the special departments of the hospital. Clinical attendants are appointed from among the post-graduates to the Medical and Surgical out-patients and the Special Departments. The fee for a clinical assistantship to non-members is £3 3*s.* for three months, which includes membership of the College on the days on which the clinical assistant attends. Practical classes, limited in number, for instruction in special subjects, as well as in medicine and surgery generally, are held as required. Operations are performed daily at 2.30 P.M. Post-graduates are allowed to stand close to the table and can see the operations perfectly. The surgeons often avail themselves of the assistance of post-graduates at operations. Instruction is given in the administration of anæsthetics by the anæsthetists on the operating days and post-graduates are allowed to administer anæsthetics under their superintendence. Post-mortem examinations are performed at 12 noon, and demonstrations on recent pathological specimens are given on Mondays at 12 noon during each session in the pathological laboratory. Also two demonstrations are given each week on Practical Medicine on Wednesdays and Fridays at 12.15 P.M. Practical lectures and demonstrations are given each afternoon (except Saturdays), at 5 P.M., during the session. Included in this course are lectures by outside specialists on Mental Diseases and on Public Health, and in connexion with the former instruction is also given in certain asylums. The college is licensed for the teaching of operative surgery. The fee is £4 4*s.* each member in a class of four. The practice of the hospital is well adapted to the needs of medical officers of the Royal Navy and officers of the Royal Army Medical Corps, Indian Medical Service, and Colonial Service who have obtained leave for further professional study, and the certificate of attendance at the college during such leave is recognised by the Admiralty and other authorities. The college is recognised by the University of London for hospital practice before the M.D. degree and by the Royal College of Surgeons for the necessary work before the Fellowship examination. The pathological laboratory has just recently been completely reorganised and placed in the hands of the pathologist, Dr. Bernstein, who attends there during the whole day and gives instruction in Bacteriology and Microscopy. A special class meets on three mornings a week from 11 to 1, and post-graduates joining the class can work in the laboratory at other times under the guidance of the pathologist. A class meets 12 times and commences at the beginning of each month. The fee for this class in bacteriology and microscopy is £3 3*s* The fee for the hospital practice, including all ordinary demonstrations and lectures, is £1 1*s.* for one week, £3 3*s.* for one month, £6 6*s.* for three months, £10 10*s.* for six months, £15 15*s.* for one year, and £30 for a life ticket; all fees to be paid in advance. A practitioner who cannot attend the whole course may attend any ten lectures or demonstrations during the session for a fee of £1 1*s.* A vacation class is held each year in August, the fee being £3 3*s.* for the course of one month, including hospital practice, or a ticket for a fortnight's hospital practice, including the lectures, can be obtained for £1 11*s.* 6*d.* The fee for a three months' course of instruction in the administration of anæsthetics, including a special class, is £3 3*s.*, or without the class, £2 2*s.* A ticket for any of the above courses will be issued at any date. Arrangements can be made for gentlemen working for higher university examinations to be coached. The Winter Session will commence on Monday, Oct. 10th. All communications should be addressed to the Dean, Mr L. A. Bidwell, Post-Graduate College, West London Hospital, Hammersmith-road, W.

North-East London Post-Graduate College.—This post-graduate school is established in connexion with the Prince of Wales's General Hospital, Tottenham, N., which is recognised by the University of London as a place of post-graduate study for the M.D. and M.S. degrees and by the Admiralty and the India Office for purposes of study leave. Facilities are there afforded to qualified medical practitioners for taking part in the work of an active general hospital of 125 beds and for attending demonstrations in various branches of medicine, surgery, and gynæcology, with opportunities for clinical instruction in Diseases of the Eye, Ear, Throat, Nose, Skin, in Fevers, Psychological Medicine, the Administration of Anæsthetics, Radiography, and Dentistry. Cliniques, lectures, and demonstrations are given by members of the teaching staff in the lecture-room, in the wards, in the various out-patient departments, and in certain affiliated institutions. Operations are performed on every afternoon of the week except Saturday. Special limited classes are arranged in Gynæcology, the Surgical Diseases of Children, including Orthopædic Surgery, Diseases of the Throat, Nose, and Ear, Diagnosis of Diseases of the Chest, Diagnosis of Diseases of the Nervous System, Ophthalmoscopy and Refraction, Analysis of Gastric Contents, Clinical Examination of the Blood, Diseases of the Skin, Abdominal Surgery, Radiography, Bacteriology (which is accepted by the University of Cambridge for its D.P.H. diploma), and Medical Electricity. A Vacation Course will be held between Sept. 12th and 23rd. The fee for a three months' course of study, which may be begun at any time, in any single department, is 1 guinea. A fee of 3 guineas admits to the whole practice of the hospital for a similar term (one month 1 guinea), and a perpetual ticket for the practice of the hospital may be obtained on payment of a fee of 5 guineas. The fee for the Vacation Course is 2 guineas. Medical practitioners who have attended a three months' course in any department are eligible for appointment as clinical assistants in those departments. A certificate, signed by the staff, may be obtained at the end of three months' hospital attendance. A pathological museum and a pathological laboratory for original research are available. A reading- and a writing-room, containing a reference and lending library, is provided, and tea may be obtained. The hospital is connected with the Telephone Exchange (No. 23, Tottenham).

The lecturers are as follows:—In General Medicine: Dr. Percy Kidd, Dr. R. Murray Leslie, Dr. G. P. Chappel, Dr. A. J. Whiting, Dr. A. G. Auld, and Dr. T. R. Whipham. In General Surgery: Mr. John Langton, Mr. Walter Edmunds, Mr. H. W. Carson, and Mr. J. Howell Evans. In Gynæcology and Obstetrics: Dr. Arthur Giles. In Diseases of the Eye: Mr. R. Phillip Brooks. In Diseases of the Ear, Throat, and Nose: Mr. H. W. Carson. In Diseases of the Skin: Dr. G. Norman Meachen. In Fevers (at the North-Eastern Fever Hospital, St. Anne's-road): Dr. Frederic Thomson. In Psychological Medicine (at the Colney Hatch Asylum): Dr. S. J. Gilfillan. In Tropical Medicine: Mr. James Cantlie. In Radiography and Medical Electricity: Dr. A. Howard Pirie. In the Administration of Anæsthetics: Mr. A. de Prenderville and Dr. F. H. Wallace. In Pathology and Bacteriology: Dr. G. G. Macdonald. In Clinical Pathology and Bacteriology: Dr. Basil Price.

The opening lecture of the Winter Session will be given at the hospital at 4.30 P.M. on Oct. 27th by Sir Lauder Brunton, Bart., on the Value of Blood Pressure Observations in Medical Practice. Further information, with prospectus and syllabus of lectures and demonstrations, may be obtained from the Dean of the school, Dr. A. J. Whiting, at the Hospital, or at 142, Harley-street, London, W.

PROVINCIAL.

Birmingham.—At the University of Birmingham special courses for post-graduates have not yet been instituted, except in the subject of Advanced Bacteriology (January to March) and Clinical Pathology and Bacteriology (April to

une) and a course of Veterinary Pathology and Bacteri ogy for Veterinary Practitioners (October to December) ut the various departments of the University are open to raduates who can attend any of the systematic courses n payment of a fee. Graduates may also work in the aboratories under the supervision of the professors for a mall fee to cover the incidental expenses. Applications for nformation should be made to the Dean. At the General nd Queen's Hospitals Clinical Demonstrations for prac- itioners are given by members of the staff twice a week luring the autumn term.

Bristol.—Courses of post-graduate instruction adapted to he requirements of those proceeding to the M.D. degree of he Universities, each lasting about 12 weeks, will be held t the Bristol Royal Infirmary and General Hospital. The ourse will consist of: (*a*) clinical demonstrations on cases elected from the wards and from out-patients in medicine, bstetrics, dermatology, and laryngology; and (*b*) tutorial lasses in medicine, obstetrics, pathology, laryngology, bac- eriology, and dermatology. Classes in clinical medicine will be held twice a week—once at the Infirmary and nce at the Hospital—by Dr. F. H. Edgeworth at the Infirmary and by Dr. J. Michell Clarke and Dr. J. O. Symes t the Hospital. Classes in obstetrics will be held once a week on alternate weeks at the Infirmary and Hospital by Dr. Walter C. Swayne and Mr. D. C. Rayner respectively. A class in pathology will be taken once a week in the museums of the Infirmary and Hospital on alternate weeks by Professor Walker Hall and Dr. E. Emrys-Roberts respectively. Six demonstrations on dermatology will be given by Dr. J. A. Nixon and Dr. W. K. Wills at the Infirmary and Hospital. Six demonstrations on laryngology will be given by Dr. Watson Williams at the Infirmary. A practical course in bacteriology consisting of six demonstrations will be held by Professor Stanley Kent at University College. A tutorial class in medicine will be held on one evening a week by Dr. G. Parker, Dr. Newman Neild, and Dr. J. R. Charles in rotation, and a similar class in obstetrics will be taken once a week by Dr. Walter Swayne and Mr. Rayner alternately. The fees are as follows:—For the whole course, £7 7*s.*; for classes in clinical medicine, pathology, laryngology, and bacteriology and tutorial class in medicine, £5 5*s.*; for classes in obstetrics, pathology, and bacteriology, £3 3*s.*; and for clinical medicine and obstetrics only, £3 3*s.* Applications to attend the classes should be made to Dr. Walter Swayne, 56, St. Paul's-road, Clifton, Bristol.

Cambridge.—Long vacation courses are held at Cambridge during the month of July and the first fortnight in August. This year the course included lectures and demonstrations on general and special pathology by Professor G. Sims Woodhead and Mr. T. S. P. Strangeways, on bacteriology for medical students by Dr. Louis Cobbett, an advanced course on bacteriology for students of sanitary science by Dr. G. S. Graham Smith, a course in pharmacology by Professor J. B. Bradbury and Dr. W. E. Dixon. The pathological and pharmacological laboratories are open to advanced students and graduates. Applications for information should be made early in the year to Mr. E. E. Stubbing, Pathological Laboratory Museum, Downing-street, Cambridge.

Leeds.—The Anatomical, Physiological, and Pathological Laboratories at the University of Leeds are at the disposal of qualified medical men for research or for routine work at specially arranged fees, and though there is no definite post-graduate course at the General Infirmary the work of the large teaching institution is very freely accessible to qualified medical men at reduced fees. For the past few years a course of post-graduate demonstrations has been held by members of the staff of the Leeds Public Dispensary. The course has been very well attended and it is now proposed somewhat to extend the scope of the work by offering short courses of from four to six demonstrations on special subjects and by arranging for a weekly demonstration of cases of an informal character. This arrangement will hold good for the winter, the usual course of demonstrations being held during the summer.

Liverpool.—At the University of Liverpool the department of Bio-chemistry is devoted entirely to post-graduate teaching and research upon chemistry in relationship to biology and medicine. The laboratory is open daily for research, and courses of laboratory instruction in those parts of the subject most closely related to medical work are given for medical practitioners by arrangement with Professor Benjamin Moore. The Thompson-Yates and the Johnston laboratories are open for post-graduate research in pathology and physiology during the winter and summer sessions, under the supervision of Professor Sir Rubert Boyce and Professor C. S. Sherrington. A course of lectures and practical work in the laboratory is given each term in Comparative Bacteriology and Parasitology by Professor H. E. Annett, who also conducts a course of lectures and demonstrations in Comparative Pathology during the summer term. In the department of Tropical Pathology special courses of laboratory instruction in Bacteriology, Parasitology, Morbid Histology, Pathology, and Medical Entomology are given in each term, under the direction of Professor Ronald Ross, Dr. J. W. W. Stephens, and Mr. R. Newstead. A course of instruction in Operative Surgery is given by Mr. Thelwall Thomas on two days in the week during the summer session to candidates for the Fellowship of the Royal College of Surgeons of England and the higher university degrees in surgery. By special arrangement a practical course on the Clinical Examination of the Blood, the staining and identification of Pathogenic Bacteria, and the bacteriological diagnosis of certain diseases is given twice weekly during the summer term by Dr. E. E. Glynn and Dr. W. B. Warrington. Three courses annually are given in Tropical Medicine and Parasitology in the Liverpool School of Tropical Medicine in the University, and a diploma in Tropical Medicine is granted. Post-graduate courses on Diseases of the Eye, Skin, Throat, and Nose are also given during term time by the lecturers in these departments. At the Royal Infirmary special arrangements exist whereby medical practitioners can keep in touch with the most recent methods adopted in hospital practice. Mr. Douglas Crawford delivers a course of lectures and demonstrations in Surgical and Applied Anatomy during the autumn, summer, and Lent terms, which is intended to meet the requirements of students preparing for the final professional examinations. Mr. Craig Dun delivers a short course of clinical lectures and demonstrations on the Surgical Diseases of Children during the winter session at the Liverpool Infirmary for Children. Mr. Robert Jones also gives demonstrations on the Diagnosis and Treatment of Deformities in the University during the summer term.

Manchester.—The plan adopted a few years ago at the University of Manchester of having special courses of lectures on medicine and surgery for qualified medical men has since that time been considerably modified. Classes are now held and lectures given on various special subjects, as, e.g., diseases of the heart, diseases of the respiratory organs, of the kidney, and so on, and the same obtains as to surgical matters. These lectures are designed to meet the wants of senior students and practitioners. During the past summer post-graduate clinical demonstrations have been given twice a week at the infirmary by members of the staff, and as they were very well attended a more complete series of demonstrations will probably be arranged for next summer. Classes for senior students and post-graduates are also held at the Ancoats Hospital. There are good opportunities also for post-graduate study at the special hospitals for diseases of the eye, throat, ear, and skin, &c., but no special demonstrations are given. The Public Health Department, presided over by Professor S. Delépine, is largely attended by medical men, as are also the lectures on bacteriology given in the College course by Dr. E. J. Sidebotham. Facilities are also given for the pursuit of research work in the public health laboratories, and in this department the dates of post-graduate courses in pathology and bacteriology are announced in the laboratory and in the medical journals. There is no difficulty in Manchester in the way of any practitioner who wants to have his recollections revived or his knowledge enlarged and brought up to the present standard in accomplishing his wish.

Newcastle-upon-Tyne.—At the University of Durham courses of instruction are given in chemical and physical laboratory work and lectures are delivered on comparative pathology and practical bacteriology for the Diploma in Public Health and the Degree of Bachelor in Hygiene.

Sheffield.—At the University of Sheffield post-graduate course are held annually. The subjects vary from time to time and include medical and surgical anatomy, physiology of digestion and nutrition, pathology of the blood, clinical bacteriology, surgery, ophthalmic surgery, operative surgery, diseases of the nose, and diseases of the ear.

SCOTLAND.

Aberdeen.—Although there is no special provision at Aberdeen for post-graduate study such as exists in London, still there are some facilities for doing work of this nature at the University. There are fully equipped laboratories in Anatomy, Anthropometry, Bacteriology, Botany, Chemistry,

Pharmacology, Physics, Physiology, Public Health, and Zoology. Graduates or others desiring to engage in special study or research may be admitted by the Senatus to prosecute such study or research in any of the laboratories in accordance with certain provisions. Research students are exempted from payment of laboratory fees, but are required to matriculate each year, paying the ordinary matriculation fee (£1 1*s.* for winter and summer; 10*s.* 6*d.* for summer). Forms of application for admission as research students may be had from the Secretary of the Senatus. The fees are £3 3*s.* for six hours per week in winter or nine hours per week in summer, 10*s.* 6*d.* and 7*s.* being charged for every extra hour per week in winter and summer respectively. The fee for the Public Health Laboratory for six months is £6 6*s.*, and for the Bacteriological Laboratory for three months is £4 4*s.*, £3 3*s.* and £1 11*s.* 6*d.* being respectively charged for a half course or any less time. At the Royal Lunatic Asylum, accommodating above 700 patients (fees, £2 2*s.* for three months), arrangements are made for extra teaching in the higher departments of medical psychology and cerebral pathology for graduates who desire it or wish to obtain the certificate of the Medico-Psychological Association of Great Britain and Ireland. Clinical work may be done at the following places:—(General Hospital): Aberdeen Royal Infirmary (accommodating 200 patients; perpetual ticket £6, or first year £3 10*s.* and second year £3, thereafter free); Sick Children's Hospital (75 patients; first year £2 2*s.*, then £1 1*s.*); City (Fever) Hospital (100 beds; £1 1*s.* for three months); General Dispensary and Lying-in and Vaccine Institution (10,000 out-patients per annum); a fee of £3 3*s.* for the general practice of the Institution, a fee of £1 1*s.* for the certificate of Vaccination, and a fee of £3 3*s.* for the Maternity Practice; and Ophthalmic Institution (16,000 patients per annum, fee £1 1*s.*). During the summer session (April to June) special classes, each costing £2 2*s.*, are held at the Royal Infirmary, the subjects being Diseases of the Skin, Medical Electricity, Dental Surgery, Anæsthetics, Ophthalmology, and Gynæcology. Lectures on Diseases of the Ear and Throat are given at the Dispensary.

Edinburgh.—Post-graduate teaching now occupies a recognised place in the Edinburgh School, the arrangements connected therewith being entrusted to a committee consisting of representatives appointed by the Faculty of Medicine of the University and the Royal Colleges. Exceptional facilities for post-graduate instruction are afforded during the summer vacation. Three courses are held at this time—viz., a course on Internal Medicine during August and both a Surgical and General Course during September. (*a*) The course on Internal Medicine will commence on Monday, August 1st, and will extend for four weeks from this date. The course will comprise classes upon medical anatomy (10 hours), the clinical examination of the blood (15 hours), clinical bacteriology (15 hours), the examination of the heart (29 hours), the examination of the nervous system (20 hours), the examination of urine and digestive products (20 hours), and the examination of sick children (10 hours), in addition to a series of 40 specially arranged clinics dealing with diseases of the heart, lungs, blood and ductless glands, nervous system, stomach and kidneys, abdomen, and general diseases. The entries for this course will be limited to 25, and the fee will be 10 guineas. (*b*) The Surgical Course will commence on Monday, Sept. 5th, and conclude on Friday, Sept. 30th. The course will include classes upon surgical anatomy (20 hours), surgical pathology (20 hours), and operative surgery upon the cadaver (30 hours), in addition to specially arranged daily clinics. The entries for the Surgical Course will be limited to 25, and the fee will be 10 guineas. (*c*) The General Course, subdivided into two independent fortnights, will also commence on Monday, Sept. 5th, and will continue for four weeks from this date. Among the subjects included in this course are medical anatomy, the medical and surgical affections of children, the medical inspection of school children, lectures upon infant feeding, demonstration upon the pathology of the eye, clinics on medicine, surgery, infectious diseases, neurology, venereal diseases, diseases of the eye, demonstrations on morbid anatomy, &c. The fee for the course will be 5 guineas, or 3 guineas for either fortnight. In addition to the subjects above mentioned the following classes, the attendance upon which is necessarily limited, are open to graduates who have entered for the General and Surgical Course upon payment of an additional fee of 1 guinea in each instance: bacteriology, diseases of the blood, diseases of the ear, nose, and throat, ophthalmoscopy, errors of refraction, gynæcology, histological methods employed in medical diagnosis, and X ray and electrical work. Further special lectures have been arranged for dealing with the progress of medicine in its various departments during the past ten years. These lectures are open to local practitioners as well as to graduates attending the September courses. Accommodation may be obtained during September at one of the residences of the University Hall. Information regarding other accommodation may be obtained from the Secretary. The committee of the University Union has decided to open the building during September, and gentlemen attending the course are eligible for temporary membership for one month on payment of a fee of 10*s.* The Union, which adjoins the University buildings, contains a good medical library, reading-rooms, dining hall, smoking-room, billiard-room, &c. Copies of the syllabus of both the August and September courses may be obtained from the Secretary, Faculty Office, University New Buildings, Edinburgh.

Glasgow.—At Glasgow the possibilities for post-graduate work are considerable, and in almost every department graduates have opportunities for acquiring more special knowledge or carrying on original work. In pathology, courses in Practical Bacteriology and Pathological Histology for graduates will be commenced in the pathological department of the Western Infirmary about the middle of October. The courses will extend over eight weeks, each class meeting thrice weekly. The fee for either course is £3 3*s.*, and for both courses £5 5*s.* In the Pathological Institute there is a limited number of rooms specially fitted up for research work, and arrangements can be made for graduates who are desirous of engaging in work of this nature. Those interested in embryology may take out the practical course, or if they desire to do special work may obtain the use of a table in the embryology laboratory with such guidance and help as the lecturer can give. The University also has the right of nomination to a table in the laboratory of the Marine Biological Station at Millport. This station is happily circumstanced as regards the richness and variety of the fauna, which can readily be obtained and kept alive in the tank rooms under approximately natural conditions. It thus offers facilities for various kinds of biological study and particularly for physiological and pharmacological work on the marine invertebrates. Further information regarding the station can be got from the honorary secretary, Mr. Geo. Middleton, 83, Bath-street, Glasgow. Post graduate instruction in public health laboratory work is given in the University laboratory during both winter and summer sessions, and opportunities are offered under prescribed conditions for original research work. As regards physiology and materia medica, every facility is afforded to those wishing to engage in original research work. During the winter months classes in physiological chemistry and physiological psychology will be conducted by the University lecturers in these subjects. In the Eye Infirmary Dr. A. F. Fergus conducts every autumn a course of post-graduate instruction on refraction testing and on squint. The course extends over a period of two months, during October and November, and the meetings are held twice weekly—namely, on Tuesdays and Fridays in the afternoon. At Anderson's College Medical School the Public Health Laboratory course, conducted by Dr. Carstairs Douglas, is open to all qualified medical practitioners (including women), and is recognised for the Diploma in Public Health by the University of Cambridge, the Scottish Conjoint Board, and the Irish Colleges. The laboratory is fully equipped and the complete course in Chemistry, Bacteriology, and Microscopy is carried out. It is supplemented when desired by a three months' course of lectures on Sanitation, Vital Statistics, and Sanitary Law, attendance on which enables candidates to dispense with three months of the outdoor Public Health work. The course will commence about the middle of October. As regards Operative Surgery, graduates desirous of taking out a course in this subject can obtain the necessary facilities by arrangement with the Dean of Anderson's College. The new Maternity Hospital gives exceptional scope for post-graduate work. There are 110 beds and a large out-door department. Two physicians are on duty at a time and there is a daily clinique. The fees for post-graduate work are £3 3*s.* for a month, £6 6*s.* for three months and £10 10*s.* for six months. There is also a residence

in the hospital grounds for 15 persons, and available both for graduates and students, board and lodging being charged at £1 7*s.* 6*d.* per week. Post-graduate classes are conducted at the Royal Infirmary during the autumn months. The different courses are as follows:—1. Opening Lecture: Sir James Barr, at 4 P.M. on Thursday, Sept. 1st. 2. Clinical Medicine: Dr. George S. Middleton, at 9.30 A.M. on Mondays and Thursdays during September, beginning Sept. 5th; Dr. T. K. Monro, at 4.30 P.M. on Thursdays, Sept. 8th, 15th, 22nd, and 29th; and Dr. J. M. Cowan, at 4 P.M. on Tuesdays, Sept. 6th, 13th, and 20th. 3. Clinical Surgery: Dr. Henry Rutherfurd, at 9.30 A.M. daily, from Sept. 5th to 9th; Dr. A. N. M'Gregor, at 4 P.M. on Mondays, Sept. 5th, 12th, 19th, and 26th; and Dr. John A. C. Macewen, at 9.15 A.M. daily during September. 4. Hæmatology: Dr. Walter K. Hunter, at 4 P.M. on Wednesdays, Sept. 7th, 14th, 21st, 28th, and Oct. 5th. 5. Surgical Diseases of the Urinary Organs: Dr. David Newman, at 4.30 P.M. on Fridays, Sept. 2nd, 9th, 16th, 23rd, and 30th. 6. Clinical Examination of the Urine: Dr. John Henderson, at 10 A.M. on Tuesdays and Fridays, Sept. 6th, 9th, 13th, 16th, 20th, and 23rd. 7. Diseases of Throat, Nose, and Œsophagus (A): Dr. John Macintyre, at 4 P.M. on Tuesdays and Fridays, Sept. 2nd, 6th, 9th, 13th, 16th, 20th, 23rd, 27th, and 30th. 8. Diseases of the Ear in Children: Dr. J. Kerr Love, at 4 P.M. on Thursdays, Sept. 1st, 8th, 15th, 22nd, and 29th. 9. Diseases of the Eye: Dr. A. Maitland Ramsay, at 2 P.M. on Mondays and Wednesdays, and at 8 P.M. on Tuesdays and Fridays, during September. 10. Diseases of the Skin: Dr. Alex. Morton, at 10 A.M. on Wednesdays, August 31st, Sept. 7th, 14th, and 21st. 11. Diseases of the Throat and Nose (B): Dr. Robert Fullerton, at 10 A.M. on Tuesdays and Fridays, during September. 12. Electro-Therapeutics: Mr. James R. Riddell, at 9.30 A.M. on Tuesdays and Fridays, Sept. 6th, 9th, 13th, 16th, 20th, 23rd, 27th, and 30th. 13. Pathological Anatomy: Dr. J. H. Teacher, at 12 noon on Tuesdays and Fridays, Sept. 2nd, 6th, 9th, 13th, 16th, 20th, 23rd, 27th, and 30th. 14. Vaccine Therapy and Opsonic Technique: Mr. J. Campbell, at 2 P.M. daily, from Sept. 19th to 23rd. The fee for attendance at each of the above classes is £1 1*s.*; for any three of them, £2 2*s.* 15. Gynæcology: Dr. W. D. Macfarlane, at 10 A.M. on Tuesdays, Thursdays, and Saturdays. Two courses—first, from Sept. 1st; second, from Oct. 1st. Fee for each course, £2 2*s.* 16. Operative Surgery: Dr. Henry Rutherfurd and Mr. James Battersby, at 12 noon daily, beginning Sept. 5th. Fee, £3 3*s.* 17. Bacteriology: Mr. David M'Crorie, five days a week for three months, beginning Oct. 3rd. Fee, £3 3*s.* *Note.*—A syllabus giving full details of the classes may be had on application to Dr. J. M. Thom, superintendent, who will supply any further information.

IRELAND.

Belfast.—At the Queen's University of Belfast a course in Clinical Pathology, consisting chiefly in practical instruction, has been given hitherto during the summer session, and, should a sufficient number desire to attend, a post-graduate course of practical work in the application of methods of chemical physiology to clinical investigation is also held. A course in Clinical Pathology or Bacteriology is given to graduates, and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in this department for the public health committee of the Belfast corporation in connexion with water-supply, sewage disposal, meat- and milk supply, and the diagnosis of cases of infectious diseases. Subject to the number of students presenting themselves, arrangements are made for the necessary practical instruction (1) in the chemical laboratories; (2) in the pathological and bacteriological laboratories; and (3) for outdoor sanitary work under the medical officer of health of Belfast. These courses have been approved by the Privy Council in connexion with the degree of M.D. in State Medicine in the University of London. The certificates of these courses are also accepted for the Diploma in Public Health granted by the Queen's University of Belfast, the University of Cambridge, and the various licensing bodies.

Cork.—At University College a post-graduate course has been held hitherto for the Diploma in Public Health, including Chemistry, by Professor A. E. Dixon; Public Health, by Mr. D. Donovan, public health officer of the city of Cork; and Bacteriology, by Dr. A. E. Moore. Other professors and lecturers would also give post-graduate courses if requested to do so. No post-graduate courses have up to the present been held at the hospitals.

Dublin.—Trinity College and the Royal College of Surgeons each make arrangements for two courses of post-graduate instruction in the year. The courses arranged by Trinity College are held in June and in September-October, and each course occupies three weeks. Instruction is usually given in the following 11 subjects: Medicine, Surgery, Gynæcology, Diseases of Eye, Diseases of Throat, Nose, and Ear, Diseases of Skin, Pathology, Anatomy, Physiology, X Ray Work, and Cystoscopy. One or two teachers deal with each subject, and a detailed syllabus is published beforehand, care being taken to choose matters of particular interest at the time. The courses in pathology, anatomy, and physiology are designed with special bearings on clinical problems. The classes are held in the School of Physic, Trinity College, and in Sir Patrick Dun's, the Adelaide, the Royal City of Dublin, the Rotunda, and the Royal Victoria Eye and Ear Hospitals. Arrangements are made by which a limited number of members of the class can reside in College rooms and dine on commons, at an inclusive cost of £1 1*s.* per week. The composite fee for the entire course is £5 5*s.* The autumn course for 1910 will begin on Sept. 19th and end on Oct. 8th. Full particulars can be obtained from the honorary secretary, 27, Lower Fitzwilliam-street, Dublin.

The post-graduate courses arranged under the auspices of the President and Council of the Royal College of Surgeons in Ireland have hitherto proved a most gratifying success. The object of these courses is to render available the whole of the clinical material in the city for the post-graduate student, so that he may see as much as possible during the brief time at his disposal. With this comprehensive object in view the ten general hospitals of the city are included (Richmond, Jervis-street, Adelaide, St. Vincent's, Dr. Steevens', Mater Misericordiæ, Meath, Mercer's, Royal City of Dublin, and Sir Patrick Dun's), and also the various hospitals which are devoted to "specialties." The opportunities and wealth of material afforded by the latter are shown by a glance at the list of special subjects and the institutions where they are respectively cultivated: Skin, Adelaide Hospital; Eye and Ear, Royal Victoria Eye and Ear Hospital; Throat and Nose, Mater Misericordiæ Hospital, Adelaide Hospital, and Sir Patrick Dun's Hospital; Gynæcology, Rotunda Hospital, Coombe Hospital, and National Maternity Hospital; X Ray and Light Therapeutics, Meath Hospital and Dr. Steevens' Hospital; Pathology and Bacteriology, Richmond, Whitworth, and Hardwicke Hospitals, Mater Misericordiæ Hospital, Meath Hospital, and School of Surgery, Royal College of Surgeons; Diseases of Children, Orthopædic Hospital, St. Joseph's Hospital, and Harcourt-street Hospital; Lunacy, Richmond District Lunatic Asylum; Anæsthetics, Dental Hospital; Cadaver Operations, Professors at Schools of Surgery, R.C.S.I.; Anatomy, Professor of Anatomy, R.C.S.I.; Sanitary Science, Professor of Hygiene, R.C.S.I. The second course will begin on Monday, Sept. 26th, 1910, and will terminate on Oct. 18th following. Fee for each course, inclusive of all, £5 5*s.* Full details regarding the course can be obtained from, and all applications are to be addressed to, Dr. N. C. Rutherford, Royal College of Surgeons in Ireland. A list of addresses of apartments and hotels, which have agreed to modified rates for pupils while passing through the course, can be obtained by application at the Royal College of Surgeons. It has been decided that in the event of the post-graduate students exceeding a certain number arrangements will be made to divide up the classes into practical working groups.

In addition to the special courses detailed above, arrangements can be made at the various laboratories and hospitals for individual post-graduate work. In particular the practice of the maternity hospitals, the Rotunda, the Coombe, and the National Lying-in is made much use of by graduates from all parts of the world.

WE deeply regret to announce the death of Sir Constantine Holman, which occurred at his house, 26, Gloucester-place, Portman-square, London, on Thursday, August 18th. We hope to publish an extended notice of his valuable career in an early issue of THE LANCET.

BIRTHS.

LETT.—On August 18th, at 48, Queen Anne-street, W., to Mr. and Mrs. Hugh Lett, a daughter (Sheila Buckston).

SWANN.—At 75, Marlborough-avenue, Broomhill, Partick, Glasgow, on August 20th, the wife of A. J. T. Swann, M.B., Ch.M., West African Medical Staff, Northern Nigeria—a son.

OUR CURRENT NUMBER

Being almost exclusively devoted to information especially interesting to Students we are necessarily compelled to defer the publication of communications on other important subjects.

We tender our best thanks to those gentlemen who have at considerable personal trouble kindly supplied us with the returns and prospectuses upon which the information given in this Students' Number of THE LANCET *relative to the various medical examining bodies, hospitals, and medical schools of the United Kingdom is based. We regret that in some cases, however, owing to proofs having been either not returned at all or too late, certain inaccuracies may be found.*

TO ADVERTISERS.

Owing to the pressure on our advertisement columns this week some announcements have unavoidably been held over.

Communications, Letters, &c., have been received from—

A.—Dr. T. Dyke Acland, Lond.; Anti-Vivisection Hospital, Lond., Secretary of; Anglo-American Pharmaceutical Co., Croydon; Messrs. Armour and Co., Lond.; Captain P. Atal, I.M.S., Nellore; Dr. F. G. Adye-Curran, Dublin; Dr. James R. Atkinson, Crewe; Fleet-Surgeon O. W. Andrews, R.N., Lond.; Mr. More Adey, Lond.; A. S. B. B.; Mrs. A. Abbott, Lond.

B.—Messrs. Blundell and Rigby, Lond.; Fleet-Surgeon R. F. Bate, R.N., Portland; Dr. F. Lucas Benham, Exeter, South Australia; Messrs. J. L. Bragg, Lond.; British Association for the Advancement of Science, Sheffield; Fleet-Surgeon A. R. Bankart, R.N., Portsmouth; Mr. Thomas Bickerton, Port St. Mary; Dr. Ch. Bäumler, Freiburg-i-Br.; Messrs. W. H. Bailey and Son, Lond.; Mr. C. Billing, Leytonstone; Mr. C. A. G. Browne, Lond.; Beable's Advertising Agency, Lond.; Dr. T. Barry, Glasgow; Mr. C. Birchall, Liverpool; Mr. W. C. Bentall, Southport; Dr. William Boyd, Rowditch; British Medical Benevolent Fund, Lond., Hon. Secretary of; Bristol Royal Hospital, Secretary of; Dr. R. H. Bremridge, Trowbridge.

C.—Mr. F. W. Clarke, Chorlton-cum-Hardy; Mr. G. Clarke, Lowestoft; *Cambridge Daily News*, Manager of; Dr. H. W. Cattell, Bad Gastein; C. E. G.; Messrs. J. and A. Churchill, Lond.; Messrs. Edward Cook and Co., Lond., Director of; Mr. Joseph Collinson, Wolsingham; Capt., R.A.M.C.T.; Mr. John C. Carr, Liverpool; Cheltenham General Hospital, Secretary of.

D.—Dr. W. A. Dingle, Lond.; Messrs. De Wynters, Lond.; *The Dundee Advertiser*, Dundee; Lieutenant-Colonel A. M. Davies, R.A.M.C., Eltham; Messrs. W. Dawson and Sons, Lond.; Daimler Motor Co., Coventry.

E.—Dr. E. H. Ellison, Syston; Essex Education Committee, Chelmsford, Secretary of; Encyclopædia Britannica, Lond., Editor of; E. L. A.

F.—Dr. Theodore Fisher, Sidcup; Dr. L. D. Frescoln, Philadelphia; Dr. J. E. M. Finch, Leicester.

G.—Mr. J. C. Ghosh, Lond.; Dr. W. Gilfillan, Falkirk; Mr. M. Gil, Marseilles; Dr. James Gilroy, Ecclefechan; Dr. T. R. Glynn, Liverpool; Mr. H. Wippell Gadd, Woolacombe.

H.—Dr. V. S. Hodson, Khartoum; Messrs. Hilton and Co., Calcutta; Messrs. C. A. Hoefftcke, Lond.; Messrs. T. Holland and Son, Lond.; Hong Kong, Principal Civil Medical Officer; Mrs. F. H. Hankins, Robin Hood's Bay; Mr. Ernest E. Hughes, Manchester; Surgeon W. E. Home, R.N., Lond.; Mrs. Hartshorne, Southport; Dr. A. Phillips Hills, Lond.; Hastings, St. Leonards, and East Sussex Hospital, Secretary of; Mr. T. Hunt, Wellington College.

I.—The India Rubber, Gutta Percha, and Telegraph Works Co., Lond.

J.—Mr. Robert Jones, Liverpool; Mr. T. R. Judson, Farnham; *Journal of Pharmacology and Experimental Therapeutics*, Baltimore, Business Manager of; Dr. J. L. Jonghin, Garches; Joint Counties Asylum, Carmarthen, Clerk to the; J. P.

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N.—Mr. J. C. Needes, Lond.; Mr. H. Needes, Lond.; Captain V. B. Nesfield, I.M.S., Great Marlow; National Committee for Prevention of Destitution, Lond.; National Association for the Study and Education of Exceptional Children, Plainfield, New Jersey.

P.—Messrs. Peacock and Hadley, Lond.; Mr. Max Paschka, Wien; Privy Council, Lond., Clerk of; Mr. G. H. Pearce, Batley.

Q.—Mr. George Quick, Maidenhead; Dr. L. C. Quéry, Paris.

R.—Mr. E. W. Roughton, Lond.; Mr. W. H. Robson, Purton; Mr. R. P. Rowlands, Lond.; Dr. J. W. Rob, Weybridge; Dr. H. T. Ricketts, Chicago; Mr. W. Raygens, Pyle; Mr. Harry H. R. Reynolds, Pembroke Dock; Royal Sanitary Institute, Lond., Secretary of; Dr. J. M. Rattray, Frome; Royal Cornwall Infirmary, Truro, Secretary of.

S.—Scholastic, Clerical, &c., Association, Lond.; S. G. M.; Salford Royal Hospital, Secretary of; Salford Union, Clerk to the; Messrs. Sherratt and Hughes, Manchester; *Sheffield Daily Telegraph*, Lond., Manager of; Professor W. Stirling, Manchester; Mr. D. H. Shuttleworth-Brown, Wimbledon; Southport Infirmary, Secretary of; *School Hygiene*, Lond.; Dr. J. C. E. Simpson, Liverpool; Mr. Henry Sewill, Earlswood Common; Dr. E. Schloesser, Wiesbaden; Mr. J. P. Sanyal, Benares; Messrs. Squire and Sons, Lond.; Smith's Advertising Agency, Lond.; Dr. Emil Schwann, Lond.; Mr. Argent Saunders, Lond.; Mr. A. Swanger, Boscombe; Mr. J. Barker Smith, Lond.; Society of Apothecaries of London, Secretary of.

T.—Dr. C. L. Terry, Barnet; Mr. W. Thorburn, Manchester; Mr. Y. Takaki, Lond.; Surgeon Tobin, Dublin; Mrs. A. Thacker, Windsor; Dr. A. V. Trow, Devizes; Town Planning and Modern House and Cottage Exhibition, Lond., Hon. Secretary of.

U.—University of Edinburgh Faculty of Medicine, Assistant Clerk of.

V.—Dr. G. Van der Gucht, Antwerp; The "Vaidya Sindhu," Bangalore.

W.—Mr. F. L. Wilson, Lond.; Mr. F. Wells, Norwich; Mr. James R. Williamson, Lond.; Dr. J. Walker Wood, Lond.; West London Post-Graduate College, Dean of; West Kent General Hospital, Maidstone, Secretary of; Dr. L. A. Weatherly, Stourwood; W. H. H.; Wellcome Physiological Research Laboratories, Lond.; Mr. J. Wishart, Melrose; Mr. A. J. Wilson.

Y.—Dr. E. G. Younger, Brighton; Dr. E. S. Yonge, Manchester.

Z.—Dr. Zavitzianos, Kerkura.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. E. Arnold, Lond.; A. O.; Ayr County Hospital, Secretary of; A. E. B.; A. S.; A. F.; A. M.; A. D. P. D.; Æsculapius, Southsea.

B.—Mr. E. Burgess, Whalsay; Mr. D. W. Bishop, Zeerust; Dr. E. R. Bowen, Bargoed; Dr. R. A. Barr, Nashville, U.S.A.; Mr. P. C. Bushnell, Forest Row; Dr. J. S. Beveridge, Milnathorpe; Mr. E. J. Brandreth, Buxton; Mr. E. Bougault, Paris; Mr. B. Benson, Liverpool; Dr. W. Briggs, Blackburn; Mr. J. E. Brooks, Great Malvern; Berrow's Journal Co., Worcester, Manager of.

C.—Mr. W. Colhoun, Londonderry; Dr. J. M. Chisholm, Liverpool; C. B. L. N.; Messrs. T. Christy and Co., Lond.

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N.—Northumberland House, Lond., Superintendent of; Nottingham General Hospital, Secretary of.

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S.—Mr. H. H. Schmitz, Munich; Mrs. Swann, Partick; Storthe Hall Asylum, Kirkburton, Clerk to the; Mr. H. Sewill, Redhill; Messrs. Shaw and Sons, Lond.

T.—Dr. H. B. Tawse, Nottingham; Dr. W. H. Thresh, Winchester; Mr. L. A. Tressider, Rawal Pindi, India.

W.—Dr. H. Wilcox, Salisbury; Dr. M. G. L. Walker, Keighley; Mr. W. F. A. Walker, Dina; Mawddwy; White Hart Hotel, Margate, Manager of; Woodhall Spa Co., Lincoln.

X.—X. L., Lond.

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ON
STERILITY: ITS ETIOLOGY AND TREATMENT.

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GENTLEMEN,—In bringing before you the subject of sterility, I may preface my remarks by saying that it is one of great importance to all who enter upon the practice of medicine generally. It almost invariably is the cause of much unhappiness, and it is a matter of such moment to some that it dominates their lives, and in the case of certain women, to my knowledge, it becomes an obsession. It brings with it such mental suffering and such misery that in certain cases where large properties depended upon an heir, I have known the mind to become unhinged from the constant fretting and disappointment of a childless marriage. Therefore as the family physician is frequently consulted before the patients come into the hands of specialists, it is well that he should devote attention to the study of the causation and treatment of this affliction.

Sterility may be defined as the inability of a woman to bring forth children, but for the purpose of this lecture I shall define it as the inability on the part of a married couple to bring about conception. A woman is said to be sterile because she cannot produce children, and yet she may have conceived repeatedly. Now that is much too large a subject to take up this afternoon, and I shall therefore confine my remarks to the power of conception alone. I have particularly chosen to deal with the matter of the sterility of marriage as concerning both the man and the woman, for althongh until comparatively recently it was always assumed that the woman was at fault if the man seemed physically fit for the sexual act, we now know that *potentia coeundi* does not necessarily mean *potentia generandi*. It is only in comparatively recent years that we have come to learn how mnch men are to blame for sterile marriages, and this is largely owing to the work of Noeggerath,[1] which at first received no attention; it was owing to the remarkahle discovery of the gonococcus by Neisser that the views of Noeggerath were accepted. This discovery led to the search for the gonococcus in many cases of vaginal discharge, with the result of its discovery, and it also explained many cases of incurable or chronic discharge from the male. Clinical ohservation led to the knowledge that it accounted for not only discharge from the woman, hut for those affections of the pelvis of which I shall have to speak immediately, and which are found to he so frequently associated with sterility.

Sterility in the woman may be divided into primary, relative, and secondary. In primary sterility it is ahsolute, and by many is said to he congenital, and I may here say that although a woman may live for years with her husband, and may he said to be absolutely sterile, the husband may die, she may marry again, and become pregnant; so that, according to Finger, she is relatively sterile, or, in accordance with the views of others, there is incompatibility. In secondary sterility the woman has borne one or more children, and then, for no apparent reason, is unable to beget more children, although the hushand remains strong and healthy and the woman has no reason to believe that she is otherwise than perfectly well.

ETIOLOGY.

In the first place, I shall enumerate some of the causes to which sterility may be attributed on the part of the woman, but I would say that I have no intention of dwelling on the sterility which is bronght about voluntarily by practices which are used for the prevention of conception. It is somewhat remarkable that such practices frequently bring their own punishment, for interfering with natural processes may canse permanent sterility. It is difficult to explain this in all cases, and I shall not take up your time by attempting to do so, but I have now seen many cases of sterility following these practices, adopted after the birth of one child, which have heen discontinued because, after a certain number of years, a second child has been desired, and it has heen found impossible to get one. I do not allude to the so-called "one-child" sterility, which is well known, and where, as a rule, inability to conceive may be traced to a puerperal infection or other causes, but I am now speaking of cases where conception has heen deliherately prevented for some years—not hy voluntarily living apart, for I have known many such cases—and where there is no reason to suspect puerperal trouble, the one confinement having been perfectly normal, and where there has been absolutely no ground for putting the sterility down to infection by the gonococcus.

Before entering upon the structural and functional causes of sterility in women, it may be interesting to quote some figures which have been collected as bearing on the subject of age. Matthews Duncan[2] says that the main element in the expectation of sterility is the age of marriage. According to statistics, the question of whether a woman will be sterile or not after marriage is decided within three years from the date of marriage, only 7 per cent. hearing after this period. Duncan has shown, according to figures, that marriage itself, in the very young, from 16 to 19 years of age, is a cause of sterility; and although these figures certainly show that conception is less likely in very early marriages, in this country at least, it is extremely difficult to ascertain the capahility for propagation in the woman. It is far more easy to do so in the man, but in the woman it is not only a case of testing the capability of the ovum for development, analogous to that of the spermatozoa, but also of ascertaining the possibility and likelihood of the ovum and spermatozoa meeting together, and of the fructified ovum finding a lodgement. But whilst the difficulties of investigation become thereby multiplied as in the variation and permutation of an algehraical problem, the area of objective discovery hecomes narrowed down to quite small limits. The vagina and portio are all that are open to ocular inspection, our remaining conclusions must be drawn from tactile impression and general examination.[3] The amount of sterility in woman is found by counting the number of productive and non-productive marriages of women within the reproductive age, from 15 to 45. West found that the numher of sterile marriages amongst his patients at St. Bartholomew's Hospital averaged 1 in 8·5. Sir James Simpson found in a certain district that 1 marriage in every 10 was unproductive.[4] In 402 marriages in one place Matthews Duncan found that 1 in 11 was sterile. These latter two correspond fairly well. But it would be manifestly inaccurate, looking to the etiology in many cases, which we must discuss later, to take statistics from gynæcological out-patient departments, as was done by West. Of 495 marriages of British peers collected by Simpson, which had lasted five years or more, and in which the husbands were under 57 years of age, 1 in 6½ were sterile. Different statistics of sterile marriages collected from different sources, although showing figures which are not quite the same, go to prove that it is fairly accurate to state that in Great Britain the number of unfruitful marriages is 1 in 10.[5] This shows how important the study of sterility becomes, for we know that the average healthy woman living in wedlock all her child-bearing life should have 10 children, so that 1 sterile marriage in 10 means an enormous loss to the State—no less than 1000 children for every 100 marriages. An accurate knowledge of etiology, leading to careful treatment, would help to diminish this loss. If the husband is healthy for copulation and procreation, we must remember that the following conditions are necessary in order that fecundation may ensue: (1) Normal ovulation; (2) cohabitation; and (3) opportunity of meeting of the ovum and spermatozoa.

Sterility may always be attributed to defects in one of these conditions. We have no exact knowledge of the normal process of fecundation. Ovulation and menstruation may occur independently. We cannot say if discharged ova are ripe, but we assume that they are in any "sexually ripe" woman.[6]

The causes of sterility, apart from age, may he divided into structural and functional. It will he easiest to trace the

[1] Die Latente Gonorrhœa au Welblichen Geschlecht, Bonn, 1872.

[2] Matthews Duncan: Sterility in Women. J. and A. Churchill, London. 1884.

[3] Torkel: Sterilität des Weides Monatschrift für Geburtshulfe, Gynäkologie, 1887, 26, pp. 361 to 407.

[4] Duncan: Op. cit., p. 9.

[5] Duncan: Op. cit., p. 12.

[6] Torkel: Op. cit., p. 5.

causes of structural sterility in women from without inwards, and the following classification appears to be practical :—

I. *Structural.*—(*a*) Any condition which causes physical obstruction in the sexual act, such as a tough and unruptured hymen, vaginismus, &c. ; (*b*) affections of the vagina and cervix, as atresia of the vagina, vaginitis, &c. ; (*c*) affections of the uterus and adnexa ; and (*d*) any condition, apart from the pelvic organs, leading to inflammation of the peritoneum, as appendicitis.

II. *Functional and constitutional causes.*—Incompatibility, dysmenorrhœa, general diseases, underfeeding, alcohol, obesity. It will be more satisfactory to review these causes generally in this lecture than to devote too much time to any particular division.

With reference to the physical obstruction of an unruptured hymen, it must be remembered that although in the vast majority of cases this causes sterility, yet it does not always do so. There are many cases on record where pregnancy has occurred with an unruptured hymen. We know that a very small amount of seminal fluid may contain very numerous spermatozoa, and as they are exceedingly mobile, an explanation of the conception is forthcoming. The hymen is sometimes so tough that it requires a considerable amount of force to break it down, and in certain cases this has never been done by the husband. I have now had many cases where the hymen has not been broken down and where the woman has been led to consult me after many months, and in one case as much as five years after marriage, because conception had not taken place. In some of these cases the patients suspected that there was something wrong ; in others they were entirely in ignorance of it. It is obvious that if the spermatozoa do not gain access to the uterus no conception can take place, and although, in the case of an unruptured hymen, there is a faint chance that they may do so, there are other conditions which entirely preclude all chance of such happening. Amongst these must be considered that most horrible of all afflictions for a young married woman, vaginismus, and other conditions of the vulva leading to dyspareunia. It is impossible with the time at our disposal to do more than mention them, for a whole lecture might be devoted to vaginismus and dyspareunia, but it may be safely said that whilst these affections continue in an aggravated form no conception can occur.

It is usually thought that polypus of the cervix, as well as uterine fibroid, blocking the cervical canal, and flexions of the uterus, give rise to sterility by mechanically preventing the ingress of the spermatozoa. This, however, in my opinion, is very doubtful, for where the menstrual fluid passes the spermatozoa can travel. My belief is that in the presence of a mucous polypus or a submucous fibroid it is the secretion of the mucous membrane which is inimical to conception, and this leads me to speak of the whole of these inflammations giving rise to increased secretions which have such an important bearing on conception. The ordinary healthy secretion of the vagina is acid, and that of the uterus and the cervical secretions alkaline. The vagina is lined with stratified squamous epithelium, and this forms a good protection against the invasion of the submucosa by bacteria. It is the same covering as that of the inner part of the vulva. Unlike the epithelial covering of the vestibule and inner surface of the labia minora, it possesses no glands. As a rule, there are no glands in the vagina, so that what is called the vaginal secretion is not largely of vaginal origin. It consists of transuded blood serum mixed with the excretions of the uterus. Under the microscope it is found to be composed of desquamated epithelium, leucocytes, and micro-organisms. The acidity is due to the bacillus of Döderlein, which produces lactic acid, and other organisms are present in the vagina. The acidity of the vaginal secretion, and the antagonism between the normal vaginal bacilli and the pathogenic organisms which chance to gain an entrance, are factors in the protection which the vaginal secretion affords.[7] Inflammation of the vagina usually depends upon the repeated introduction of organisms combined with a mechanical irritation or injury, or upon some general condition which lowers the normal resistance of the vaginal epithelium. Nearly all cases of vaginitis are secondary to lesions of the uterus or tubes, and result from the accumulation in the vagina of irritating uterine discharges. The gonococcus is most likely the commonest cause of vaginitis. Whatever be the starting point of catarrhal conditions or inflammation of the mucous membrane of the vulva, vagina, cervix, uterus, or tubes, the result is more or less continued secretion, which is deleterious, and acts in a toxic manner on the spermatozoa. My belief is that although it takes but a small number of spermatozoa to effect conception, the secretion from the diseased surfaces of any of the above-mentioned parts is sufficiently toxic to immediately kill them. I do not believe that they are mechanically hindered from gaining entrance to the uterus by any thickened plug of mucus at the os uteri ; they are able to move onwards through any discharge, provided they are not killed by the poisonous action of that discharge. This toxic action of these secretions is probably due to the living organisms they contain which are antagonistic to the spermatozoa.

In passing to affections of the uterus and tubes, it is obvious that congenital affections, such as the absence of either, is sufficient to account for sterility, and it is waste of time to discuss them ; but I should like to speak generally of inflammatory affections of the tubes as a cause of the subject under consideration. I have already said that any discharge from either the tubes or uterus may be inimical to conception, but in the case of metritis and endometritis it is quite possible that, owing to the altered condition of the mucous membrane, there is not a sufficiently healthy nidus for the ovum, and that even though spermatozoa do reach it and impregnation takes place, the ovum is immediately destroyed without giving rise to any extraordinary signs. Although much time might be taken up in discussing this one point about the condition of the uterine mucous membrane with reference to conception, I want more particularly to dwell upon the inflammatory affections of the tubes as having a most important bearing on the whole question of sterility. It is clear that unless at least one of these tubes is patent the ovum cannot reach the uterus. But the most important point is that the opening of the tube into the peritoneum must be undisturbed. The ciliated epithelium lining the Fallopian tube and uterus is always in action, and as a result there is a continuous stream of fluid passing from the peritoneum to the vagina, and in this stream the ovum is carried when it is discharged from the Graafian follicle.

The spermatozoa are working against this stream, and it is on this account that the meeting takes place, but it is difficult to say where it occurs. It is interesting to note that the study of extra-uterine pregnancy shows that impregnation of the ovum may take place before it reaches the uterus, and rarely before it leaves the ovary. It is most likely that impregnation occurs as the ovum passes along the Fallopian tube. It is not known at what rate it travels, but we know that it must take some time for the syncytial buds to appear, by which means the ovum penetrates the mucous membrane of the uterus and is arrested. Some think that if impregnation takes place after the ovum has passed through the Fallopian tube and is actually in the uterus it may explain the occurrence of placenta prævia, as in this case the ovum may reach the lower part of the uterus before the syncytium has sufficiently developed to fix upon the mucous membrane.[8] No doubt many ova become impregnated in the uterus and are carried away before any development has time to occur. It is possible also that in many ova the syncytial buds may be imperfectly developed, leading to frequent early miscarriages, because for healthy conception to take place we must have a healthy ovum as well as healthy spermatozoa and normal mucous membrane. We know that if the ciliated lining of the genital canal is not normal and active, conception does not take place, for the ovum is not moved along by the cilia towards the uterus, and the meeting with the spermatozoa does not occur. This diseased condition of the lining of the tube, causing loss of ciliated epithelium, gives rise to irritating secretion, which may escape into the peritoneal cavity and set up local peritonitis which may effectually seal the tube. A very common source of sterility, in my opinion, in women, and one which is not apt to be thought of after the attack is over, is appendicitis. I believe that attacks of inflammation of the appendix are answerable for the local attacks of peritonitis which seal up the ostium of the tube, effectually preventing conception. It is the starting point frequently of inflammation, which spreads from the appendix and causes matting of the tube and ovary in adhesions. After

[7] Kelly and Noble Gynæcology and Abdominal Surgery, p. 257, 1908.

[8] J. R. Kelly : Sterility in the Female, its Causes and Treatment, Glasgow Medical Journal, 1906, lxv., p. 401.

a severe attack of appendicitis both tubes may be involved and closed, and adhesions formed which may become more or less permanent. Gonorrhœal inflammation is, of course, extremely common as a cause of sterility in the female on account of its leading to salpingitis, as well as inflammation of the lining membrane of the uterus and cervix. Whatever be the cause of the inflammation the result is the same.

Another most serious affection of the uterus and annexa is that of puerperal inflammation. It is unquestionable that it largely influences the percentage of sterility in women. It is frequently the cause of the "one-child sterility" to which I have already alluded. It is difficult to say exactly in what way it causes sterility, but it probably does so through the peritonitis it sets up, which either seals the tubes or causes salpingitis, with affection of the ciliated epithelium, effectually offering a barrier to conception, or affects the uterine mucous membrane, rendering it an unhealthy nidus for the ovum. It is interesting to note that in certain cases of sterility following severe confinement, during which the patient has been said to be very ill, the condition may be present for many years, and subsequently conception occurs. This shows that in all cases of puerperal sterility the women are not necessarily sterile for life, and that it is not right to abandon all hope of conception. It proves also the healing power of nature, for after the lapse of time the mucous membrane of the uterus and Fallopian tube recovers itself, the adhesions round the orifice yield, and the tube is once more patent, so that conception can occur. It cannot, of course, be expected that recoveries will take place in such cases as double pyosalpinx, where the tubes are enlarged, with the mucous membrane necessarily damaged and the walls distended and thinned, for in these cases there is nothing to be done which can cure the sterility. In the case of hydrosalpinx, a chance of conception is given by making an artificial entry into the tube. In some cases this has been successful. Of course, if the tube is so distended that its walls are seriously damaged no hope can be expected of effecting any good.

In the case of the ovary, anything which prevents the rupture and discharge of the Graafian follicle into the peritoneal cavity will cause sterility. Sometimes this is due to the thickening of the capsule of the ovary, which may be the result of inflammation. In these cases, as the result of the unyielding capsule, we have a form of small cystic ovary, enlarged and painful, which on section shows the cortex to be occupied by a series of dilated Graafian follicles, unable to open on the surface owing to the thickness of the tunica albuginea. The encapsuling of the ovary by adhesions will prevent the breaking of the follicles. It is easy to understand that the ovary may become the seat of inflammatory adhesions, when it is remembered that it is subject to frequent lesions from the bursting of the Graafian follicles on its surface. Each rupture causes a wound, and whenever any pelvic inflammation is present these wounds may be attacked and lead to thickening of the capsule of the ovary.[9]

In the majority of cases the actual origin of local peritonitis is to be found in a salpingitis, but it must always be remembered that the origin of many pelvic troubles must be attributed to the communication between the peritoneal cavity and the external world by means of the tubes, uterus, and vagina. It is easily conceived that anything in the secretions from the vagina onwards may interfere with the spermatozoa. According to bacteriologists, the lower parts of the vagina are crowded with micro-organisms in a healthy woman, and in the upper part of the vagina there are very few, whilst in the interior of a healthy uterus there are none. Some believe that the secretions from the cervix destroy bacteria.[10] This is certainly remarkable if true, for by this means the upper part of the vagina, where the spermatozoa are lodged in the first place, is kept sterile and keeps them from harm. If, however, from inflammatory disturbance of the mucous membrane of the cervix endometrium or vagina pathogenic organisms gain access and breed there, they have a baneful influence on the spermatozoa, which are killed at once or rendered inert. Undoubtedly, amongst the common causes of inflammatory affections of the mucous membrane must be mentioned the gonococcus. By its introduction into the genital canal more or less severe inflammations of the mucous membrane are started, which lead to salpingitis, sealing up the ends of the tubes or affections of the mucous membrane, which effectually act as a bar to conception.

Diseases of the ovaries must, of course, be mentioned as a cause of sterility, and although tumours, whether cystic or dermoid, are frequently the apparent cause of the want of conception, yet they are not always so. Considerable enlargement and disease are quite compatible with pregnancy, and this ought to be remembered in operating, when it is necessary to remove an ovarian cyst and when the opposite ovary is inspected. It is tempting to remove the second ovary if apparently diseased, but if the woman is still within the child-bearing age, and anxious to have children, unless the ovary is seriously diseased it may be left. I quite remember the case of a patient, 28 years of age, who had a dermoid cyst, and who was seen with me by Sir Spencer Wells. He removed it, and I assisted him at the operation. In inspecting the opposite ovary, he said that he must remove it because it was so enlarged and cystic. I reminded him that the patient had only recently been married, that there was a large amount of property, and that she was most anxious about having a child. I therefore begged Sir Spencer Wells to leave the ovary, but he did so with much reluctance, saying it was against his better judgment, because he thought that it would mean another abdominal operation, as the ovary, judging from its then state, would grow. The patient made an excellent recovery, and I subsequently attended her during her confinement, when a son was born. Since then she has never suffered from any trouble in the ovary, although it remained large up to the time I last saw her. Such a case is worth remembering, and is not the only one where I have advised an apparently diseased ovary to be left, with the result that conception has followed.

I must refer to two matters which are of great importance in this study of sterility in the female. One is the association of dysmenorrhœa with sterility, and the other is the relation of the sexual appetite and sexual pleasure in those who are sterile. In 332 cases of absolute sterility that is, excluding all women who have miscarried or borne a child—nearly half suffered from spasmodic dysmenorrhœa.[11] This shows what an important association exists between sterility and dysmenorrhœa. Nor can it be doubted that between dysmenorrhœa and miscarriage there is also a close association. The relation of the sexual appetite and sexual pleasure in the sterile—must be carefully considered as a whole, and especially in accounting for what is termed incompatibility as a cause of sterility. It is very difficult of explanation, but it is remarkable that a woman may live with her husband for years, remaining sterile all the time, may marry again, and immediately conceive, notwithstanding that the first husband was sexually sound. In some of the cases I have investigated I have found that sexual pleasure was absent with the first husband and present with the second, and that there was no true sympathy with the first husband, but rather antipathy. It is thought by some that in these cases the man has something to do with the sterility, but I do not think so, for if he be thoroughly sound, with normal spermatozoa, there seems to be apparently no reason against conception. The vagina, uterus, and Fallopian tubes, like the intestine, are muscular tubes. During the sexual orgasm there is a coördinated action of this muscular tube, which has for its object the helping onwards of the spermatozoa into the uterus. In certain women who are sterile this never takes place, because they never have any sexual feeling. In these cases the sexual centre in the spinal cord or in the sympathetic system, which should regulate the movements of the genital canal, is either imperfectly developed or is congenitally absent. In many cases of sterility which I have investigated there has been complete absence of sexual desire and sexual pleasure. Yet this absence must be by no means considered to occur only in the sterile. Those who are conversant with these cases know well that this absence occurs in many women who have children. It cannot, therefore, be said to be the cause of sterility, although so frequently associated with it. Moreover, we know that not only may there be complete absence of sexual desire and pleasure, but there may be positive sexual antipathy, and to some the act is absolutely revolting, and yet conception occurs. But, on the whole, it may be

[9] J. R. Keily: Op. cit.
[10] Menge and Kronig: Bacteriologie des weiblichen Genitalkaralos.
[11] Duncan: Op. cit.

said that the absence of sexual feeling is a powerful factor in the causation of sterility.

Before passing on to sterility in the male, there are certain general diseases in the female producing sterility which I must touch upon. Any severe illness which causes a wasting of the uterus or ovaries will obviously produce sterility, and a severe labour may he followed by atrophy of the uterus, preventing fruitful conception. In those cases of profound illness followed by sterility lasting for years, and where conception subsequently takes place, it cannot he douhted that some important changes occur in the ovary, although temporary in character. Tubercle, mumps, or any other acute infectious diseases, may bring ahout sterility by their action on the ovaries. The more important and common causes of these changes in the pelvic organs are certainly alcohol and morphine, which act as chronic poisoning. They frequently produce amenorrhœa for long periods. With alcohol is often associated ohesity, which is so frequently observed accompanying sterility. It is difficult to see why excessive fat should interfere with the sexual organs, but it does so. Out of 215 cases of obesity Kisch found 21 per cent. sterile. Cobhard associates the changes in the ovaries in obesity with those in the thyroid gland and suprarenal hodies.[12] We know that amenorrhœa is often accompanied by ohesity, and in some cases the gain in weight is rapid, and after the menopause in the majority of women there is increase in weight, as also is the case in the removal of the ovaries before their functional activity is over. It is not known yet what is the actual cause of this increase in fat, but there can be no question about the increase of adipose tissue when the functional activity of the ovary and the glandular corpora lutea disappear.[13]

There is another and most important cause to which I must allude before passing on to sterility in man. This is known as profluvium seminis, and is a fruitful cause of sterility, and very difficult to get rid of. It is obvious that whilst it is present there is but small chance of conception. I say "small chance," because we know that a minute quantity of seminal fluid is enough for conception, and without doubt women who are afflicted in this manner do sometimes conceive.

STERILITY IN MAN.

And now we must pass to the causes of sterility in man. They may he divided into (1) any condition which prevents the sexual act; (2) any condition which affects the development of the spermatozoa or interferes with its fertilising power.

With reference to the first division, I may briefly say that it is obvious if congenital malformations are present, or such want of nervous force that sexual intercourse cannot take place, no conception will occur, and we need not take up time in discussing the various conditions which may he present to prevent this. But under this heading I must, as we are discussing sterile union, include a form of what is termed incompatihility. I have known some instances of healthy men marrying who were unable to consummate their marriage and yet who have been sexually strong. Several I have known of who have lived for years with their wives and could never have intercourse with them, yet they were sound and capahle with other women. I am not now alluding to cases where marriage takes place and where from pure nervousness intercourse cannot occur. Such cases are met with, but, as a rule, although the condition may last for some time, it passes off entirely; but I am speaking of those cases, happily rare, where a man marries, and for some unaccountable reason can never have intercourse with his wife. I know of one who was divorced for incompetence, who married again, and who had children. The cause was some peculiar psychological aversion.

The second division is what principally concerns us as causing sterility. According to the accumulated statistics of Kehrer, Gross, Levy (Munich), Balin, and others, 26 per cent. of all cases of marital sterility are due to the husband alone from azoöspermia, a fluid containing no living spermatozoa, aspermatism, and malformations. Balin states that out of 200 men living in sterile union, whose wives showed normal genital conditions, 73 were subjects of azoöspermia. Cases of impotence and oligospermia are not included in those calculations. In oligospermia, which may come from a chronic vesiculitis, the living elements are few or they may he absent, though dead ones or those with feehle movements may be found—necrospermia. Oligospermia may occur after sexual excess and is only temporary. In a certain number of oligospermatics the condition remains permanent in consequence of congenital disease. The existence of oligospermia depresses, but does not take away the power of fecundation. As a rule, azoöspermia is the sequence of gonorrhœal diseases of the testes. Gosselin showed this to be so in 1853. Out of 83 men with double gonorrhœal epididymitis Liegois found permanent azoöspermia on 75 occasions, and Finger found it 207 times out of 242 cases. Azoöspermia has also heen observed in syphilitics. In isolated cases it passes off after the introduction of specific treatment. Frogs' spermatozoa when frozen and thawed regain their mobility, but these frozen spermatozoa lose their power of conception.[14]

Torkel[15] douhts whether the mobility of the spermatozoa, which is held to point to their capability for hegetting, is a certain index in all cases. It may be that he is right, hut up to the present moment I know of no other evidence upon which to go when forming an opinion as to the cause of a sterile union when the woman appears to be healthy as to her pelvis. It is quite possible that some suhtle changes may take place owing to disturhances in the circulation and the introduction into the hlood of some substances injurious to protoplasm, and that the spermatozoa, although active, may have lost the power of fertilising the ovum, as in the example alluded to of the frozen spermatozoa of the frog. Dr. Lewis Jones informs me that "in the case of such animals as rats, irradiation by X rays produces well-marked histological changes in the testes, and an absence of spermatozoa from the semen. In human heings the effect is apparently temporary, but it is a fact that radiographers become azoöspermic." The action of the Roentgen rays is a corrosive one, to which the non-resisting elements—in this case prohahly the spermatocytes and spermatids of the seminal tube—are the first to be sacrificed, and are prevented from developing into spermatozoa. Radium may possihly act in the same manner. It is well known that with highly organised cells, spermatozoa and ova being the most highly organised of such, harmful influences which last but a short time may have the most severe consequences. It is certain that gonorrhœal inflammation, which is the most fruitful source of azoöspermia, cannot affect all in the same way, and it is not yet known how long the effect of an attack of gonnorrhœa with reference to the spermatozoa may last. For we know how common this disease is, and how soon it may pass off in some. It is possible that it is only in the more severe cases that the structure of the testes is permanently attacked, causing azoöspermia for many years, or perhaps indefinitely. A sudden attack of orchitis, even though it may last but a short time, may have such influence on the secreting structure as to permanently damage it, notwithstanding that the gland is to the naked eye and to the touch normal in all respects. Out of 87 sterile women, Glunen[16] was enahled to prove the presence of gonorrhœa due to the hushand in 24 cases without any doubt, and among the remaining 63 women whose husbands declined to submit to an examination there were still signs of gonorrhœa in 38 cases, so that out of 82 marriages gonorrhœa was found to be present in 62 cases, or 71·3 per cent. It is unnecessary to weary you with statistics, hut I may hriefly state that Balin found, among 188 husbands of women with healthy genitals living in sterile union, 97 had without doubt suffered from gonorrhœa. Badeler found blame attaching to the hushand in 70 per cent., and Lier and Ancher in 40 per cent. of sterile marriages. It must not, however, be assumed that hecause the gonococcus is so frequently found in cases of sterility that its presence is always followed hy those conditions which preclude conception.

TREATMENT.

Although in this lecture I have intended to discuss sterility as the inability of a married couple to hring about conception, and have therefore mentioned the causes affecting the husband, it is not my intention to dwell upon the treatment for sterility in the male. I may merely mention that in the scheme for thoroughly going into the causation of a sterile marriage the possibility of the husband being at

[12] Medico-Gynæcology, p. 349.
[13] Kelly, p 226.
[14] Torkel.
[15] Torkel: Sterilität des Weides Monatschrift für Geburtshulfe W. Gynäkologie, 1907, xxvi., pp. 281-407.
[16] Torkel: Op. cit.

fault must be borne in mind. In every case of sterility which comes before me, if, after thorough examination of the wife, I consider it advisable to have the husband examined I recommend that this should be done by a bacteriologist. I say that I do this if I think it necessary, for in many cases of sterility about which you will be consulted it is undoubtedly the fault of the woman, which is proved by the fact that conception follows treatment. It is best to ascertain whether there is any difficulty about intercourse, especially in those who have recently married, but it is most important not to take for granted that this takes place in the ordinary manner if a patient has been married a considerable time, because I have notes of a certain number of cases where there has been no proper intercourse for years after marriage. It is important to find out in the necessary questioning whether there be any sexual pleasure or desire, whether intercourse takes place at reasonable intervals or very seldom, and whether there be reason to suspect that the husband is wanting in power or suffers from indifferent health. Notwithstanding the exceedingly delicate nature of these inquiries, there is rarely difficulty in getting accurate answers, which enable an opinion to be formed. After eliciting anything which can throw light on the possible cause of sterility, a regular pelvic examination may be made in the ordinary manner, noting the position of the uterus, whether it is moveable, or whether there be any signs of previous pelvic inflammation; the condition of the cervix uteri, whether it is normal, conical, or unusually small, or if the os be closed or patulous, whether it seems natural to the touch or unhealthy. Any tumour of the uterus or swelling of the ovaries or tubes can be noted, and whether there are signs of inflammation of the mucous membrane of the vulva, vagina, or glands of Skene or Bartholin. It is especially of importance to make sure whether there be any vaginal discharge, and what its character may be. In certain cases it is copious and exceedingly irritating, as is evidenced by the condition of the mucous membrane. It such cases it may be assumed that if the discharge has such an intensely irritating effect on the mucous membrane it is certain to be inimical to conception. It is best to have it bacteriologically examined.

If it is found that there is a tough and unruptured hymen, it may be dealt with by either cutting it away or rupturing it. The latter is quite sufficient in any case where there is no vaginismus, and to make sure that there is no difficulty beyond the tough and unruptured hymen, glass dilators may be passed to secure thorough dilatation of the vagina. If the latter seems to be abnormally small, or if hyperæsthesia of the vulva outlet be present, then glass dilators may be given to the patient, with directions for passing them herself. One ought to be passed every day for a time, vaseline or some other lubricant being freely used, and before using the dilators it is best to apply a solution of cocaine, 10 per cent., or 20 per cent. if the hyperæsthesia be severe—cocaine vaseline acts in the same way. If the hyperæsthesia be not severe this will probably entirely cure the condition, the stretching of the vaginal walls apparently diminishing the sensitiveness, and doubtless helping to overcome the feeling of apprehension which exists in these cases and which invariably makes the condition appear worse than it really is. But there are cases of really severe vaginismus which thorough dilatation under an anæsthetic does not relieve, and when, in spite of cocaine vaseline applied freely before any attempt at intercourse, it is impossible to tolerate it. In these cases dilators are of no service, for the smallest cannot be tolerated, and in certain cases I have had under my care life has been a burden, the nervous system has become affected, extreme irritability complained of, and in some cases regular neurasthenia is developed. In such cases the only treatment which I know of as thoroughly efficient is the application of the Paquelin cautery. It may be lightly applied to the inner sides of the labia minora and all round the orifice of the vagina, and especially to the posterior fourchette. This must, of course, be done under an anæsthetic, and before doing so I ascertain the most sensitive points, for although in some cases the whole of the orifice of the vagina is implicated, and the slightest touch causes instant contraction, there are other cases where some points are specially sensitive, and these can be borne in mind in applying the cautery. In some of the cases of dyspareunia I have noted minute fissures and small follicular ulcerations about the fourchette and entrance to the vagina. These are exceedingly sensitive and are often the cause of the vaginismus. The Paquelin cautery is the most rapid method of curing these.

There is another condition associated with dyspareunia, met with in a few cases in women over 35 years of age, who have married without knowing there was anything wrong—caruncle of the urethra, which is exquisitely painful. Removing with the Paquelin cautery, or cutting away and then applying the cautery, has entirely cured these in my hands. After the application of the Paquelin cautery to the mucous membrane or to the caruncle, I usually apply a 10 per cent. solution of cocaine on wool. This saves a great deal of pain on regaining consciousness. The parts touched must be treated as an ordinary burn until perfectly healed. There can be no doubt that the extreme sensitiveness is caused by the terminal ends of the nerves supplying the mucous membrane, and that when they are deadened by the cautery the sensitiveness disappears. It is most important that the cautery should be very lightly applied. It is quite unnecessary and harmful to burn deeply. Should there be a narrowing of the vagina, it may be dealt with at the same time by thorough dilatation.

Supposing it is found that the vagina is full of muco-pus, that the os is patulous and the lips roughened, with a history of prolonged vaginal discharge and excessive menstruation, then the best treatment is to curette thoroughly, without any delay, for, if the symptoms are severe and have lasted a long time, curetting is better and more efficacious than douching or any local treatment, which sometimes may be tried for many months without permanent good, as very often when the douching ceases the discharge returns. Any discharge ought to be carefully examined bacteriologically for gonococcus, staphylococcus, or streptococcus; occasionally the bacillus coli is found, and if curetting is not advised cultures may be made from the discharge and a vaccine prepared accordingly. Up to the present I have not had sufficient evidence in its favour to warrant me in urging this method in all cases before curetting is undertaken. Nevertheless, I have known some cases where the treatment has been striking in results, and these may justify the enthusiasm evinced by some. Of course, if it succeeds in curing the discharge, that is all we want, for it will save the operation of curetting, and the cessation of the discharge may lead to conception. If it does not succeed after two months' treatment curetting can always be resorted to. I wish to lay great stress on vaginal discharge of any kind in cases of sterility, for I have had most striking results of conception following its cure. I have already said that, however slight, vaginal discharge may be toxic as regards spermatozoa, and therefore immediate treatment ought to be undertaken. Sometimes simple saline douching once or twice daily may be sufficient for its cure, and conception may follow. If the amount of discharge is considerable or very unhealthy, and treatment does not relieve it, while the patient objects to any operation, a course of waters and treatment at Franzensbad, Spa, Marienbad, Spa Plombières, Ems, Schwalbach, St. Moritz, Gastein, and other places abroad, or certain watering places in this country may be resorted to. In some cases it is remarkable the effect they have, and there can be no doubt that they act in the first place on the mucous membrane of the vagina, curing discharge and increasing circulation and nutrition of the uterus; and, secondly, by the life and surroundings, on the general health. It is often of the greatest service to direct attention to the general health of the patient, and my belief is that when it is improved it has some important influence on ovulation. We know that some women conceive when they are in a most indifferent state of health, so that we cannot say that when the general health is lowered in tone there is little likelihood of conception. But it is a fact that often when nothing definite can be discovered in the pelvic organs to account for sterility a sojourn abroad in some high mountainous region, with or without a course of waters, improves the health and conception follows. Sometimes it is a distinct advantage to let the wife go away alone. I have been struck with the fact that in certain cases where I have been able to discover nothing wrong with the pelvis, and where I have put down the sterility to profluvium seminis, a sojourn abroad has been followed by conception. This peculiar condition has sometimes appeared to me to come on when the woman is rather lowered in tone, for I have noticed that it has passed

away on the improvement of the general condition, although I am bound to say that this has not always been the case, and in certain patients the condition has persisted. In many cases there is a certain amount of neurasthenia, and a prolonged course of phosphates or glycerophosphates is of great value.

Before passing from medical treatment I must refer to organo-therapy, which occasionally seems to be of great benefit. I frequently order ovarian extract if the sterility seems to be associated with irregular menstruation or amenorrhœa. Hans Bab[17] proposes to supplement this treatment with johimbine hydrochloride, which has been thoroughly tested, and is without danger when given in proper doses. He states that in the promotion of hyperæmia no physical measure can compare with this preparation. The action of this combination in the treatment of sterility he considers can be supplemented still in a further direction by the addition of lecithin. This is a highly important constituent in the organism, apart from the brain and nerves, and is found in abundance in the blood corpuscles, the semen, the vitellum, the placenta, the fœtal cells, and the milk.

Before dealing surgically with cases of sterility it is well to have a general rule to be guided by as to time in those recently married, and the question must be asked, "When may a marriage be described as sterile?" Torkel and various authors consider that the answer is from one to five years, according as it is congenital or acquired. After the fortieth year only one thirty-ninth of all women become pregnant. Even with a pin-hole os there is no need to hurry into operation. I usually allow at least 18 months to pass before thinking of operating unless there is some special reason against this course. But supposing a reasonable time has elapsed since marriage, and there has been no suspicion of conception, then operation by thoroughly dilating the cervix may be contemplated in the presence of a pin-hole os, a small conical cervix, or any condition of the cervix which leads one to think that it may be the cause of difficulty in the entrance of the spermatozoa. I have already said that I do not believe that any amount of contraction will prevent the entrance of spermatozoa; nevertheless, it is a fact that frequently, after thoroughly dilating the cervix, conception may immediately occur. There need be no hesitation about operating if dysmenorrhœa be present, for the dilatation of the cervix will probably cure the pain, even if it is not followed by conception. Thorough dilatation of the cervix is usually most effective. As long ago as 1826 Dr. John Mackintosh, lecturing on the practice of physic in Edinburgh, advocated it,[18] and subsequently published cases showing that barren women conceived after dilatation. In 1881 Dr. Godson read a paper at the Obstetrical Society bringing forward cases where thorough dilatation of the cervical canal was followed by conception. Professor Pozzi[19] describes an operation, "commissural evidement," which consists of bilateral discission of the cervix in lengths of 2 and 3 centimetres, dilatation of the cervical canal, curettage, and stomatoplasty, which has for its object the uniting of the internal cervical with the external cervical mucous membrane. This is certainly a more elegant operation than that of Sims's, who allowed these cut edges to heal freely. Professsor Pozzi says that in more than 25 per cent. of his cases pregnancy followed the operation, and that in some cases the patients had been married from 5 to 16 years, impregnation following the operation in a few months.

My belief is that with reference to surgical treatment soon after marriage for the purpose of impregnation, thorough dilatation of the cervix by graduated dilators is sufficient, but, of course, the patency does not remain long, and doubtless any such operation as that of Pozzi's will secure that patency for a more lengthened period. It must be remembered that any operation of this kind must be undertaken with the strictest aseptic and antiseptic precautions, for all operations about the cervix without proper attention to these details may be followed by metritis or parametritis. In days bygone, when those operations were performed with no precautions whatever, catastrophes were frequent. It is of great importance in performing this operation that the dilators should be slowly introduced, enough time being allowed for each dilator to do its work before another is inserted. This prevents the splitting of the mucous membrane of the cervical canal, which, when it occurs, if thorough antiseptic and aseptic precautions be not taken, may lead to danger.

I have already spoken of curetting in cases demanding it, but I would here give a word of caution against repeating the operation unnecessarily. It undoubtedly removes the delicate mucous membrane from the cervix, and if repeated curettings take place the epithelium will not grow again, or grows imperfectly. After curetting, the endometrium is reproduced in about two months. If acted on by strong acids and other escharotics, resulting in sloughing, the endometrium is but imperfectly reformed, even after several months.[20] Thorough dilatation secures free drainage from the uterine cavity, so that, should the endometrium be affected, all discharge can more easily escape. In certain cases of operation for chronic salpingitis, where one or both tubes are to be removed, the method now adopted by some is to remove the distal part of the tube, then split open longitudinally the remaining stump, and secure its patency by suturing the peritoneum to the mucous membrane of the tube. The diseased part of the ovary is dissected away and the remaining healthy parts secured together and anchored as near as possible to the stump of the tube. Unless future pregnancy is quite out of the question, it is important to preserve as much as possible of the fimbriated extremity of the Fallopian tube when it is found to be partially diseased. Severe infection of the tube generally destroys the fimbriated extremity, but infection in a lessened degree may only cause a small portion of the ampulla to be involved and none of the fimbriæ. Under these circumstances it is advisable to remove only the affected part, and to unite the fimbriated extremity to the portion of the tube which is left behind. In the case of ectopic gestation the opposite tube may be closed by lymph resulting from inflammatory disturbance which affects both sides, so that the woman may be sterile unless something be done at the time of operating. If the whole tube can be saved, and the product of conception removed, this may be considered with a view to future pregnancies. But it is right to point out that pregnancy can occur through the opposite tube, and some consider that it is wiser to remove a tube which has already undergone certain destructive changes.[21] It must be remembered that the epithelium is certain to be destroyed, and that there is therefore a risk, if the tube is left, of another ectopic gestation occurring. At any rate, the whole of the affected portion of the tube should be removed at the operation, and the end of the tube, if healthy, left, taking care to render it patent by suturing the inner and outer coats.

Cases of persistent retroflexion of the body of the uterus, giving rise to local symptoms, may be treated in the ordinary manner, but surgical interference ought not to be recommended with the view of curing sterility unless those symptoms are urgent. There are certain cases of retroflexion which are associated with conception where the ovum is invariably lost, and where the patient does not go to the term until the flexion is cured If this cannot be done in the ordinary manner, the question of surgical interference may be entertained by externally shortening the round ligaments, or by the intra-abdominal shortening of the round and broad ligaments described by Bissell in 1891,[22] or any other method preferred by the operator, except abdominal fixation in the young.

In some cases a healthy portion of a diseased ovary may be transplanted into the body of the uterus near the split oviduct. The object of this is that ovulation will occur in the immediate vicinity of the cilia of the tube. But if the ovary is completely surrounded by the uterine tissue the matured ova cannot escape, and fecundation is therefore impossible. Lately transplantation of the ovarian substance from one patient to another has been successfully accomplished by Dr. Robert Morris.[23] In some cases where peritonitis has been set up and the ovaries are covered with adhesions it may be sufficient to thoroughly set these free for conception to follow.

Before leaving the surgical treatment of sterility I must

[17] Hans Bab: Ein Vorschlag zur medicamentöser Therapie der infantilischen Sterilität Zemeral blatt Gynäkologie, 1909, vol. xxxiii., p. 1558.

[18] Mackintosh (John): Principles and Practice of Physic, vol. ii., p. 431.

[19] Pozzi: Treatment of Dysmenorrhœa and Sterility in Women, American Gynæcological Society, American Journal of Obstetrics, 1909, vol. lix., p. 1027.

[20] Douglas Bissell: Sterility and its Surgical Treatment, American Journal of Obstetrics, 1906, vol. lxv., p. 169.

[21] Op. cit.

[22] Op. cit.

[23] Douglas Bissell: Op. cit.

mention the important bearing of a severely lacerated cervix on one-child sterility and the necessity of perfect repair. In these cases there is usually a considerable amount of discharge, because the lining membrane of the cervix is exposed to the noxious influences of the vagina, keeping up a chronic catarrhal condition, which continued local treatment will not cure, while the discharge has a toxic influence on the spermatozoa. Even if pregnancy does take place abortion occurs early on account of the loss of the sphincter action of the cervix. By the careful repair of the laceration, combined with curetting, the catarrhal condition is cured and conception occurs.

Some advocate the use of electricity in the treatment of sterility.[24] I have had no experience in its use with reference to this, but some years ago I used it in hospital practice when Apostoli brought forward the treatment of fibroid tumours by electricity. Undoubtedly it cures endometritis and endocervicitis, but after careful trial I gave it up, considering that the time spent over its application was too great, when a curetting could cure the patient rapidly. Professor Pinard considers that static electricity frequently gives good results and may be recommended.[25]

In conclusion, I would say that undoubtedly within the past years sterility in women is no longer looked upon as a hopeless affliction, because the etiology in many cases is better nnderstood, and therefore directs us as to the treatment. If we feel that there is no apparent reason why the wife should not conceive, or if we have placed her, by removing pathological conditions, in the best and healthiest condition for conception without result, then we must turn our attention to the husband, and hand him over to a bacteriologist or genito-nrinary specialist. There can be no doubt about the gonococcus being responsible for much, but it is useless to endeavour to make it responsible for nearly all. Fortunately, it can be combated now in a manner never dreamt of in former days by vaccine-therapy, and pathological conditions removed by this modern treatment. In like manner it is right to draw your attention to the fact that certain continnous vaginal discharges, apart from that caused by the gonococcus, which cannot be cured by douching, may yield to vaccine treatment if the organism causing that discharge be separated, cultivated, and a vaccine made therefrom. The modern internal treatment by organo-therapy requires most careful consideration and much more experience before statistics of real value can be tabulated. In my own experience I have had such success by curing ordinary vaginal discharges, conception following thereon, that I have been most seriously impressed by the fact that apparently simple discharge may contain much toxic material which can act on the protoplasm of the spermatozoa. If any discharge exists it must be cured, and if it does not yield to ordinary treatment thorough curetting may be advised, or, if this will not be entertained, a conrse of waters at one of the places already mentioned may be of the greatest service.

I cannot close, Gentlemen, without saying that there are certain cases which will come before you wherein you can discover no cause for sterility, and which will prove to you our ignorance still on this most mysterious and interesting subject of conception, and the necessity for continual research into the functions of the ovary and the biochemic influence of the spermatozoa and ova.

[24] Talmey (B. G.): Notes on Sterility in Women, Medical Record, 1908, vol. lxxxvi., p. 316.
[25] Pinard: Sterilité ce que le medecin doit savoir et faire pour le traiter, Revue de Gynecologie et de Chir. Abdom., 1906, vol. x., pp. 387-95.

DONATIONS AND BEQUESTS.—The late Mr. John Birkmyre of Kilmacolm. Renfrewshire, has, by his will dated Sept. 23rd, 1909, left £5000 to the trustees of the Broadstone Jubilee Hospital, Port Glasgow, to be held by them for the purposes of the endowment fund of the hospital.—Miss Jane Mulligan of Kingston, Dublin, who died on April 29th last, and whose will has just been proved, left the following legacies, all subject to the life interest of her brother, John Mulligan, in the revenue arising from the evennes so beqneathed: £1000 to the National Maternity Hospital, Holles-street, Dublin; £300 to Jervis-street Hospital, Dublin; £300 to St. Vincent's Hospital, Stephen's-green, Dublin; £200 to the Children's Hospital, Temple-street, Dublin; £1000 to Sisters of Mercy, Beaumont Convalescent Home, Drumcondra, and the residue of her property to the same.

A REPORT ON TWENTY CASES TREATED WITH EHRLICH'S SPECIFIC FOR SYPHILIS.

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FOR the past few years Ehrlich has entirely devoted his time to chemotherapy, with a view of discovering a drug which, on the one hand, would kill the organisms in protozoal diseases, and, on the other, be non-toxic in that dose which would bring about their complete destruction. As the result of animal experiments, arsenophenylglyzin was found to fulfil these conditions in trypanosomiasis and Hata's preparation in those diseases caused by spirilla. Before atoxyl and arsacetin were put upon the market Ehrlich recognised that there would be a certain percentage of patients who would show some idiosyncrasy to these preparations, since there are some people who are naturally sensitive to arsenic. This was the greatest difficulty which Ehrlich had to contend with, but one which he easily overcame; the disastrous results which have been reported from the use of both atoxyl and arsacetin could have been avoided if Ehrlich's advice had been followed. Ehrlich has been blamed for allowing such dangerous drugs to be used by anyone, consequently there has been the very greatest difficulty, and rightly so, too, in obtaining any of the new preparation, which bids well to revolutionise the present treatment of syphilis. Owing to the extreme kindness of Geheimrat Professor Ehrlich I have been presented with some of this preparation for trial at the London Lock Hospital, the following being the report upon 20 treated cases.

When the action of a new drug is to be tested the patient must first and foremost be in bed, a pulse and temperature chart strictly kept, and every means taken to ascertain whether the patient has any complications, such as inflammation or degeneration of the liver and kidneys, and if, as in this case, when we are dealing with an arsenic preparation, whether he has previously had either an injection of the same or of some other organic arsenical compound, since a previons injection may make the patient more sensitive to the action of a second, and so produce anaphylaxis. To test for this over-sensitiveness to arsenic either a conjunctival reaction after Calmette or a cutaneous reaction after von Pirquet should be undertaken with the drug in the strength it is intended to be used, or with a solution of arsacetin 0·3 gramme in 3 cubic centimetres of water, and those giving a positive result regarded as unsuitable for the treatment.

Up to the present therapeutic treatment has been intermittent, that is, a drug, recognised as a specific for a certain disease—mercury in syphilis—had to be given at regular intervals if the disease was to be cured. The new form of therapy, on the other hand, the *Therapia magna sterilisans*, is to kill the organisms in from 1 to 2 days and prevent any recurrences. This forms the basis of Ehrlich's aim, and his goal is said to be reached by a drug which goes by the name of dioxydiamidoarsenobenzol, or Ehrlich-Hata's preparation No. 606. It is in the form of a yellow powder hermetically sealed in glass phials, the dose ranging from 0·3 to 0·6 gramme; it is only stable as a bichloride; bnt since it must not be injected in the double salt form, it is converted into a mono- or a bi-sodium salt by the addition of sodium hydrate just before use, which, being unstable, must invariably be employed fresh. The injection can be used either intramuscularly or intravenously.

Intramuscular injections.—The excess of sodium hydrate can be neutralised or not; if it is neutralised the pain is not nearly so severe, but an emulsion is formed which is not always very fine; consequently, unless a big needle is used—a needle for pleural effusion—it may be impossible to inject it. Whether the injection be neutralised or not, the whole success, to my mind, rests in dissolving the powder first of all in as small a quantity as possible of ethyl alcohol—not methyl alcohol as has been advocated, since unless absolutely chemically pure this may give rise to unpleasant symptoms, which would naturally be ascribed to the arsenic. Having dissolved the powder in alcohol, ½ cubic centimetre of alcohol to 0·1 gramme of powder, 20 cubic centimetres of ordinary sterile water are added and the mixture is thoroughly pounded in a mortar nntil every trace has dissolved, and then add slowly, mixing thoroughly awhile, 1 cubic centimetre of decinormal sodium hydrate

solution to 0·1 gramme of powder, and inject equal quantities into each buttock. The pain complained of just after the injection is due to the bulk of the injection used, but the pain which comes on a few hours later is largely due to the action of the caustic, sodium hydrate, on the tissues. The pain simulates bad sciatica, and often does not wear off for ten days or a fortnight. If the solution is neutralised the pain is very considerably diminished, and it does not detract from the drug's action, as had been anticipated.

As before, treat with absolute alcohol and dissolve in 10 cubic centimetres of very hot water; then add 1 cubic centimetre of normal sodium hydrate solution (40 grammes to the litre) for every 1/10th of a gramme of powder used; mix well in a mortar and add three drops of a ½ per cent. alcoholic solution of phenolphthalein and titrate with normal acetic acid (60 grammes to the litre) until the red colour has completely disappeared, and finally add a few drops of normal sodium hydrate until a faint rose tint comes back to remain, so that the solution is just alkaline. Inject half the quantity of the emulsion into each buttock. Although the steps taken are the same in every case, sometimes little hard lumps form in the emulsion which block up the needle and make the injection very difficult. Even with the difficulty of injection the pain is so much less and the results are so equally satisfactory that I prefer to neutralise my solution—in any case, the pain is less in females than males. The urine must be tested in every case before injection and daily afterwards, so long as the patient is in the hospital. A Wassermann reaction should also be taken before the injection and weekly afterwards with a view of ascertaining whether the treatment has the power of converting a positive into a negative reaction. Needless to say, the strictest antiseptic precautions should be taken and the needle boiled in salad oil, to prevent the blunting which occurs with water. The patient should lie on his front and the emulsion be injected only when the muscles are lax and as slowly and evenly as possible.

Intravenous injections.—I have had no experience of this method, since Professor Ehrlich asked me to employ only the intramuscular route, but from foreign reports the intravenous injection seems to act quicker on the lesions, the patients suffer no pain, and there is never a rise of temperature. For intravenous injections two solutions are prepared, well shaken, and mixed immediately before use. Solution A: 0·5 gramme of the substance is dissolved in 3 cubic centimetres of glycol. Solution B is a mixture of 240 cubic centimetres of normal saline solution with 10·3 cubic centimetres of n/5 sodium hydrate (8 grammes to the litre). Iversen used this drug intravenously with success in cases of relapsing fever, the organisms being killed in 24 hours, and obtained better results than could be obtained with intramuscular injections. Since many of my cases are repetitions I shall pick out those best illustrating the results obtained.

CASE 1.—A man, aged 35 years, came up on July 26th with a sore on the penis, which he had had for three weeks; bar enlargement of the inguinal glands there were no secondary symptoms. Spirochæta examination positive; Wassermann's reaction negative. On July 27th the patient received an injection of 0·45 gramme. After 24 hours the chancre showed marked signs of healing, no spirochætæ were demonstrable, and withiu four days the sore had become completely covered with epithelium. At the time of writing Wassermann's reaction is still negative and no further symptoms have developed.

CASE 2.—A girl, aged 15 years, developed the usual signs of congenital syphilis soon after birth; the mother having acquired the disease two years before. Later, the child had double interstitial keratitis, which disappeared under treatment, to be followed by cutaneous gummata over the left thigh and leg, which had resisted prolonged oral administration of mercury. The gumma on the thigh was deep, circular, and about 2½ inches in diameter; on the anterior surface of the tibia were multiple sores, the base of some reaching as far as the periosteum and bone; there was a great deal of evil-smelling discharge, and it was almost impossible to keep the ulcers clean. The patient gave a negative arsacetin reaction, and was consequently injected with 0·3 gramme of the powder in an emulsion. Except for a little pain and a rise of temperature to 100° F., which lasted till the next day, the patient suffered no inconvenience. On the second day the ulcers already showed signs of healing, and within ten days they had completely healed, no other treatment having been added. The patient also says she feels very much better. The Wassermann's reaction is still positive. I am indebted to Mr. Elmslie for his kindness in allowing me to inject this patient.

CASE 3.—A female, aged 49 years, came up to the West London Hospital complaining of a rash and weakness of, and inability to use, the left arm. The patient acquired syphilis at the age of 19, for which she was treated on and off for two years; 10 years ago a serpiginous syphilide arose on the left arm, lasted two years, and disappeared ultimately under treatment. As soon as this had disappeared a similar lesion developed on the other arm, and had been slowly increasing up to the time of admission, when the diameters of the lesion were 5 × 3. At the commencement of July she complained of weakness in the left shoulder and wrist, and her fingers felt numbed. On admission the patient could not raise her arm above her shoulder, could not lift up anything, and had practically no grip. On giving a negative arsacetin reaction she received on July 30th 0·48 gramme. Next day there was considerable pain and the temperature rose to 99·2° F. No albumin. On August 1st the pain had increased somewhat and the right buttock appeared swollen and œdematous, and the temperature had risen to 101°; the same day she noticed that she was regaining power in her left arm and the syphilide was also showing signs of fading. On August 2nd the swelling of the buttock completely disappeared, the temperature returned to normal, and the pain was very much less. On the 4th there was a slight trace of albumin in the urine. On the 8th the albumin had completely disappeared, the power in the left arm was almost as good as the right, and the skin lesion was scarcely perceptible; further, the patient said of her own accord that she had not felt so well for years, and that the "heaviness" over the heart and chest had completely gone. Unfortunately, the Wassermann's reaction before injection was autotropic, and ten days after injection slightly positive; tested again August 25th, it was negative. I am indebted to Dr. Abraham and Mr. J. G. Pardoe for so kindly allowing me to treat this patient.

CASE 4.—A male, aged 41 years, was admitted into the Lock Hospital with a large ulcerating chancre of the prepuce, polyadenitis, sore-throat, nocturnal headaches, a macular rash, and gonorrhœa. Wassermann's reaction was positive. The patient received 0·45 gramme and within 48 hours the headaches had gone, the throat was normal, the rash was fading, and the chancre had begun to cicatrise. In five days the rash had completely disappeared, and within ten days the sore had not only healed, but the induration, which was so marked at first, was scarcely palpable. August 25th, Wassermann's reaction negative.

CASE 5.—A male, aged 33 years, who had acquired syphilis in 1905, came up to the Lock Hospital first in October, 1906, having only had six months' pill treatment, suffering from perforation of the palate, gummatous ulceration of both legs, and gumma of the left testicle which finally ulcerated through the scrotum. January, 1907, fresh ulceration of the palate. February, 1907, fresh ulceration of the scrotum. May, 1908, ulceration of the nose; patient admitted into hospital for a month. February, 1909, fresh ulceration of nose. December, 1909, ulceration of nose had spread to cause necrosis, and in January, 1910, some dead bone was removed and the patient received some injections of orsudan—*in toto*, 10 grains. The ulceration having spread to the pharynx the patient was readmitted and injected with 0·45 gramme of No. 606. The patient had been almost continuously under mercurial treatment—inunctions, injections, and pills—since the commencement of 1907 without in any way checking the further progress of the disease. The patient suffered considerable pain in his legs after the injection, and on the third day a large red and painful swelling appeared covering most of the right buttock. I had visions of an abscess, but owing to the widespread distribution and not being able to obtain any fluctuation I thought the swelling might be a local toxic œdema; after a few applications of lotio plumbi it quickly disappeared. Eight days after the injection the patient was able to walk about, the nose had diminished to about half its size, the redness had almost disappeared, and the ulcers were completely cicatrised over; the discharge from both the nose and pharynx had ceased, and both looked just as if they had been healed for months; naturally, the perforation of the palate had not diminished in size. As in the case before, no local treatment was adopted, not even an antiseptic wash or gargle. A fortnight after the injection the patient was very pleased with himself and informed me that his friends scarcely recognised him. August 25th, Wassermann's reaction negative.

CASE 6.—A male, aged 28 years, contracted syphilis in August, 1909, and commenced treatment with pills in September, by which time the secondaries had fully developed. The patient continued with his treatment until July of this year, when he was admitted with ulceration of the nose, fissuring of the tongue, elephantiasis and ulceration of the lower lip, and gummatous ulcers on both shins. The patient received 0·45 gramme and two days later the nose was no longer red, the ulcers began to heal, and on the third day the lip had reached its normal size and within 14 days every ulcer had completely healed and my notes say: "Patient is delighted, observes himself constantly, and feels quite sure that the redness of the keloids, which had developed on his old papulo-pustular lesions, was much fainter." Wassermann's reaction three weeks after the injection had become negative.

CASE 7.—A man, aged 26 years, was infected middle of May, 1910, but owing to a very severe iritis of the right eye Dr. Huey sent him up to the Lock Hospital for admission. The patient had a chancre on the frænum and corona, a polyadenitis, a papular rash on the trunk and thighs, nocturnal headaches, ulceration of the left tonsil and iritis (the photophobia was too intense to allow of a proper examination). 0·45 gramme was injected, and on the following day the patient was able to dispense with his eye-shield, and within four days anyone examining the eye for the first time would have diagnosed a slight conjunctivitis, the pupil was circular, reacted normally, and there were synechiæ; before ten days were over the other symptoms had practically disappeared. At no time did the patient receive any local treatment. August 25th, Wassermann's reaction positive only with the barium prepared serum.

CASES 8 AND 9.—I had two uncomplicated cases of secondary syphilis which showed little or no improvement after an injection of 0·3 gramme. N.B.—Symptoms have since disappeared.

It appears from the few cases I have up till the present treated that the earlier the syphilis the larger the dose required (0·45 to 0·6 gramme), and that 0·3 gramme is ample in the late stages (see case of congenital syphilis). Wechselmann reports a case where, after an injection of a small dose, the rash became more profuse. This is analogous to the Jarisch-Herxheimer's sign. Should this occur with No. 606, the dose has been too small, and a few cases have been published where a second injection was given without any unpleasant complications arising. In all cases it was the general rule for the temperature to rise to 100° F. on the night of the injection, to become normal after 48 hours; sometimes the fever persisted to the third day,

ily in those cases which had some toxic œdema. In only ne case was any albumin found after injection, and in this ase it was transient.

In almost every case an induration can be felt in both uttocks, probably due to a fibrosis caused by the caustic ction of the sodium hydrate; whether the induration will ver disappear time alone will show; at any rate, it causes ne patient no inconvenience. I intend to do a Wassermann's eaction regularly on every patient, and although the drug lready seems to have some action on changing the eaction, not sufficient time has elapsed to allow a definite atement being made. Beyond the improvement observed y the naked eye, I was very much struck by the extra-rdinary change for the better in almost every patient's eneral condition; they not only appeared brighter, but felt ver so much better and put on weight; this alone is a great chievement, since there is scarcely a patient that does not ecome depressed, anæmic, and lose weight under mercurial reatment.

It seems that the severer the case the quicker the action; nyhow, the results so far obtained reach far beyond one's xpectation. A few cases of recurrence of symptoms have ccurred; what the percentage of such cases is and how uch they are dependent on too small doses having been iven, one cannot at present give an opinion. It remains lso an open question whether the injection can be repeated nd have the same action or not, since from the theoretical nd animal experiments Ehrlich is rather inclined to the iew that after a single injection the spirochæt æ become mmune to arsenic (arsenfest) It is likewise yet impossible o say whether treatment will have to be augmented with nercury, and years may have to elapse before the last vord on this wonderful remedy can be said. The greatest proof we have of the non-toxicity of this drug is the fact that healthy animals behave quite indifferently to an injection, nd that it requires 0·1 gramme per kilo to kill an animal, which would in a man be equivalent to about 7 grammes; his being the case we shall no doubt hear of larger doses being used with impunity. On Ehrlich being asked when he drug was going to be put on the market, his answer was "Not until I have authentic reports of between 20,000 and 30,000 injections." We know that every new invention has its loop-holes, so we must work quietly and critically in order to be able to state what are the indications and contra-indications for treatment. There is no doubt that by Ehrlich's genius the greatest victory over syphilis has been gained, and since the battle was fought with scientific and experimental weapons we at least know that we are on the right road to find an absolute cure for a disease which is a curse to mankind.

My warmest thanks are due not only to Professor Ehrlich but to Mr. Ernest Lane, without whose valuable assistance it would have been impossible to have treated so many cases. Mr. Lane not only allowed me to use some beds at the Lock Hospital but was good enough to inject some cases himself which he considered suitable. I am also indebted to my house surgeon, Mr. Forster, for the careful notes he has kept of the cases.

Harley-street, W.

ON THE

INFLUENCE OF THE NEW EHRLICH PREPARATION, DIOXYDIAMIDOARSENOBENZOL ("606"), ON RECURRENT FEVER IN RATS.*

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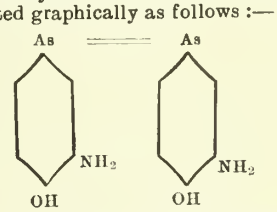
ONCE more has the great genius of Ehrlich startled the scientific world with the discovery of a new therapeutic agent—namely, dioxydiamidoarsenobenzol, or, as it is more popularly called, "606." In a recent paper Hata[2] clearly sets forth the great value of the new remedy as an absolute cure for such experimental spirochætoses as syphilis, spirillose of fowls, and recurrent fever. The fact that in contra-distinction to most arsenical preparations the therapeutic dose of this new medicament is a small fraction of the toxic one must ensure a great future for the remedy. In human syphilis a single injection is sufficient, according to Alt,[1] Neisser,[6] Schreiber and Hoppe,[7] and others, to effect a complete cure and to cause the Wassermann reaction to disappear in a few weeks' time, and our own observations in this direction seem, as far as we have gone, to be giving results in agreemcnt with this. The equally striking results obtained by Iversen[3] in cases of relapsing fever (Spirochæta obermeieri) in man, where a single injection not only causes a complete disappearance of the parasites from the blood, but prevents any relapses occurring, stamp the medicament as a specific remedy for this disease.

The new therapeutic agent is the outcome of painstaking researches on the part of Ehrlich and his co-worker, Dr. Bertheim. Dioxydiamidoarsenobenzol is a substitution reduction-product of atoxyl obtained by transposing the radicles in different positions of the side-chains of the benzene nucleus. The aim of these investigators was to obtain a substance which, though still possessing a maximum destructive effect on the parasites, had little or no injurious effects on the host's organs. In other words, they aimed at obtaining a remedy which was *parasitotrop* in the highest degree without being *organotrop*. This property allows the use of a large quantity of the substance at one time, so that the remedy is eminently suited for use according to Ehrlich's *therapia magna sterilisans*, which is now recognised as the most efficient method of treating protozoal infections. The protozoa are thus destroyed before they have a chance of developing an immunity to the medicament. The formula of "606" is represented graphically as follows:—



The treatment of relapsing fever in man and in animals has up to now met with very little success. In a series of experiments made on recurrent fever some years ago[5] I obtained practically the same results as Vassal[8]—namely, that the benzidine colour "α" of Nicole and Mesnil was alone capable of causing a complete disappearances of the spirochætes from the blood, atoxyl and its derivatives and certain of the basio triphenylmethane dyes having little or no influence on the infection. The results obtained in the treatment of infection in the human subject have also been unsuccessful.

The present research was undertaken with the idea of investigating the actual value of this new remedy as a curative agent in an infection provoked by the Spirochæta obermeieri in rats, and of ascertaining to what extent the remedy was harmful to the animal organism. I am indebted to Professor Ehrlich's kindness for the dioxydiamidoarsenobenzol employed in the research.

In the experiments rats were used in every instance, and the weight of the animals employed was in each case as near 100 grammes as possible. As a general rule 0·005 gramme of "606" for a rat of 100 grammes (i.e., 0·05 gramme per kilogramme of animal) was found to be the most suitable amount as a curative dose; with this quantity no bad effects were observed. The medicament was always given subcutaneously after it was made up in the manner advised by Alt (loc. cit.). The required amount, 0·005 gramme, is weighed and transferred to a test-tube; a few drops of methyl alcohol are added to dissolve the preparation and then 1 c.c. of normal saline solution. The solution, which is strongly acid, is neutralised with a normal solution of sodium hydrate; a slight excess of sodium hydrate is then added till the precipitate which has been formed is nearly all dissolved. The resulting slightly opaque solution is now ready for use.

Influence on the Infection.

Curative action.—When a rat, whose blood contains a considerable number of spirochætes, is given a therapeutic dose of dioxydiamidoarsenobenzol, no diminution in the number of parasites is observed till some six hours later. The spirochætes then gradually disappear from the circulation, and in 18 to 24 hours have completely disappeared. In every case treated the same result was observed, whether it

* The superior figures refer to the bibliography at the end of the article.

was the first, second, or third day of the infection, and in no instance did a relapse occur in any of the treated animals. Experiment I. gives a good idea of the efficient action of "606" on the disease.

Experiment I.—Four rats were inoculated intraperitoneally with 0·2 c.c. of rat's blood containing a considerable number of Spirochæta obermeieri. One rat was given 0·005 gramme of dioxydiamidoarsenobenzol 24 hours later; another rat the same dose 48 hours later; and a third rat was given it 72 hours later; that is, the rats were treated on the first, second, and third days of the disease respectively, the fourth rat being the control. At the time the injection of the remedy was given there were numerous spirochætes in the animals' blood. The following table will explain the results obtained:—

TABLE I.

Rat.	May 7th	8th	9th	10th	11th	12th	13th	14th	15th	16th
1	0·2 c.c. virus.	+*	0	0	0	0	0	0	0	0
2	,,	+	++*	0	0	0	0	0	0	0
3	,,	+	++	++++*	0	0	0	0	0	0
4	,,	+	++	++++	++++	dead.	0	0	0	0

+'s = proportional to the number of spirochætes in the blood.
* = received 0·005 gramme "606."

Dioxydiamidoarsenobenzol may therefore be said to produce an artificial crisis which is similar to the crisis which occurs normally at the end of the infection. This is also the case with atoxyl in the spirillose of fowls. During this artificially produced crisis an elaboration of a certain quantity of immune substances takes place, apparently in no way dependent on which day of the disease the medicament is given, but whether in greater or less amount than occurs naturally it is difficult to say. The actual demonstration of the immune bodies at this period is not easy, as the quantity elaborated in the short time must be small, but, nevertheless, lysines and specific fixers can be demonstrated very soon after the crisis has taken place. The following experiment shows this clearly.

Experiment II.—Four rats were each inoculated with 0·2 c.c. of rat's blood containing numerous Spirochæta obermeieri. Two days later all the rats except one (control rat) were given an injection of 0·005 gramme of "606" subcutaneously. These three rats were then killed at intervals of 24 hours, the first being killed 24 hours after the injection of the remedy, the second 48 hours after it, and the third 72 hours after it. In these the serum was examined at the crisis, 24 hours after it, and then 48 hours after it. Table II. shows how the experiment was carried out.

TABLE II.

Rat.	June 20th	21st	22nd	23rd	24th	25th	26th
1	0·2 c.c. virus.	+	+++*	0 S	—	—	—
2	,,	+	+++*	0	S	—	—
3	,,	+	+++*	0	0	S	—
4	,,	+	+++	++++	++++	0	0

* = 0·005 gramme "606."

The sera of those rats in which this artificial crisis was produced were examined first for specific lysines. In a series of test-tubes were placed 0·5 c.c. of dilutions of the ser (1-5th, 1-10th, 1-20th, and 1-100th) obtained at the cris 24 hours after it and 48 hours after it. The dilutions w made in normal guinea-pig complement (1 in 15 norn saline solution). To each tube was added 0·1 c.c. of mixture of rat's blood containing a large number spirochætes and normal saline. After the tubes had be shaken they were kept at 37° C. They were examined af the lapse of half an hour and again one and half hours lat In the first two dilutions complete lysis occurred as regar each of the three sera, while no change was observed in t control tubes. In the higher dilutions the spirochætes we degenerate and presented the characteristic bulbous d generation. This observation indicates that specific lysin are elaborated after the injection of "606."

Much the same result was obtained by the fixation of t alexine reaction, as specific complement-fixing bodies we present in considerable amount 24 hours and 48 hours aft the crisis had been artificially produced. Complete fixati of the alexine was observed with 0·1 c.c. of the rat's seru when 0·3 c.c. of a suspension of Spirochæta obermeieri w used as antigen. This suspension was made by centrifugi rat's blood in which large numbers of spirochætes we present. The schema employed was as follows:—

TABLE III.

—	Serum.	Antigen.	Complement, 50 per cent.		Result
Day of crisis	0·1	0·3	0·1	2 hours at 37° C.	+++
	0·1	—	0·1		0
24 hours after crisis ...	0·1	0·3	0·1		+++
	0·1	—	0·1		0
48 hours after crisis ...	0·1	0·3	0·1		+++
	0·1	—	0·1		0
Normal rat	0·1	0·3	0·1		0
	0·1	—	0·1		0
	—	0·3	0·1		0

++++ = complete fixation of complement.

Rats which have been cured with the dioxydiamidoarsen benzol, whether on the first, second, third, or fourth day the disease, develop a complete immunity against re-inocula tion. What the durability of this immunity will prove to b cannot be told for some time yet, but no doubt this conditio must last several months at least. The blood of those rat in whom this artificial crisis has been produced is infectiv for another rat at least 24 hours after the crisis has occurred so that by this time a complete destruction of all the spiro chætes has not occurred, though it may appear to have don so when the microscope alone is used as a test.

Preventive action.—The preventive action of most chemo therapeutic remedies is small, a fact which may be explaine by the rapidity with which these substances are either fixe by some of the internal organs or secreted from the organism Dioxydiamidoarsenobenzol is no exception to this, though i certainly has a more powerful preventive action than ha atoxyl in the case of spirillose of fowls. When a curativ dose of "606" is given at the same time as 0·2 c.c. of the virus no disease follows, but if the virus is given 24 hours o more after the injection of the "606" an infection alway follows in which the incubation period may or may not be lengthened, as is seen in Table IV.

An experiment was also made to ascertain whether "606" had really a true or only an apparent preventive action when given at the same time as the virus. With this aim in view

TABLE IV.

Rat	May 7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st
1	×	Virus, 0·2 c.c.	0	0	0	0	0	0	0	0	+	+++	++++	++++	0
2	—	,, ×	0	0	0	0	0	0	0	0	0	0	0	0	0
3	—	,,	+	++	++++	—	0	0	0	0	0	0	0	0	Control

× = 0·005 gramme "606."

ree rats, along with a control animal, received 0·2 c.c. of rus, and then 0·005 gramme of "606." One rat was killed hours later, another 48 hours later, and the third 72 hours ter. The blood of each rat, after having been defibrinated, as injected into the peritoneal cavity of a normal rat. The t which received the 24 hours' blood alone developed the sease after a somewhat lengthened incubation period. ables V. and VI. explain the experiment.

TABLE V.

Rat	June 28	29	30	July 1	2	3	—
1	0·2 c.c. Virus + "606"	0 S	—	—	—	—	
2	,,	0	S	—	—	—	
3	,,	0	0	S	—	—	
4	Virus	+	++	+++	++++	0	0 Control

TABLE VI.

Rat	June 29th	30th	July 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
A	Blood of Rat 1	0	0	0	0	0	0	+	+++	++++	0	0
B	—	Blood of Rat 2	0	0	0	0	0	0	0	0	0	0
C	—	—	Blood of Rat 3	0	0	0	0	0	0	0	0	0

This experiment suggests that a slight general infection which is not apparent to the microscope does occur when the virus is given at the same time as the dioxydiamidoarsenobenzol. This infection must, however, be very slight, as 24 hours later the blood is not infectious. The destruction of the spirochætes by the specific is therefore not complete till more than 24 hours afterwards. This result is certainly much better than what has been achieved by any of the other chemo-therapeutic substances in protozoal infections. Previously to the discovery of "606," atoxyl was considered to be the most efficient remedy for the spirillose of fowls; yet, after a curative dose of atoxyl in that infection, spirochætæ can be demonstrated in the blood for three days.[4]

Rats which have received an injection of "606" at the same time as the virus are found to have developed a complete immunity to the disease. Of several rats thus treated, or one might say vaccinated, only one was found not to have become immune to a re-inoculation.

Action in vitro.—Owing to the insolubility of dioxydiamidoarsenobenzol, except in a great excess of fluid or in a medium which is alkaline, an accurate estimation of its destructive power on the parasites is impossible. In dilutions of 1 in 500 it appears to have very little injurious effect on the spirochætes, a result which merely supports the older fact that the antiseptic or bactericidal properties of a substance are no indication of its healing properties.

Influence on the Organism.

As a rule, after an injection of a therapeutic dose of dioxydiamidoarsenobenzol (0·05 gramme per kilogramme), the rats show little or no signs of any discomfort, eating and drinking as usual. Once or twice an animal did appear to be ill five or six hours after the injection, as it showed a disinclination to move and its coat was slightly staring, but a few hours later the animal had quite recovered. At the site of the inoculation a hard indurated swelling forms within 24 hours; the swelling then gradually diminishes in size and disappears in about a week. If a rat be killed 24 hours after it has received an injection of "606" this swelling is seen to consist of an œdematous infiltration of the subcutaneous tissue; not infrequently this œdematous infiltration is of a gelatinous consistence. In none of the animals examined was any tendency to hæmorrhage or necrosis observed at the site of inoculation.

After the injection of a larger dose (0·15 gramme per kilogramme of animal), which might be considered as the *dosis bene tolerata*, the general disturbance is more in evidence; the swelling at the site of inoculation is slightly larger, but a few hours afterwards the animal is again quite lively. When a still larger, that is, a toxic but non-lethal dose (0·3 gramme per kilogramme weight) is given the general disturbance is considerable, and the animal becomes very ill; its coat is very rough, it refuses all food, and has no inclination to move about. But these toxic effects soon pass off and the animal makes a rapid recovery. The internal organs of a rat which had received this large dose of "606" were examined macroscopically and microscopically. The liver was slightly paler, the lobules were more clearly marked out than usual, and a certain number of the liver cells appeared to be atrophied. The urine contained a small quantity of albumin, but no change suggestive of nephritis was found in the kidneys. The other organs appeared to be normal.

The high curative properties of dioxydiamidoarsenobenzol and its feeble action *in vitro* suggest that in all probability some change in its composition is brought about by the intermediary of the animal organism, such as happens in the case of atoxyl. The discovery of the actual mechanism by which the parasites are destroyed by "606" is a problem which would be rather difficult to solve. In the clearance of the spirochætes from the organism there are evidently two processes at work—namely, a direct destruction of the parasites and an increased phagocytosis. The latter is known to be the process principally involved in the production of a natural cure by a crisis, and an injection of dioxydiamidoarsenobenzol is followed by a considerable degree of leucocytosis, which suggests that phagocytosis also plays an important part in the production of the artificial crisis. What part the elaboration of antibodies plays in the latter it is impossible to say.

The chance of any toxic effects occurring in the employment of a therapeutic dose of "606" is extremely remote, as from the foregoing experiments, as well as from Hata's, it is seen that the *dosis maxima bene tolerata* is six times as great as the *dosis curativa;* while the fact that one dose alone is required to effect a complete cure in most spirochæte infections eliminates the possibility of toxic results from accumulation or from hypersensibility. In the cases of syphilis which we have ourselves treated we have obtained marvellous results, not the slightest bad effects having been noticed.

In conclusion, it may be said that dioxydiamidoarsenobenzol is a specific remedy for European relapsing fever, and no doubt it will be equally efficient in the other spirochætoses.

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THE VALUE OF OSSICULECTOMY IN CHRONIC MIDDLE-EAR SUPPURATION, AS A MEANS OF AVOIDING THE COMPLETE MASTOID OPERATION.

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THE operation of ossiculectomy—that is, the removal of the malleus and incus, together with the outer wall of the attic and any granulations existing within the tympanic cavity—was first performed by Schwartze in 1873. More recently, in this country, Richard Lake has drawn attention to the fact that such an operation is of considerable value in suitable cases. I do not, therefore, claim any originality, but merely wish to emphasise the fact that very excellent results may be obtained by this operation, both with regard to the cessation of the middle-ear suppuration and also with regard to the improvement of the hearing power, even in those cases in which the performance of the complete mastoid operation may have been suggested.

It is assumed, of course, before operative measures are discussed, that prolonged and careful conservative treatment has been given a trial when possible, and has failed.

In deciding which operation to adopt (and the choice lies between simple opening of the antrum and mastoid cells, ossiculectomy, or the complete mastoid operation), the surgeon not only has to consider how best to eradicate the disease and remove all further risk to life, but also how this can be done with the least inconvenience to the patient and the least detriment to the hearing power. With regard to the hearing power, any operation involving removal of the malleus and incus of necessity must reduce it to a certain extent, whereas the simple opening of the antrum and mastoid cells, provided the ossicles and the bony walls of the tympanic cavity are not yet irreparably damaged, may permit complete recovery of hearing to take place. This is an important fact which must not be lost sight of, as it may determine the operation to be nndertaken. For instance, in certain cases of chronic middle-ear suppuration the hearing may still be good, and there may be no evidence of disease of the ossicles nor of the walls of the tympanic cavity, nor of the mastoid process itself. Under these circumstances there be merely a large perforation of the tympanic membrane, it may be assumed that the continnance of the suppuration is due to an affection of the mucous membrane rather than of the underlying bone: for example, to a chronic empyema of a large antrum cavity which, owing to its anatomical structure, will not drain freely. In such cases if the deafness be of the middle-ear type and the labyrinth be intact (as the complete mastoid operation would certainly diminish the hearing), the simple opening of the antrum and mastoid cells may justly be advised in the hope that free drainage of the antrum cavity by the posterior route may bring about a cure.

The average amount of hearing after removal of the malleus and incns is 12 feet off for conversation. If the hearing power is less than this, it is obvious that an operation involving the loss of the malleus and incus will not, *per se*, cause further deafness. Sometimes, however, after the complete mastoid operation the hearing power is reduced to a very marked degree, so that the patient may become almost completely deaf on the affected side; but this is usually in conseqnence of faulty after-treatment, and is the resnlt of a pad of granulations being allowed to spring up and cover the inner wall of the tympanic cavity and region of the stapes. Subsequently, fibrous adhesions form and the stapes becomes fixed irrevocably within the fenestra ovalis.

In chronic middle-ear suppuration in which there is marked deafness the question arises as to whether the operation of ossicnlectomy will be sufficient, or whether the complete operation is indicated.

Hitherto ossiculectomy has been limited chiefly to attic suppuration, in which a small perforation exists in Schrapnell's membrane, or in which there is a fistula of the outer attic wall situated in front of or behind the malleus. In some of these cases the hearing is remarkably good, and if so, surgical interference should be avoided, unless, in addition, there are recurrent attacks of tinnitus, giddiness, or headaches radiating np the affected side (symptoms signifying retention of the pnrnlent secretion), in which case operation should be advised in order to ensure drainage and prevent further extension of the suppurative process. There is, however, a large gronp of cases which on examination show extensive disease of the tympanic cavity and its bony walls, and in which perhaps polypi and granulations have recurred more than once after removal, and in which, indeed, there may even be caries of the bony margin of the posterior attic region and entrance to the antrum itself. In these cases I would like to advocate that ossiculectomy should be given a trial before performing the complete mastoid operation, and that the latter shonld be limited to those cases in which there is direct evidence of disease of the mastoid process itself, as may be shown by a fistula extending through its anterior wall into the external auditory canal, or externally through the mastoid cortex behind the auricle; or in which there are signs and symptoms of active inflammation (shown by pain and tenderness behind the ear, together with constitutional symptoms, snch as pyrexia, headache, and general malaise); or in which large cholesteatomatous masses protrude from the region of the attic and antrum. I have been drawn to this conclusion as a resnlt of having performed the radical operation on a large number of cases in which at the time of operation there were no signs or symptoms of active inflammation within the mastoid process itself, although otherwise they had all the accepted signs and symptoms indicative of this operation.

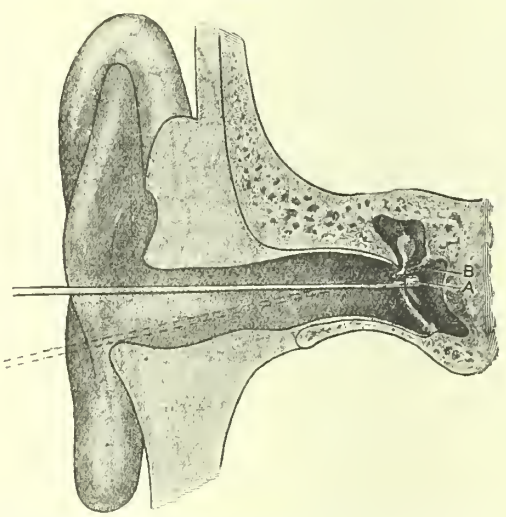
The fact which impressed me most in these cases was the large proportion in which the mastoid process was found to be extremely sclerosed and the antrum to be very small indeed. In such cases it seems to me that the more simple operation of ossiculectomy would have been equally effective, as by removing completely the outer attic wall, not only could the antrum itself have been curetted out, but free drainage from it would have been obtained. The difficulty is to tell beforehand the snitable cases, but this becomes largely a matter of experience.

Technique of the Operation of Ossiculectomy.[1]

Before the anæsthetic is given the ear shonld be filled with a 5 per cent. solution of cocaine, containing a 1 in 2000 solution of adrenalin chloride: this diminishes the bleeding during the operation. The field of operation is isolated from the surrounding parts by covering the head with a sterilised towel, having an opening cut in it just sufficient to expose the auricle and meatus. The steps of the operation are: (1) to free the malleus from its attachment to the tympanic membrane and from the inner wall of the middle ear if adherent to it; (2) cutting through the tendon of the tensor tympani muscle; (3) removal of the malleus; (4) removal of the incus; (5) removal of the outer wall of the attic; and (6) curetting out granulations from the tympanic cavity and attic region.

If granulations fill the tympanic cavity they should be removed and the hæmorrhage should be arrested by plugging the ear with a strip of gauze soaked in the cocaine and adrenalin solution, in order that a clear view of the field of operation may be obtained. The tympanic membrane, if

FIG. 1.



Diagrammatic section, showing removal of the malleus by Delstanche's curette. A, curette embracing the handle of the malleus. B, curetto pushed upwards so as to divide the tensor tympani muscle.

present, is then incised with a paracentesis knife, the incision being carried well up in front of, and behind, the malleus, in order to cut throngh the anterior ligament and the posterior fold. The tendon of the tensor tympani muscle can then be severed by a Schwartze's tenotomy knife (a very fine blunt-pointed instrnment, curved on the flat), which is inserted through the incision in the tympanic membrane, just behind the malleus, with its point directed upwards, and which is pushed upwards until its shaft is on a level with the processus brevis. The handle is then rotated in a forward direction, so that the sharp edge of the knife, which is kept close to the posterior border of the neck of the malleus, makes a circular movement forwards and downwards, and thns cuts throngh the tendon. The mallens thus freed can easily be removed

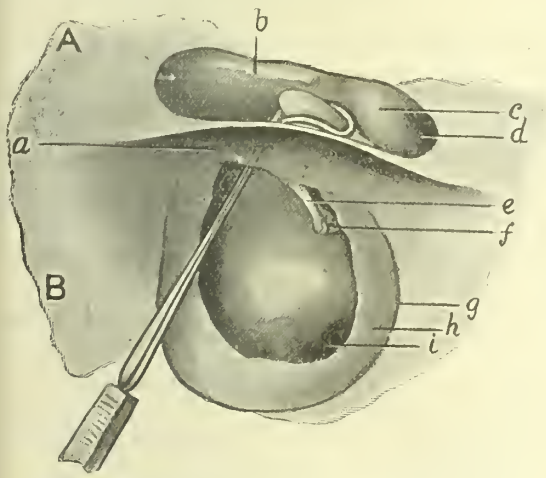
[1] For further details see the writer's article in Burghard's System of Surgery, vol. iv., p. 351, from which the illustrations in the present paper have been taken.

by seizing its handle with a pair of fine forceps, care being taken to pull it downwards until the head of the malleus is seen within the tympanic cavity. If this precaution be not taken, but an attempt is made to pull the malleus directly outwards, its neck may be fractured owing to its impinging against the outer wall of the attic. If this takes place, the head of the malleus may be left behind, and its extraction may become a matter of difficulty.

Another method of extracting the malleus is by Delstanche's ring-knife, and this, in my opinion, is the one to be preferred. This instrument is an ordinary ring-knife, in which the upper border of its anterior part is especially sharpened so as to form a fine cutting surface. The ring-knife is made to encircle the handle of the malleus, and is then pushed gradually upwards, keeping as close to the posterior border of the malleus as possible, until it cuts through the attachment of the tensor tympani. In doing this the instrument will embrace the neck of the malleus, and will thus permit of sufficient leverage to extract the malleus by gentle traction in a downward and outward direction. After removal of the malleus, the hæmorrhage should be arrested and a clear view obtained of the inner wall of the tympanic cavity.

The incus is now removed by Zeroni's incus-hook, which consists of a steel evelet, having a backward curve, and bent at a right angle to the shaft of the instrument. It is inserted into the attic at the point previously occupied by the head of the malleus, the hook being directed upwards, having its concavity backwards (Fig. 2). The shaft of the instrument is then rotated backwards, so that the hook passes over the body of the incus, and as the rotatory action is continued downwards and finally forwards, the incus is dislodged from its position and forced into the tympanic cavity. It can now be removed by a pair of fine forceps.

FIG. 2.

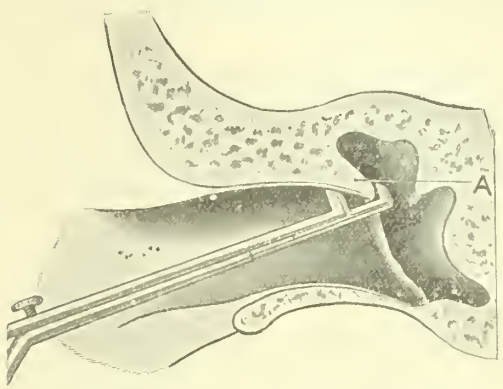


Removal of incus by Zeroni's hook. A, diagrammatic section showing opening in tegmen tympani; *b*, processus cochleariformis; *c*, external semicircular canal; *d*, aditus and antrum. B, diagrammatic section, through the auditory canal, just beyond the tympanic membrane; *e*, long process of incus; *f*, incudo stapedial joint; *g*, tympanic ring; *h*, remains of tympanic membrane; *i*, fenestra rotunda; above it is the promontory.

The next step is the removal of the outer attic wall, which is performed with a small but strong pair of punch-forceps. The instrument is directed along the roof of the auditory canal, its cutting edge being held upwards, with the blades slightly open. When the outer blade is felt to pass over the outer wall of the attic, the handle is then depressed, so that the outer end of the forceps is forced upwards and the outer wall of the attic is embraced between its points. This is confirmed by attempting to withdraw the forceps, which the outer bony wall of the attic will now prevent. The blades of the forceps are now brought together by pressure on the handle, and a small portion of the bone is punched out (Fig. 3, A). In this way the outer wall of the attic can be cut away gradually in small fragments. Into the larger opening thus made small curettes are passed upwards and backwards, and any granulations in the region of the aditus and entrance to the antrum are curetted away.

As a final measure, any granulations arising from the floor of the tympanic cavity, and especially at the entrance of the Eustachian tube, are similarly removed. The cavity is then swabbed out with a pledget of cotton-wool soaked in a 1 in 2000 solution of biniodide of mercury, and a small drain of sterilised gauze is inserted within the auditory canal, the ear being afterwards covered by a pad of gauze. The dressing need not be changed for two or three days, and is then repeated daily or every second day until healing. In some cases, however, there may be considerable pain at first, owing to the forcible bruising of the tissues of the inner part of the auditory canal during the act of removal of the outer wall of the attic. This, however, usually subsides within a day or two. If, on the other hand, there is much purulent discharge, which may be profuse for a few days after the operation, the ear should be syringed out, and

FIG. 3.



Removal of outer attic wall with forceps. A, outer attic wall.

after drying the auditory canal a few drops of a 10 per cent. solution of carbolic acid in glycerine should be instilled. Subsequently, drops of rectified spirit may be substituted. As a rule, the patient can get up on the third day and be at work again on the tenth day or earlier, although syringing and instillation of drops may be necessary for several weeks afterwards. One reason why the operation of ossiculectomy has been neglected is its apparent difficulties, which to some seem to be considerable. As a matter of fact, the operation is exceedingly simple, provided a good view of the field of operation is secured.

Results of Operation.

During the last nine years I have performed this operation in over 120 cases, the large majority of which have been in hospital practice. Of these, however, I have only been able to verify results in a little over 50 cases, but as (in hospital practice at any rate) the tendency is for those who have been treated successfully to ignore requests to return for further examination, it may be assumed that the average of results in those who did not return to me for inspection is just as good as, if not better than, in those who did.

A brief summary of these cases shows that in 52 per cent. the ear is now dry and all signs of suppuration have ceased. In 30 per cent., although there is still a slight intermittent discharge, it is muco-purulent in character, and in almost every case is due to infection through the Eustachian tube, as a result of post-nasal catarrh; but there is no evidence of any active suppuration or disease of the mastoid process. In 10 per cent. it is impossible to say whether the mastoid operation eventually will be necessary, but meanwhile free drainage has been secured and there are no signs pointing to extension of the suppurative process.

In the three cases in which the mastoid operation became necessary a successful result was obtained. In only one case did death occur, and that a year later on account of subsequent infection of the lateral sinus. In this case, no doubt, the performance of the complete mastoid operation instead of ossiculectomy would have saved the life of the patient. It must, however, be remembered that this patient did not keep under observation at the hospital, or the mastoid operation no doubt would have been performed. So far as I know, this is the only case of death, and these are the only three cases in the 120 on which I have performed the operation of ossiculectomy which eventually required the mastoid operation. With regard to the hearing power, in many cases surprisingly great improvement has occurred, even in those in

I.—*Cases Cured.*

No.	Sex and age.	Symptoms before operation.	Date of operation.	Hearing.		Present condition.
				Before operation.	After operation.	
1	M., 23	*R.* Otorrhœa over 5 years. Large perforation—fistula into attic. Head of malleus carious.	Dec., 1904.	Voice, 18 in.	Oct., 1905: voice, 24 ft.; watch, 6 in.	Ear dry. White scar lining inner wall of tympanum.
2	F., 40	*R.* Otorrhœa off and on 25 years. No pain. Granulations blocking upper part of tympanic cavity. Fistula leading through attic.	Feb., 1909.	Voice, 6–8 ft.	10 ft.	Ear dry within one month after operation. No further discharge.
3	F., 40	*L.* Otorrhœa 15 years. Attacks of pain, headache and giddiness when discharge ceased. Constant neuralgia along affected side of head. Aural polypus blocking ear. Chronic attic suppuration.	Feb., 1909.	Speech, 8–10 ft.; whisper, 3 ft.	Practically the same.	After operation. Cholesteatomatous débris in attic and antrum. Considered probable mastoid operation must be done later. Ten weeks after, ear completely healed. No further discharge since. Headaches and neuralgia completely disappeared.
4	F., 25	*L.* Otorrhœa 4–5 years. Frequent attacks of headache up affected side. Large fistulous opening into attic, in front and behind malleus which is adherent to inner wall.	Oct., 1904.	Watch, 1 in.; whisper, 1 ft.	Dec., 1904: watch, 9 in.; whisper, 4 ft.	Headaches immediately disappeared, but slight serous discharge for some months. Inner wall of tympanic cavity now looks healthy. Ear dry.
5	M., 27	*R.* Otorrhœa and extreme deafness since childhood. Occasional neuralgic headache on affected side. Large polypus blocking ear.	May, 1909.	Almost complete deafness, chiefly of nerve type.	No change.	Ear dry. No further headaches or neuralgia.
6	F., 33	*L.* Otorrhœa since 4 years old. Attacks of severe headache on same side. Tinnitus. Large polypus with granulations blocking tympanic cavity.	Oct., 1906.	Voice, 3 ft.	7–8 ft.	Ear dry six weeks after operation.
7	M., 30	*R.* Otorrhœa off and on for years. Headaches. Large polypus filling ear.	Jan., 1909.	Voice, 2 ft.	6 ft.	Three months after operation, ear clear. False membrane forming. No further headaches.
8	M., 27	*L.* Otorrhœa 12 years. Intermittent headaches up affected side. Ear full of granulations. Question of doing complete mastoid operation.	Feb., 1910.	Practically completely deaf.	Voice, 18 ft. +	After operation, giddiness, headache, and profuse otorrhœa for 10 days. Question of complete mastoid operation. Gradual recovery, ear dry—scarred over.
9	F., 19	*L.* Otorrhœa. ? always.	1908.	Nearly stone deaf.	Voice, 16–18 ft.; speech, 10 ft.	Inner wall lined by scar tissue. No recurrence of granulations.
10	F., 24	Otorrhœa for years. Granulations covering inner wall.	June, 1909.	Almost complete deafness.	Voice, 14 ft.; speech, 8–10 ft.	Discharge ceased within 6 months. Mucous membrane red—inner wall well seen.
11	F., 60	*R.* Large polypus. Profuse offensive discharge for years.	1908.	? *nil.*	Voice, 2–3 ft.	Discharge ceased in 3 weeks. Dry perforation in attic region. Lower part scarred over.
12	F., 24	*R.* Otorrhœa since childhood. Attacks of ear-ache and giddiness. Large fistula into attic. Caries of ossicles. Polypus.	Nov., 1907.	"Very bad."	"Much improved"; voice, 10 ft.	No discharge nor recurrence of polypi. Large perforation. Mucous membrane covering promontory red and smooth.
13	F., 20	*R.* Otorrhœa 15 years. Attacks of giddiness with headaches up affected side.	Aug., 1909.	Practically *nil.* (Nerve deafness.)	No improvement.	Inner wall tympanic cavity partially scarred over. No discharge.
14	F., 20	*L.* Otorrhœa over 10 years. Polypi. For 12 months attacks of pain over mastoid region, and same side of head, with giddiness.	April, 1909.	Voice, 3ft.	16 ft.	No further headaches or giddiness. Ear dry. Scarred over.
15	F., 16	*L.* Otorrhœa all life. Polypi. Pain on affected side of head.	Feb., 1910.	Voice, 5 ft.	18 ft.	Ear dry. No further pain.
16	F., 31	Otorrhœa and tinnitus for years.	March, 1909.	Very deaf.	Voice and whisper, 18 ft.; watch, 3 in.	Ear dry. No discharge since operation.
17	F., 25	*L.* Otorrhœa. Polypi. Attacks of pain in head and giddiness 5 years.	July, 1909.	,,	Voice, 15 ft.	Feels well; very pleased. Ear dry.
18	M., 13	*R.* Otorrhœa since 5 years old.	1905.	"Had to shout."	Voice, 4 ft.	Discharge ceased in 3 weeks. Tympanic cavity scarred over except small opening into Eustachian tube.
19	F., 42	*R.* Otorrhœa for years. Aural polypus removed more than once. Question of doing complete mastoid operation.	Nov., 1909.	Very deaf.	No improvement.	Ear dry.
20	F., 13	Otorrhœa for 10 years.	July, 1909.	,,	Voice, 18 ft.	,,
21	M., 7	Otorrhœa since babyhood. Polypi protruding from ear.	Oct., 1909.	Almost complete deafness.	Voice and whisper, 18 ft.	Large perforation; inner wall pale. No discharge four weeks after operation.
22	F., 28	*R.* Otorrhœa for years. Polypus. Pains in head.	Nov., 1907.	Very deaf.	25 ft. +	Small perforation. Scarring of chief portion. Ear dry.
23	M., 25	Otorrhœa 4 years. Granulations. Headaches.	March, 1909.	,,	14 ft. +	Inner wall clearly seen. Mucous membrane red. Ear dry.
24	M., 20	Otorrhœa 1 year. Polypi and granulations. Outer wall of attic carious. ? Do complete mastoid operation.	July, 1909.	1 ft.	No improvement.	After operation profuse discharge, with headaches. Inner wall now scarred over except in upper posterior part. Ear dry.
25	F., 24	Offensive discharge for years.	1908.	Very deaf.	20 ft. +	Ear dry.
26	F., 24	Otorrhœa for years. Granulations. Fistula into attic. Neuralgia and headaches on affected side. ? Do mastoid operation.	1907.	,,	12 ft.	,,

II.—*Cases Much Improved.*

No.	Sex and age.	Symptoms before operation.	Date of operation.	Hearing.		Present condition.
				Before operation.	After operation.	
27	F., 20	Otorrhœa for years. Granulations filling tympanic cavity.	1906.	Very deaf.	16 ft.	Slight intermittent discharge. Mucous membrane of inner wall red. No recurrence of granulations or polypi.
28	F., 20	*L.* Otorrhœa for years. Fistula into attic.	1904.	,,	5–6 ft.	"A lot better." Ear moist. Inner wall of tympanum partially scarred over.
29	F., 12	*R.* Otorrhœa since babyhood. Polypus partially blocking ear. ? Do complete mastoid operation.	1908.	Voice, 8–10 ft.	Whisper, 18 ft.	"Doesn't seem a bit deaf." Mucous membrane of inner tympanic wall red. No sign of polypi nor diseased bone. Slight mucous discharge after a cold.
30	F., 24	*L.* Otorrhœa for years. Polypi, pains in head. Attacks of giddiness. ? Do mastoid operation.	1907.	Nearly completely deaf.	Not improved.	No longer head symptoms, only slight discharge after a cold.
31	F., 12	Chronic otorrhœa. Polypus.	Oct., 1908.	Very deaf.	Voice, 18 ft.	Large perforation. Mucous membrane red. Only slight mucous discharge after a cold.
32	F., 22	*R.* Otorrhœa for years. Headaches on same side. Marked giddiness on syringing.	March, 1909.	3 ft.	Voice, 12 yds.; whisper, 16 ft.	After operation headaches increased, pyrexia, profuse otorrhœa. Gradual recovery. Now intermittent slight mucous discharge.
33	F., 27	*R.* Chronic otorrhœa. Headaches. Attacks of pain. Tinnitus.	1908.	Only hear "shouting."	No improvement.	Large perforation. Slight purulent discharge after a cold. Headaches and tinnitus markedly diminished.
34	F. 21	*L.* Otorrhœa since 3 years old. Large polypus.	June, 1909.	Very deaf.	Hearing improved; voice, 5–6 ft.	Occasional slight mucous discharge, otherwise well.
35	M., 31	*R.* Otorrhœa 15 years. Multiple polypi. ? Do complete mastoid operation.	Nov., 1907.	,,	Voice, 16 ft.	Occasional slight mucous discharge. No recurrence of polypi.
36	M., 22	*R.* Otorrhœa 4 years. Polypi blocking external auditory canal. Attacks of giddiness.	June, 1908.	,,	Watch, 4in.; conversation, 15–18 ft.	Central perforation with scarring. Occasional slight discharge.
37	F., 24	*L.* Otorrhœa 10 years. Granulations in middle ear.	1907.	,,	Speech, 14 ft.	Discharge ceased 3 months after operation for 2 years. Now intermittent discharge. No recurrence of granulations.
38	F., 31	*L.* Chronic otorrhœa. Headaches. Polypi. Tinnitus.	Sept., 1907.	Just hear voice.	Voice, 16 ft. +	Pain, headaches and tinnitus ceased. Occasional slight muco-purulent discharge.
39	M., 22	Chronic otorrhœa. Granulations.	1908.	Voice, 7 ft.	10 ft.	Slight discharge at times, otherwise well.
40	F., 20	*R.* Otorrhœa for years. Granulations. General headaches.	1909.	Very bad.	15–18 ft.	Occasional discharge, headaches continue, but apparently not due to ear trouble.
41	M., 11	*R.* Otorrhœa 4 years. Polypi removed twice. Granulations. ? Do mastoid operation.	1906.	3 ft.	Voice, 20 ft.	Still slight intermittent discharge. No recurrence of polypi.

III.—*Not Cured, but Mastoid Operation Avoided.*

42	F., 22	*R.* Otorrhœa 5 years. Granulations.	Sept., 1909.	Voice, 4–6 ft.	No improvement.	Discharge not ceased, but slightly diminished.
43	F., 13	*L.* Otorrhœa for years. Polypi.	Nov., 1909.	Very deaf.	Not improved.	Still otorrhœa, but no recurrence of polypi.
44	M., 13	Otorrhœa for years. Granulations.	May, 1909.	,,	Hears better.	Central perforation. Otorrhœa continues.
45	F., 16	*L.* Otorrhœa since childhood. Attic suppuration.	1909.	,,	No improvement.	Still otorrhœa.
46	F., 27	Chronic otorrhœa. Granulations. Constant headaches on affected side.	1908.	,,	Not much better.	Discharge continues. "Never so free from headaches."

IV.—*Mastoid Operation eventually Necessary.*

47	F., 14	*R.* Otorrhœa since babyhood. Offensive discharge. Large fistula leading towards entrance of antrum. Cholesteatomatous débris. Mastoid operation advised but refused.	Aug., 1907.	6 ft.	No improvement.	Conservative treatment till Nov., 1908, when complete mastoid operation was performed. Extensive cholesteatoma found. Ear now dry; was completely healed within 10 weeks after operation.
48	F., 17	*L.* Otorrhœa, granulations, since childhood.	Sept., 1907.	8 ft.	,,	Otorrhœa continued. Recurrence of granulations. Mastoid operation. Ear now dry.
49	M., 22	*L.* Otorrhœa for many years. Granulations. Fistula into attic.	1908.	8 ft.	The same.	Recurrence of granulations. Mastoid operation advised. Eventually went to Royal Ear Hospital where mastoid operation was performed with complete success. Ear dry.

V.—*Death from Subsequent Lateral Sinus Thrombosis.*

50	M.	*R.* Otorrhœa since childhood. Ear filled with granulations. Offensive discharge.	1907.	Very deaf.	No improvement.	Continuance of discharge. Lost sight of. Brought to hospital 12 months later with signs of lateral sinus thrombosis. Rigors. Paralysis sixth and seventh nerve on right side. Optic neuritis. Internal jugular vein tied. Death 9 days later from meningitis.

which there was almost complete deafness before the operation, and that for a considerable period. In 12 cases the voice can now be heard at least 18 feet off, and in 11 cases over 12 feet off; that is, in 23 cases (46 per cent.) the hearing power remains or has been restored to a degree sufficient for most practical purposes.

On comparing the operation of ossiculectomy with the complete mastoid operation, the following points may be mentioned.

In favour of ossiculectomy.—1. The large number of cases which can be cured or in which the mastoid operation may be avoided. 2. The large proportion in which a good result is obtained with regard to the hearing power. 3. The slight inconvenience of the operation to the patient and the short duration of the after-treatment.

Against ossiculectomy.—It has been urged that in many cases the mastoid operation eventually may become necessary, even although an apparent cure or cessation of discharge may be obtained for a short period after ossiculectomy has been performed, and also that the minor operation does not render the patient completely free from further risk of intracranial complications. With this I do not agree, and I hope the cases I have quoted will support my contention.

It is no doubt true that the above objections to ossiculectomy may have held good some years ago, when the operation was not performed so thoroughly and the outer attic wall was not removed. It must also be admitted that in a certain number of cases, owing to the formation of adhesions, the hearing power, although very good soon after the operation, may eventually become worse. But this, however, may also take place after the complete mastoid operation.

Speaking generally with regard to middle-ear suppuration, I feel sure that if Schwartze's operation (simple opening of the antrum and mastoid cells) were performed more frequently in those cases in which the discharge did not cease within two months, the suppurative process might be arrested and the hearing power in many cases might be restored to normal. But if, on the other hand, the surgeon only sees the patient after the suppurative process has existed for a lengthy period, then I consider that if conservative treatment fails, ossiculectomy, if possible, should be given a trial before performing the complete mastoid operation, unless this is absolutely imperative.

Harley-street, W.

ISO-HÆMOLYSIS IN RELATION TO CANCER.[1]

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Iso-hæmolysis in Malignant Disease.

FROM time to time clinicians and pathologists have sought for some sign of malignant disease which should lend greater accuracy to the diagnosis of this condition. This hope would seem at first sight to be futile when we consider the different morphological types of malignant disease and the various situations in which it may occur. Yet on further observation it is seen that malignant tumours have certain points in common, and the most characteristic of these is their tendency to unlimited peripheral growth, while the cells in the middle and older parts of the tumour perish from lack of nutriment.

The surgical treatment of cancer is based on the assumption that it is, in its inception, a local condition; but the later stages of its growth are associated with general emaciation and anæmia—the cancerous cachexia—which would seem to indicate that some product of the cancer enters the circulation and exerts a harmful effect on the general metabolism. Whether this toxic substance arises from the autolysis of the malignant cells or is a secretion of the proliferating part of the tumour it is evident that it must be sought in the blood, and it is the blood cells and serum in malignant disease that have attracted most attention.

The existence of hæmolytic substances in the serum of certain individuals has been known for many years, but there has recently been a renewal of interest in the subject, stimulated chiefly by the work of Weil of New York and Crile of Cleveland.

[1] A paper read before the Leeds and West Riding Medico-Chirurgical Society.

In the course of his work on the infective lymphosarcoma of dogs Weil found that extracts of these tumours possessed the power of laking the red corpuscles of normal dogs. This was more particularly the case when the tumours had undergone central necrosis. He further discovered that the blood serum of dogs affected with this condition, especially when the tumours were breaking down, acquired hæmolytic properties. Following this Weil tested human sera in a series of 82 cases, 31 of which were malignant. He divides his results into four groups: (1) Serum which does not hæmolyse its own but hæmolyses alien cells; (2) serum which hæmolyses its own and alien corpuscles; (3) serum which hæmolyses its own but not alien corpuscles; and (4) serum which does not hæmolyse its own or alien corpuscles.

—	Group 1.	Group 2.	Group 3.	Group 4.
Early malignant tumours ...	6	2	1	6
Late malignant tumours ...	9	2	2	3
Benign tumours	1	0	1	1
Other diseases...	11	0	2	29
Normal	0	0	0	6

He concludes that the results in human beings are less characteristic than in the case of the dog tumours, and this is only to be expected since the dog tumours are all of one morphological type.

Crile's work attracted considerable attention by reason of the large number of cases examined and the remarkably high percentage of positive results he obtained in cases of cancer. He also described a "reverse reaction" frequently noted in cases of tuberculosis, a disease which, like cancer, is often associated with a hæmolytic serum. This "reverse" reaction is said to be present when the patient's red cells are laked by normal serum. Crile found that the serum was hæmolytic in 85 per cent of the cases of cancer, and, contrary to Weil's observation, noted that it was more marked in the early cases. The high diagnostic value given to this test by Crile has led to the publication of the results obtained by numerous other workers, the greater number of them giving a far lower proportion of positive reactions in cancer.

Janeway studied 35 cases of cancer. Seven were early cases, or cases with a small amount of malignant tissue present; 4 of these were positive. It is noteworthy that all four were recurrent growths. There were 18 late cases, of which 7 were positive. There were also 10 examples of cancer of the face, of the rodent-ulcer type, only 1 of which was positive; this was an advanced case. The total percentage of positive reactions was 48·5. He met with one positive reaction in a case of chronic mastitis.

Ottenberg and Epstein examined 100 cases. These were taken in groups of 10 or 15, the serum of each one being tried on the cells of every other member of that group. Of the 100 subjects 38 were malignant, 40 had other diseases, and 22 were apparently healthy. Of the cancer cases 28 had hæmolytic serum (76 per cent.), and 20 of the cases with other diseases were positive (50 per cent.); 6 of these were tuberculous, 5 being hæmolytic. Among the other diseases which gave positive results were 3 benign tumours, 2 fibro-adenomata of the breast, and 1 diffuse lipoma. One of the 22 normal cases showed hæmolysis. A strong hæmolytic reaction was present in 50 per cent. of the cancer cases, and in only 17 per cent. of the 40 other cases. If the resistance of the corpuscles was considered as well as the reaction of the serum, it was found that a hæmolytic serum generally laked non-cancer cells, but did not affect cells from a cancer patient, or was lytic to both kinds of cells according as it was weakly or strongly hæmolytic. If attention was paid only to the resistance of the red cells it was seen that red blood cells resistant to all sera occurred chiefly in those cases whose serum was itself hæmolytic, and not much more frequently in cancer than in other diseases. On the other hand, resistant red cells were obtained rarely from cases with non-hæmolytic serum. These authors are inclined to agree with Weil in associating the hæmolytic property of the serum with the autolytic products of necrosis, though it is noteworthy that the sera of four early tumour cases were strongly hæmolytic.

Smithies examined 85 cases affected with various ailments. Twelve of these were cases of cancer, of which 7 (58 3 per cent.) were hæmolytic, 3 negative, and 2 undetermined.

here were 2 benign tumours, both negative; and 15 cases f tuberculosis, 1 positive, 6 negative, 6 undetermined, and reverse. Of 12 cases of syphilis, 1 was positive, 8 were egative, and 3 undetermined. Of 25 other non-malignant ffections, 5 were positive, 13 negative, 6 undetermined, and reverse. He describes a positive reaction as one in which ie cancer serum destroys normal cells, while the cancer cells re not destroyed by normal and frequently by cancer serum. f hæmolysis occurs in both the reaction is called undeter-ined. In the malignant cases those more advanced gave ie most marked reactions. Generally speaking, the re-ctions were more marked in the malignant than in the ther cases.

The results obtained by Johnstone and Canning approach ore nearly those of Crile. Of 43 cases of carcinoma 37 were ositive (80 6 per cent.). Nine cases of sarcoma gave 100 per nt. positive results, though the reactions were not as arked as in the carcinoma cases. Two endotheliomata were ositive; 14 benign tumours were all negative. Of 43 cases tuberculosis 7 gave reversed reactions, the remainder were egative. The sera of 103 persons suffering from other seases gave 17 positive reactions. There were 4 positive actions among 85 normal individuals; these 4 cases were all egative when re-examined in a day or two. In all the alignant cases re-examined the reaction was constant. here were not many cases of superficial epitheliomata nong this series.

Butler examined 22 cases of cancer, mostly of the stomach, erus, and breast. The sera of 13 of these (59 per cent.) ere hæmolytic, some hæmolysing the corpuscles of other ncer patients. Three out of 8 tuberculous sera were hæmo-tic; reverse hæmolysis was not seen. In 2 cases of cancer e serum was hæmolytic for the corpuscles of the same dividual (auto-hæmolysis).

Richartz obtained a positive reaction in 46 per cent. of 74 alignant cases; those most advanced were generally gative.

The results obtained by Whittemore differ remarkably from e foregoing. He tested the sera from 101 persons. Thirty-ne of these were normal among whom 7 had hæmolytic sera. nong the remainder were 22 cancer cases, none of whom d hæmolytic sera, but the corpuscles from 8 of these tients were hæmolysed by normal sera. This reverse action was seen in 4 out of 8 tuberculous cases and in 4 t of 32 patients suffering from other diseases. The only hæmolytic sera shown in his table belong to this group, one case of sarcoma of the antrum and the other a general ralytic.

Blumgarten, following Weil's technique, has tested the ums of 75 patients, 25 of whom were suffering from vanced cancer. Eighteen of these (72 per cent.) hæmo-sed normal corpuscles, while only 1 per cent. of the rmals and cases of other diseases were hæmolytic.

An interesting comparative study of the hetero-hæmolytic d iso hæmolytic properties of cancerous blood has been cently published by Kelling, who has had a most extensive perience in this work. He gives a table of 100 cases in hich the blood was tested against human and fowl's rpuscles. On the showing of the table there appears to be advantage, from the diagnostic point of view, in favour of terolysis, but he thinks that if the intensity of the reac-n is taken into consideration the facts are otherwise and at the method of iso-hæmolysis possesses fewer sources of ror.

Technique.

After carrying out a few observations by Crile's method it emed desirable to evolve a technique which would not cessitate the abstraction of so large a quantity of blood, d after various trials I adopted the following method as quiring a minimal quantity of serum.

A small quantity of blood is obtained from the finger and llected in two glass capsules in the ordinary way. One of e capsules is sealed and set aside to allow of clotting. To e nther sample is added an equal quantity of citrated ine (0 85 per cent. sodium chloride, 0 85 per cent. sodium rate in distilled water); the tube is shaken and put aside til the test is to be set up. After a few hours the clot is racted from the first tube and the serum centrifugalised til free from corpuscles. The corpuscles in the other tube separated by centrifugalising and washed with saline 85 per cent.) three times. All the samples of normal and eased blood collected at approximately the same time are ated in a similar way.

A length of quarter-inch glass tubing is drawn out in the flame at intervals of two inches and is then divided up into a number of capsules. Each capsule is filed across at its middle and the narrow ends sealed, thus forming a series of minature test tubes or goblets.

Each goblet is filled from a pipette with a few drops of pure liquid paraffin which is then shaken or centrifugalised down to remove air bubbles. The capsules are then stuck upright in a Petri dish filled with plasticine and numbered.

With a capillary pipette, freshly rinsed in saline, a minute drop of serum is allowed to fall into each goblet where it will sink slowly through the oil and come to rest just above the narrow part. The number of tubes needed will depend on the sera to be tested. Serum from a suspicious case should be tried on all the available corpuscles. Each normal serum should be tried on the corpuscles of all other normals. Each pair of goblets receives the same serum, the right hand goblet of each pair being the control. The controls are then placed in order in a water bath and kept at a temperature of 55° to 60° C. for ten minutes to destroy the complement. After being inactivated the controls are returned to their place in the dish, which is placed in cold water until all the tubes have reached the same temperature.

Each pair of goblets then receives a drop of the appropriate corpuscles in 20 per cent. emulsion. By using an emulsion of this strength instead of 5 per cent, as is customary, it is possible to use only a minute drop and thus avoid diluting the mixture.

The tubes are kept in the incubator at a temperature of 37° C. for two hours and the results then read off.

It is usually recommended that the tubes should be kept in the cold for 12 hours after incubating before noting the results, but this is unnecessary when dealing with such small quantities, for the corpuscles sink to the bottom in two hours. Nothing is to be gained by cooling the mixture before incubation, and there is no advantage in keeping the tubes in the incubator longer than two hours.

Hæmolysis in the unheated tube but not in the heated control is recorded as a positive result; if hæmolysis occurs in both tubes it is to be regarded as due to an error in technique, and the observation is to be repeated; but with care in using clean tubes and pipettes I have only rarely found this necessary. All results should be read within 24 hours of the abstraction of the blood.

Results.

The sera of 86 individuals have been examined.[2] These may be divided into five groups.

Group 1.—Carcinoma, 34 cases. 17 of these were hæmolytic, 15 were negative, and 2 doubtful. Eliminating these two cases there are 56·25 of the carcinomatous sera which gave positive results. In 18 cases the resistance of the corpuscles was tested; the cells were resistant in 9, one of which had a non-hæmolytic serum; and in the remaining 9 the cells were non-resistant. One of these came from a blood whose serum was hæmolytic. If these cases are grouped according to the locality of the growth it is evident that the proportion of cancers with hæmolytic sera varies with the seat of the disease.

—	—	Hæmolytic.	Non-hæmolytic.	Doubtful.
5	Lip and tongue.	1	3	1
1	Maxilla.	0	1	—
7	Œsophagus.	3	3	1
1	Stomach.	1	0	—
4	Colon and rectum.	4	0	—
10	Breast.	7	3	—
5	Uterus (cervix).	0	5	—
1	Vulva.	1	0	—
34	—	17	15	2

If the cases are viewed in the light of the histological type of growth it is seen that the spheroidal and columnar-celled carcinomata furnish the majority of the hæmolytic sera.

All cases were diagnosed by microscopic examination or by the naked-eye appearances at operation except five cases

[2] For the opportunity of observing many of these cases I am indebted to the courtesy of my colleagues on the infirmary staff.

of cancer of œsophagus, in which the diagnosis rested on clinical evidence, two cases of cancer of the breast, one a typical early scirrhus (positive), and a late ulcerating cancer, and one advanced inoperable epithelioma of lip.

Group 2.—Sarcoma, 5 cases. One of these was hæmolytic, the remaining 4 were negative. The hæmolytic serum was from a case of sarcoma of the humerus, while the negative sera came from cases of sarcoma of the tonsil, hand, sternum, and kidney.

Group 3.—Tuberculosis, 8 cases. 4 of these cases were positive, 3 were negative, and 1 was doubtful. In addition to these there were 2 negative cases in which the clinical evidence of tubercle was very questionable.

Group 4.—Other affections, 27 cases (including cases of rheumatoid arthritis, syphilis, malaria, hyperthyroidism and hypothyroidism, gastric ulcer, chlorosis, chronic bronchitis, and subacute and acute pancreatitis). 22 of these were negative, 3 were doubtful, and 2 gave positive results. Of these two hæmolytic sera, one was from a youth with a chronic hydrocele; no sign of tuberculous disease of the testis was noted at the operation. The other was from a man with paroxysmal hæmoglobinuria. This serum was interesting in that it was not only hæmolytic for the corpuscles of two normal individuals, but it also dissolved the red cells from two persons with hæmolytic sera (cancer of the breast and tuberculous osteomyelitis) which were each resistant to the other's serum. Furthermore, the hæmoglobinuric serum did not hæmolyse when mixed with corpuscles and placed in the incubator at once, but hæmolysis occurred if the mixture of red cells and serum was cooled for half an hour before incubation, in this respect differing from the other hæmolytic sera examined. This serum was not autohæmolytic; it was drawn in an interval between attacks. Four of the negative cases in this group were benign tumours (two myomata, a papilloma of the bladder, and a papilloma of the larynx), and one a peritoneal endothelioma.

Group 5.—Normals, 10. All negative. One of these was a negro.

Relation of Iso-hæmolysis to Iso-agglutination.

That there is some relation between these two phenomena is suggested by the fact that a lytic serum will agglutinate those corpuscles against which it is hæmolytic. In only a few instances have I directed special attention to this point, but these have shown the above to be true. Dudgeon states that iso-agglutination occurred whenever iso-hæmolysis was demonstrated. On the other hand, iso-agglutination is of common occurrence in many diseases, whereas iso-hæmolysis is less frequent. The hæmo-agglutinins are, like the hæmolytic immune bodies, thermostable, but they do not need the presence of complement for their action, whereas the hæmolytic immune body does not dissolve red corpuscles in the absence of thermolabile complement. Thus a hæmolytic serum inactivated by heat will produce agglutination without hæmolysis. And further, as became evident in the saturation experiments to be described, the red cells are susceptible to agglutinins in the cold just as they are capable of absorbing hæmolytic amboceptor at a low temperature. In spite of these resemblances between iso-agglutinins and hæmolytic amboceptors Dudgeon concludes that the agglutinative and hæmolysing properties of normal or immune sera on red blood cells have no direct relation to one another.

Resistance of Red Cells.

The red cells from a blood whose serum is hæmolytic are generally capable of resisting the action of a hæmolytic serum from another individual. Among 24 samples of hæmolytic bloods the resistance of the corpuscles was tested against another hæmolytic serum in 11, only one of which was laked. Nine of these 11 were from malignant disease. In no case did I find corpuscles destroyed by the serum of the same individual (auto-hæmolysis). If the reactions in the test-tube are at all comparable with the changes occurring *in vivo* it would be reasonable to expect the red cells to acquire a resistance to their own hæmolytic serum, for otherwise hæmoglobinuria would not be an uncommon event in cancer even through a chill, as claimed by Eason, were necessary to enable the cells to absorb the amboceptor. As for the phenomenon of reverse hæmolysis in tuberculosis I have not seen it. On the contrary, the behaviour of the red cells from a tuberculous hæmolytic blood appears identical with that of the cells from a case of malignant disease. It should be noted here that this reverse hæmolysis was observed by Dudgeon in cases of typhoid, syphilis, and pneumonia, and in some cases not only were the immune cells laked by normal serum but the immune serum of the same patient hæmolysed normal corpuscles. I have already alluded to the results obtained by Whittemore; his tables show that 16 out of 18 examples of hæmolysis were produced by the action of normal sera on immune red cells. This is in keeping with the fact that 7 of his 39 normals were hæmolytic.

The resistant quality of the red cells appears to depend on their inability to absorb amboceptor. This is shown by the following experiment. Cooled hæmolytic serum from a case of carcinoma of the colon was placed in two tubes—A and B. Tube A was saturated with my washed corpuscles, tube B with washed corpuscles from a case of cancer of the breast (whose serum was hæmolytic). Both tubes were kept in the cold for half an hour and then centrifugalised, the resulting sera, A1 and B1, being pipetted off, and the sedimented corpuscles, A2 and B2, being washed three times in saline. My fresh washed corpuscles were added to tubes A2 and B1, while my fresh serum was added to tubes A2 and B2. After two hours' incubation hæmolysis had taken place in tubes A2 and B1, but not in A1 or B2.

As suggested above the cells from a hæmolytic tuberculous blood seem equally incapable of absorbing the malignant hæmolytic amboceptor as illustrated by the following experiment, which also serves to bring out another point—namely that the blood from some cases of malignant disease, though itself showing no appreciable hæmolysis, may yet furnish red cells which are resistant to other hæmolytic sera. Inactivated hæmolytic serum from a cancer of the breast was placed in three tubes—A, B, and C. Tube A saturated with my washed cells; tube B with cells from a boy with phthisis; and tube C with cells from a cancer of the œsophagus (whose serum was not hæmolytic). After cooling for half an hour the tubes were centrifugalised into serum and corpuscles, the former being placed in tubes A1, B1, and C1; the latter, after washing, into tubes A2, B2, and C2. Tubes A1, B1, and C1 were reactivated with fresh normal serum and to each was added washed normal corpuscles. Fresh normal serum was added to tubes A2, B2, and C2, and they were all incubated two hours. Hæmolysis occurred in tubes A2, B2, and C1, but not in A1, B2, or C2.

Deterioration of Hæmolytic Sera.

If a hæmolytic serum be kept sealed up in glass capsules it is found to lose its power of laking normal corpuscles in a few days (within a week), but its power may be restored by the addition of fresh normal serum, though not if the fresh normal serum has been inactivated by heat. This loss of activity is therefore due to absence of complement which is altered by keeping just as it is by exposure to a temperature of 55° C., that is to say, the complement is not destroyed but is changed in such a way that though it has lost its power of producing hæmolysis it is capable of acting on a mixture of amboceptor and red cells at body temperature and so preventing hæmolysis on the subsequent addition of fresh complement. The following is the experiment. Ten-day old hæmolytic serum was saturated with normal corpuscles in two tubes, A and B. A was placed in the incubator for half an hour; B was kept in the cold for the same length of time. They were then centrifugalised and the sera pipetted into tubes A1 and B1, the corpuscles being washed and placed in tubes A2 and B2. Fresh normal serum and washed normal corpuscles were added to tubes A1 and B1, and fresh normal serum to tubes A2 and B2. After half an hour's incubation hæmolysis had occurred in B2, but not in the other three tubes.

I have found the hæmolytic amboceptor to be active one month after being drawn; it is thus possible to keep a supply of a known hæmolytic serum at hand which, when reactivated, may be used for testing the resistance of red corpuscles.

The Hæmolytic Test in Vivo.

A year ago Elsberg conceived the possibility of a cutaneous hæmolytic test. His idea was that if normal corpuscles were injected beneath the skin of a patient with hæmolytic serum they would be laked and might produce a visible discolouration of the skin. In a recent paper embodying the results of a number of tests carried out on these lines he states that 77·5 per cent. of 80 cases of carcinoma (or 90 per cent. excluding the very advanced cases) gave a positive skin reaction, while 94 per cent. of the negative reactions

ere in patients free from carcinoma. I have, so far, only ried this test in six patients, all with negative results. hree of these had sera which, *in vitro*, hæmolysed the orpuscles injected.

Conclusions.

It is evident that the possession of iso-hæmolysins is very ar from being pathognomonic of cancer. But then very ew signs of the disease in its curable stages will bear this nterpretation. A reaction which is positive in 50 per cent. f patients with cancer deserves, I think, to be weighed in he balance with other facts in the endeavour to arrive at a iagnosis. The only other conditions likely to be confounded vith cancer in which hæmolysis is frequently met with are uberculosis and pernicious anæmia, especially the former. n such cases, if hæmolysis be proved, it is possible that one f the forms of tuberculin reaction would be of value. A negative hæmolytic reaction can, of course, carry no veight.

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Hull.

FURTHER OBSERVATIONS UPON TYPHOID CARRIERS.[1]

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SINCE the publication of the last report[2] we have investigated several methods of treatment and have made daily examinations[3] of the excreta of another typhoid carrier for a period of 15 months. The results obtained appear to jnstify the prolonged study of one particnlar case, and to suggest that some of the conclusions and recommendations of those who claim successful eradication of the typhoid bacillus from the human tissues by means of this or that method of treatment would be modified or withdrawn were the carriers subjected to more rigorous and continned examinations.

These daily examinations made such great demands upon our time that we were compelled to limit the methods employed. Consequently, we were unable to make any experiments upon the bactericidal, or opsonic, properties of the blood serum and had to confine our observations to the enumeration of the typhoid organisms in fæces and urine, to the agglutinin contents of the serum, and to the action of therapeutic agents.

[1] D. S. Davies is responsible for the public health aspect of the case, J. Fletcher for the clinical observations and collection of material, and I. Walker Hall and E. Emrys-Roberts for the bacteriological examinations.

[2] THE LANCET, Nov. 28th, 1908, p. 1585.

[3] There were several occasions when the daily sample did not reach us owing to some difficulty in transport, but for practical purposes the phrase is, perhaps, permissible. The exact dates are given in a separate report to the health committee of the Bristol corporation.

The Action of Lactic Acid Bacilli upon B. typhosus and B. coli.

Prior to the discovery of our further typhoid carrier, one of us (I. W. H.) examined some 15 strains of lactic acid bacilli, and a number of yeasts, in order to determine the inhibiting action of these organisms upon the typhoid and coli strains isolated from the carriers previously reported upon. A summary of the results shows that while varying degrees of inhibition of coli growth were obtained, the inhibitory effect upon the typhoid bacilli was very slight—practically *nil*. This finding is in accord with the experience of some who have given the soured milk therapy a prolonged trial. It suggests that in those reported cases in which the typhoid bacilli disappeared from the excreta after a course of this treatment, the typhoid organisms were of an attenuated type, or that the disappearance of the typhoid bacilli from the excretions was a natural event rather than an effect of the therapy. It lies near to hand, also, to think that the latent bacillary period may have exceeded the period of examination in these cases. As yet the data for defining these periods are too few.

The Present Carrier Case.

X. Y., a female, aged 33 years, had typhoid fever in July, 1905.
In 1905, September, her sister had an attack of typhoid fever.
,, ,, December, her brother and father had typhoid fever.
,, 1907, July, another sister had typhoid fever.
,, ,, X. Y. took a situation as cook. In July of the same year the parlour-maid and housemaid were attacked by the same disease.
,, 1908, September, her kitchenmaid had typhoid fever.
,, ,, December, a nurse who was looking after the carrier patient developed typhoid fever. (X. Y. had been admitted voluntarily into the Bristol General Hospital under Professor J. Michell Clarke.)

While in the Bristol General Hospital in 1908 typhoid bacilli were identified and isolated from her urine, and upon two occasions from her fæces, while her blood serum gave good agglutination reactions. She was later transferred to the Bristol Ham Green Fever Hospital for further observations. The organisms disappeared from the urine on April 13th, 1909, and the agglutinative power of the blood serum fell gradually during 1909. Although daily examinations of the fæces have been made throughout no further excretion of typhoid bacilli has occurred, and it is probable that the two early findings were due to contamination of the fæces by urine. The carrier has therefore been classed as one of the urinary type.

No typhoid organisms appeared in the urine during the remainder of 1909, but on Jan. 4th, 1910. typhoid bacilli appeared in the urine and the agglutinating power of the blood commenced to rise. The organisms continued to be excreted until Feb. 27th, 1910. Since then, although the urine has contained many coliform and other organisms, typhoid bacilli have been absent.

Clinical course.—On admission to the Bristol General Hospital on Nov. 28th, 1908, under Professor Michell Clarke, the general condition of the carrier was fair, the only symptom complained of being an occasional throbbing in the abdomen. She was somewhat thin, but the thoracic and abdominal organs were healthy. A trace of albumin was present in the urine. On removal to Ham Green Hospital on Jan. 26th, 1909, under Dr. D S. Davies and Dr. J. Fletcher, she continued in fair health and gradually gained in weight. The slight albuminuria persisted. At the commencement of 1910, when typhoid bacilli reappeared in the urine—the patient was not made aware of the fact—she complained of slight malaise, a "crampy" feeling in the lower part of the abdomen, and pain across the small of the back. There were also occasional headache and vomiting. About the middle of March the symptoms disappeared. From January to March she lost weight but regained the loss during April. Throughout there has been neither bladder pain nor pain during micturition, nor increased frequency.

Temperature.—This has been subnormal in type, varying from 97° (morning) to 98° F. (evening). When the vaccine injections reached a dose of 1000 millions there was a slight rise to 98°-98 5°, persisting for 14 days. On Jan. 9th, 1910, about a week after the typhoid bacilli appeared in the urine, the temperature gradually rose to 99 4° and fell within 14 days to its usual level. Since then it has remained about 97·5°-98 5°.

Collection of material and methods.—These details call for mention here only because of the difficulties of inhibiting bacterial growth in human excreta. Ham Green Hospital is situated some distance from our laboratories and we were

TABLE I.—*1909. Excretion of Typhoid Bacilli Under urotropine 7½ grains daily*

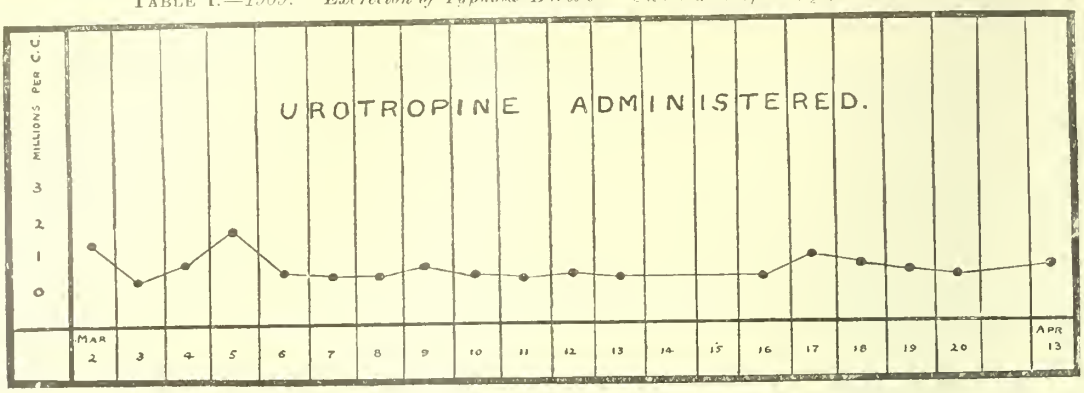


TABLE II.—*1910. Excretion of Typhoid Bacilli (after Six Months' Vaccine Treatment.)*

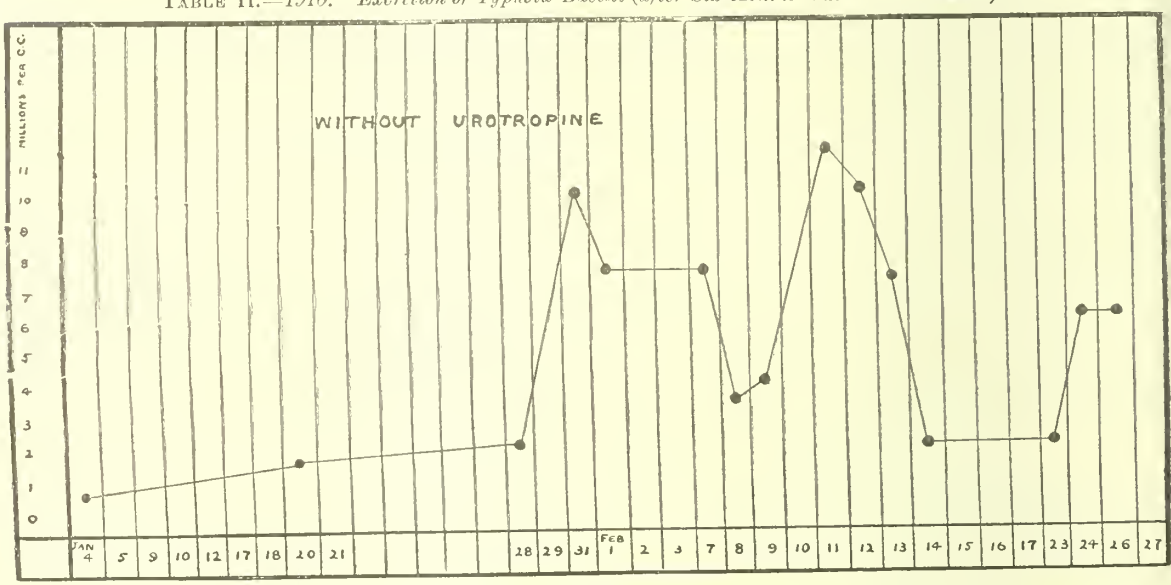
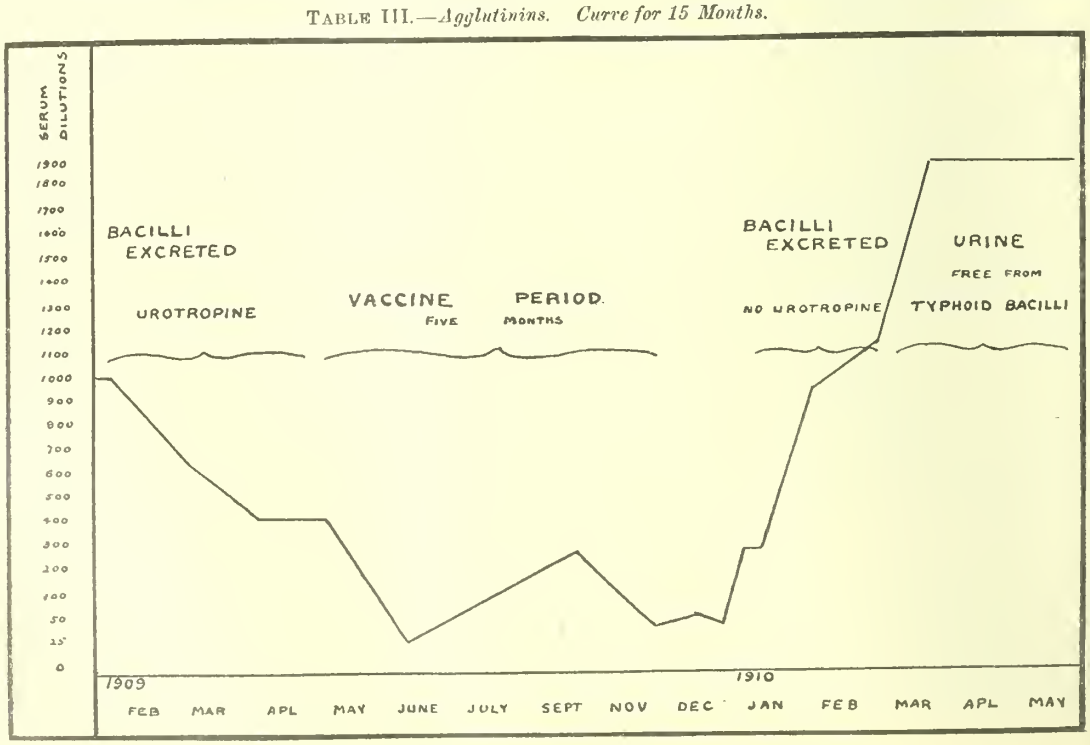


TABLE III.—*Agglutinins. Curve for 15 Months.*



compelled to devise some means of cold storage transmission. Unfortunately, it was found impossible to carry out our ideas owing to the difficulty of obtaining ice in a country place, and the samples of urine were therefore sent to us in boxes lined with felt but minus ice. In spite of this, we are convinced that the enumeration of typhoid bacilli in urine, however carefully carried out, is associated with a number of fallacies in addition to the "personal equation," and hence we are compelled to regard our figures simply as rough comparative calculations.

Although we have tried the several recently devised forms of differential media, we have obtained our best results with those of MacConkey and Conradi and Drigalski, and with these we have worked throughout. When examining the urine we have employed dilution methods combined with surface plating on solid media, and in the investigation of the stools we have always used the entire stool collected in parchment and stored in stoneware jars. The typhoid organisms have been isolated, frequently compared freely with other strains, and tested against standard anti-serums.

Results and Observations.

The results of the daily examinations may be discussed more advantageously in relation to the objects in view rather than presented in tabular form. We may, therefore, consider the elimination of bacilli with regard to treatment, and the evidence of the reaction of the tissue to the typhoid bacilli.

The effect of drugs on the bacillary output.—Under this heading we are able to compare the number of bacilli excreted during two separate periods—viz., January to April, 1909, and January to April, 1910.

During the 1909 period, urotropine (7½ grains twice, thrice, and four times daily) was given continuously. In the 1910 attack neither drug nor other treatment was attempted. The results are appended in Tables I. and II.

In the second period there was a gradual rise in the number of organisms excreted, a fall succeeded by a further rise, and another fall followed by a slight rise and a sudden stoppage. In the first period the output was less and practically equal throughout.

In both instances the period of excretion was about the same. The urotropine appears, therefore, to have limited the number of organisms per cubic centimetre, but not to have reduced the time during which the processes of tissue irritation and bacterial proliferation were paramount. On both occasions the excretion ceased when the proliferation and virulence of the organism were limited by tissue changes, a point which will be evident on inspection of the rise in the agglutinin curve shown in Table III.

When the 1909 bacillary excretion terminated either naturally or through the action of urotropine, we decided to use an autogenous vaccine as a prophylactic measure.

Vaccine.—Accordingly on April 21st, 1909, we injected a dose of 50,000 dead typhoid bacilli at intervals of five days. No reaction was produced. After three injections the dose was increased to 75,000, 100,000, 150,000, and 200,000 bacilli. On May 14th the injection contained 500,000 organisms, and the patient complained of headache and sickness for two days after each injection. The temperature was not affected. The dose was increased gradually and on June 13th it had reached 50 millions. Henceforth there were local redness and swelling, but the headache and sickness did not recur, neither when 100 millions were given nor afterwards. At the end of August the dosage was increased to 1000 millions, and coincident with the third dose the temperature for the first time rose one degree. This rise was maintained for about seven days; subsequent injections were not followed by any temperature changes. After eight weekly doses of 1000 millions the injections were discontinued on Sept. 29th, 1909.

At this time the bacillus coli appeared in the urine, and treatment by coli vaccine was directed towards its removal. The measures adopted were not entirely successful, and the organism continued to be excreted in small numbers up to the period of their replacement by typhoid bacilli.

While it cannot be denied that this course of vaccination produced a slight rise in the agglutinins of the patient's blood serum and may have suspended the July "effective period" to which she was prone, there is no doubt that it did not effect a removal of the typhoid organism from the tissues, although in November we were led to hope that an interval of seven months freedom from typhoid organisms indicated an actual cure.

Further course of drugs.—After the apparent cessation of the bacillary excretion in February, 1910, an attempt was made to encourage the "washing out" of any remaining organisms by administering a course of potassium citrate. Three weeks of this form of treatment did not effect any further expulsion of the typhoid organisms.

The evidences of tissue reaction.—The agglutinin content of the blood was determined in periods of four days each about every fortnight. In order to make the observations roughly comparative the following method was adopted:—

A large quantity of typhoid bacillary emulsion was prepared from a well-tested laboratory strain according to the technique recommended by Dreyer.[4] This was roughly standardised by counting as in the preparation of vaccines, and the same measured quantity of the emulsion was used throughout the series of determinations. The serum was diluted and used within 24 hours of its collection. The readings were made after incubation at 50° C. for two hours, and confirmed after standing for 24 hours. In cases of doubt microscopical and saturation methods were employed.

The accompanying diagram (Table III.) shows the results obtained and their probable relation to the factors of the case.

In February, 1909, the agglutination was complete in 1 in 1000 dilution. When the bacillary excretion ceased the dilution was 1 : 500. During the period of vaccine injection the dilution fell gradually to 1 : 25 on June 12th. When the dose injected reached 1000 millions there was a slight rise to 1 : 230–1 : 460. When the vaccine injections were suspended onwards to Dec. 22nd the amount of agglutinin diminished to 1 : 25. On Dec. 30th there was a rise to 1 : 250, and this was succeeded by a further rise to 1 : 920 on Jan. 21st, 1910, to 1 : 1500 by Feb. 14th, to 1 : 1860 on March 16th, and the same dilution was present in May and June.

On Jan. 28th there was a good reaction (1 : 50) with organisms isolated from the patient's urine a few days previously. The excretion of typhoid bacilli stopped on Feb. 26th, 1910.

It has been asked whether the Widal reaction might be applied as a routine measure in dealing with typhoid convalescents and suspected carriers. Although we are paying considerable attention to this point, we feel that the data already accumulated are insufficient to permit of the slightest attempt at generalisation or deduction.

Location of focus.—In this case it is not very probable that the focus is a renal one. Pus was rarely present, and then only in small amounts. Segregation of urine was not attempted. We have no data affording indications of a possible focus, and we cannot exclude the kidney altogether, but on account of the long intermittent periods, the absence of pus, and the location of the symptoms, we are disposed to consider the lesion as extra-renal.

Remarks.

Were we to venture upon any statement based upon the experience gained in this and other cases it would take the form of emphasising the necessity for keeping a register of all typhoid convalescents and making frequent bacteriological examination of their excreta, and recommending the further general use of hygienic measures suggested in one of our previous communications. In Bristol we are endeavouring to carry out both these suggestions.

The results we here state make us a little hesitant in accepting the permanency of some of the "cures" already published, since we fear that had the excreta been examined every day for a year or so the cases might have yielded similar results to this one.

[4] Dreyer: Journal of Pathology, 1909, vol. xiii., p. 331.

THE MEDICAL DIRECTORY.—Messrs. J. and A. Churchill ask us to state that the circular sent annually to each member of the profession will be posted on Sept. 1st. It will be recollected that this is a month later than was recently the case. The change of date has proved to be an advantage in that the making of applications for returns during the holiday month of August is avoided. Practitioners are asked to return the circular without any delay. The "Medical Directory" will be published before Christmas, and it will be found that the climatological and balneological section by Mr. Norman Hay Forbes, F.R.C.S. Edin., has been extended to include continental as well as British spas and health resorts

RHINOSPORIDIUM KINEALYI IN UNUSUAL SITUATIONS.

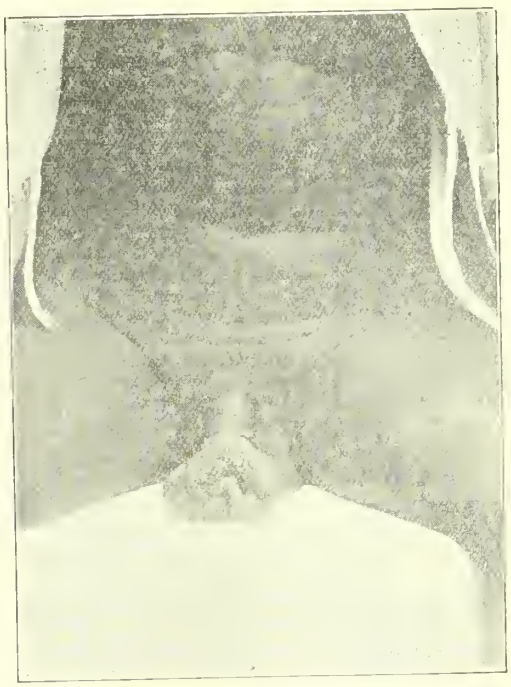
BY A. C. INGRAM, M.D., B.C. CANTAB., M.R.C.S. ENG., L.R.C.P. LOND.,

CAPTAIN, INDIAN MEDICAL SERVICE; ACTING PROFESSOR OF PATHOLOGY, MADRAS MEDICAL COLLEGE.

DURING February and March, 1909, I received two specimens—one a conjunctival polypus, and the other a papilloma of the penis—which proved to be papillomatous growths full of typical cysts of Rhinosporidium Kinealyi, a parasite which has, I believe, never hitherto been recorded save in the nose and nasopharynx. Captain H. Kirkpatrick, I.M.S., informs me that the conjunctival polypus originated primarily in the fornix conjunctivæ, and that there was no growth in the nose or nasopharynx. I have to thank Captain Kirkpatrick, who is publishing a more detailed account, for permission to publish this note.

The second growth was removed by Captain R. D. Willcocks, I.M.S., and he has very kindly furnished me with the following clinical description:—"The tip of the penis was enlarged to about the size of a baby's fist and presented a most peculiar cauliflower polypoid appearance, due to the presence of a large number of firm, irregular, but smooth, rounded polypoid growths, springing apparently from the urethral orifice and from the surface of the glans penis. The surface of the growths was quite smooth and they were pinkish in colour. There was no ulceration or induration.

FIG. 1.



Papilloma of penis caused by Rhinosporidium Kinealyi (Captain Willcocks's case).

The meatus was situated in the middle of the cauliflower growth and was dilated, so that the urethra admitted a finger for a distance of two inches. There was no pain or tenderness, no difficulty of micturition, and no enlargement of lymphatic glands." A history of irritation of the meatus about seven or eight years ago was obtained, followed by the appearance of two growths at the meatus six years ago. Gradually more growths appeared around the meatus and the condition spread slowly until almost the whole glans penis became involved.

A section of one of the growths showed it to be a papillomatous formation full of typical cysts of Rhinosporidium Kinealyi, exactly resembling the specimens described and figured by Beatty, and Minchin and Fanthum; the structure of the tissues corresponded in every way, save that the epithelium was derived from the epithelium of the glar penis. Captain Willcocks has kindly furnished me with photograph of this case (Fig. 1), and I have had a photograp taken of a vertical section of the penis after remov (Fig. 2), with a thick strand of horsehair inserted in th urethra.

FIG. 2.

Vertical section of preserved specimen of papilloma of the penis, due to Rhinosporidium Kinealyi. A, upper limit of the growth in the urethra.

Recently I have taken the opportunity of examining a normal salt solution fresh specimens of a nasopharynge polypus caused by the Rhinosporidium Kinealyi. I find th the cysts appear to be all perfectly rounded, and that t irregular shape in preserved specimens is due to the acti of the preserving agent.

I can also confirm Major F. O'Kinealy's observation o t presence of a pore in the wall of the cysts. Half and thre quarter grown cysts show the pore best, and there appea to be a distinct thickening of the cyst wall internally arou the pore. A diagram of a pore sketched from a cyst magn fied about 500 times is appended (Fig. 3). I was unable

FIG. 3.

Diagram of part of the cyst wall of Rhinosporidium Kinealyi, showing the pore. × about 500 diameters.

find a pore in the smallest cysts. On compressing the lar cysts they ruptured, and in every case the rupture appear to commence at and spread from the pore. I observed a that in the large cysts the largest and most mature pa sporoblasts were always situated close to the pore, and th the protoplasmic layer was thickest over the opposite pole the cyst, and appeared to extend forwards over two-thirds the cyst wall only. It would appear that on the penis t growth spreads much more slowly than it does in the n and nasopharynx, and that it only spreads superficially.

In the records of the Pathological Department I h traced in all six cases of this condition, and all but on those traceable appear to have come from villages on t Malabar coast. One man informed me that 8 or 10 peo in his village suffered from the same condition (nasal polyp and that there were other cases of the same condition four adjacent villages.

Just as I am sending this I have received another c junctival polypus which contains cysts of Rhinosporidi Kinealyi from Captain Kirkpatrick.

Madras.

DORSET COUNTY COUNCIL AND THE CARE SCHOOL CHILDREN'S TEETH.—At the last quarterly meet of the Dorset county council held at Dorchester it reported that Miss Colfox of Bridport had given £ for the purpose of starting a scheme for healing the de defects of the school children.

A CASE OF CONGENITAL COXA VALGA.

BY J. JACKSON CLARKE, M.B. LOND., F.R.C.S. ENG.,
SENIOR SURGEON TO THE HAMPSTEAD AND NORTH-WEST LONDON HOSPITAL, AND SURGEON TO THE ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.

COXA VALGA of a degree sufficient to produce marked ameness is a rarity, but the importance of diagnosing the ondition has increased now that congenital dislocation of he hip, for which it is easily mistaken, has been brought vithin the range of operative surgery.

A glance at the skiagram will suffice to identify it as belonging to a very pronounced case of coxa valga, the direction of the neck of the right femur being almost he same as that of the shaft, and on the left side he neck of the bone makes an obviously more obtuse ngle with the shaft than the maximal normal angle.[1] The skiagram was taken by Dr. S. Melville, radiographer to the Royal National Orthopædic Hospital. There is no striking abnormality in the child's appearance, but on close inspection a flatness of the region of the great trochanters is noticed. In profile a moderate degree of lordosis is seen in the lumbar region. On seeing the patient walk even surgeons of experience might put the case down as one of congenital dislocation. For my own part, only when I applied the tape to Nélaton's line did the diagnosis of coxa valga occur to me, the right great trochanter being a little below Nélaton's line. The chief diagnostic document is the skiagram. The patient can adduct and abduct the limbs to a normal degree; the range of rotation both inwards and outwards is excessive. The patient can stand easily on either leg, though in doing so she leans to the same side as the leg she stands on, and raises the opposite side of the pelvis. This is the converse of what is known as Trendelenburg's sign as seen in congenital dislocation of the hip.

Skiagram of both hip-joints taken with inverted limbs: the best position for showing the necks of the femurs.

History.—The birth was by head presentation, and the patient appears to have been quite healthy as an infant, her mother nursing her for "longer than the usual time." Some peculiarity in the right leg was noticed when she was nine months old, and she did not walk until about three years of age, and then she was continually falling down and the right leg required to be supported with irons on account of weakness of the ankle. Her mother writes that the right leg was much thinner than the left until she was turned six years.

This history and the absence of any sign of rickets or other disease, local or general, proves the coxa valga to be of congenital origin, an extreme rarity when, as in the present case, it is not combined with congenital dislocation of the hip.

Treatment.—I have considered this carefully with Dr. W. H. B. Brook of Lincoln, who sent the patient to me. The child is perfectly healthy and likely to bear operation well; her walk is distressing, and we think that an operation to improve the gait is called for. In similar cases removal of a wedge from the neck of the femur has been recommended. Operation at this position would attack the deformity at its seat, but it would have the drawback of leaving fragments which are not easily fixed by splints or screws; the section of bone, moreover, would lie so near the joint that a troublesome ankylosis might be expected to ensue. The patient under consideration is too old for fixation of the limb in the adducted position to produce any effect on the form of the femoral necks. The decision rests in favour of subtrochanteric osteotomy with removal of a wedge of bone, base inwards. The corresponding operation, with the base of the wedge outwards, I have done many times without mishap. In every case I have securely reunited the fragments of bone by two stout silver wires. By doing the subtrochanteric operation subperiosteally, and dividing the bone from within by a Gighli's saw, the danger of wounding an artery is avoided. In the present instance I operated on the right femur first, owing to the difficulty of nursing a patient with both thighs in the adducted position. The result of this operation, which I did two months ago, is all that could be desired: the union is firm with the shaft of the femur slightly bowed, and the patient can already walk with assistance. A case of coxa valga complicated by partial ankylosis of the hips and treated by subtrochanteric osteotomy has recently been recorded.[2]

Portland-place, W.

[2] Seton Pringle: Medical Press and Circular, June 1st, 1910.

[1] The angle made by the intersection of the axis of the shaft and that of the neck of the femur is perhaps best named the *angle of inclination*. It varies within normal limits between 128° and 125°. An increase of this angle constitutes coxa valga, a diminution coxa vara. As in coxa vara so in coxa valga, to the alteration of the inclination of the femoral neck to the shaft may be superadded an alteration in what is known as the *angle of declination*, i.e., the angle made by the projection of the axis of the neck with the transverse axis of the condyles of the femur; this angle is normally about 12°, and is increased when the neck of the femur curves forwards, and conversely; see a paper, with references to literature, by A. H. Tubby (Brit. Med. Jour., July 25th, 1908). Further, the neck of the femur may be twisted on its own axis, or otherwise deformed.

TEIGNMOUTH (DEVON) HOSPITAL.—As a result of the recent "hospital fête," which was held at Teignmouth, the sum of £258 has been raised for the institution.

ROYAL DEVON AND EXETER HOSPITAL, EXETER.—At the last meeting of the court of governors of the Royal Devon and Exeter Hospital it was reported that the balance against the institution at the close of June was £690, comparing unfavourably with £2082 for the corresponding period of 1909. It was stated that legacies to the amount of £1850 had been bequeathed to the charity, so that at the end of the present year it is hoped that the financial position of the hospital will be sound.

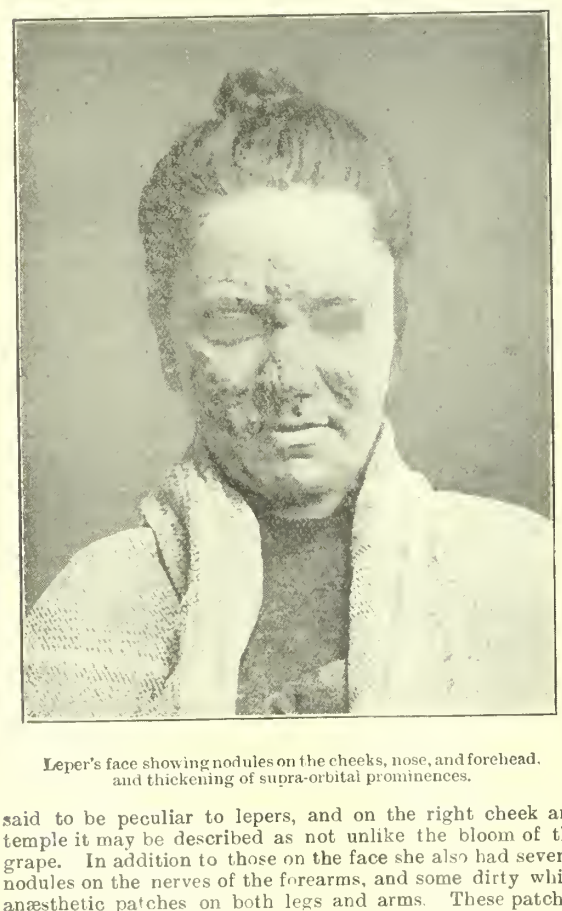
A CASE OF LEPROSY IN A WHITE PERSON ASSOCIATED WITH INSANITY.

BY ROBERT JONES, M.D. LOND., F.R.C.P. LOND.;
AND
ROBERT W. J. PEARSON, L.R.C.P., L.R.C.S. EDIN.,
OF CLAYBURY ASYLUM, LONDON.

THE patient, a thin, sallow, dark-haired English girl, aged 21 years, born and brought up in British Guiana, was received into Claybury Asylum in December, 1909. The medical certificate described her as silly and childish, laughing at imaginary persons and making meaningless grimaces towards them. She had become spiteful to others and was at times noisy and excited. Her habits were defective and she "spat all over the place."

On admission she was examined by one of us and Dr. G. H. Harper-Smith, and was described as being in poor physical condition, but nothing abnormal was found in the heart, lungs, or circulation; the alimentary system was normal, as was also the temperature, and there were no enlarged glands. The specific gravity of the urine was 1010, the reaction was acid, and it contained no albumin or sugar. She presented irregular tubercular nodules on the face; the tip of the nose was similar, and there was a large nodule on the left cheek and another almost directly below this on the left corner of the mouth. There were several other smaller ones on both cheeks about the mouth. (See Fig. 1.) The skin of the face presented the livid appearance

FIG. 1.



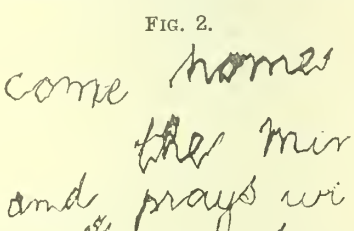
Leper's face showing nodules on the cheeks, nose, and forehead, and thickening of supra-orbital prominences.

said to be peculiar to lepers, and on the right cheek and temple it may be described as not unlike the bloom of the grape. In addition to those on the face she also had several nodules on the nerves of the forearms, and some dirty white anæsthetic patches on both legs and arms. These patches were insensitive to touch, but the amount of anæsthesia was difficult to estimate owing to her mental state. There was slight leprous ulceration on the left foot on its outer aspect, and also on the toes of this foot.

On examination the motor system appeared to be poorly developed, but there was no paresis present. Coördinatic was subnormal. (See Fig. 2.) Owing to the ment confusion it was nearly impossible to gauge exactly th reaction of the sense of touch or of the other senses; th olfactory sense was normal. The pupillary reactions (irid plegia, consensual and sympathetic), so far as could b ascertained, were normal. The superficial reflexes we affected, but the deep reflexes were normal, and there was r ankle clonus or extensor reflex.

The patient's mental state on admission was that confusional insanity with mild dementia. She was lost as t her surroundings, having no correct knowledge of time place, and she did not recognise nor realise who those abo her were. Questions put to her elicited a vacant smile. Sh

FIG. 2.



Reproduction of photograph of writing showing the incoordination.

made no answer when asked if she had been abroad or whe she came from. Repeated questions and an interval elicite an answer to "What's your name?" She showed som negativism. She resented examination and preferred lyin in bed with her face covered up by the bedclothes. She w defective in her habits and exercised no control over th sphincters. There appeared to be some impairment of th general intelligence, as well as of the memory and emotion She had formerly passed the Cambridge Senior Loc Examination with honours. Her mental state appeared t fall in with what is described as primary dementia or dementi præcox.

The previous history is that the patient became a leper i Demerara, where she resided, and that she was the onl white person in British Guiana at the time suffering fro leprosy, although members of other white families we known to have so suffered. The leprosy was only discovere when she was at school in England. It was stated by friend that a sister had contracted leprosy and had died fro it, but another of the patient's sisters stated she had died fro tuberculosis, which was verified upon post-mortem examina tion. No history of insanity was ascertained, and it definitely denied on the mother's side, but the father ha been found drowned, his affairs previously being embarrasse

The patient herself had come to London for treatment an had attended the London Homœopathic Hospital. It w ascertained from the resident medical officer there that sh had been an in-patient for several weeks, and subsequentl for some four weeks had been an out-patient; that havin suddenly become feverish and delirious she was aga received as an in-patient. It became evident from h strange manner that she was mentally affected, excitemer and violence occurred, and she attempted to get out of th window. Under the circumstances she had to be hande over to the public authorities, and was finally received in Claybury.

The treatment at the Homœopathic Hospital was directe against the leprosy until the mental symptoms appeare She received an injection of nastin B. 1 weekly, and th medical officer (Mr. H. Fergie Woods) stated that the inje tions had no apparent effect upon the nodular growths upon her mental health. As regards the treatment of th excitement the medical officer writes: "At first th homœopathic remedies controlled her, later hypodermics morphia seemed to have very little effect, and latterl nothing much seems to quiet her."

Shortly after admission into Claybury the left foot showe signs of ulceration on its outer side, the toes also becam granular, and the surface discharged. It is stated by D J. M. H. MacLeod "that leprous atrophic tissue is ver liable to infection through pyogenic micro-organisms, an that the weakly resistent skin tends to break down throug the formation of unhealthy ulcers, and that this state occu

in consequence of the devitalising effects of the leprous processes."

The ulcers were treated with a 10 per cent. ointment of chaulmoogra oil in lard. The X rays were also used for the tubercles and nodules on the face, but the patient was so restless and resistive that this treatment had to be discontinued. We then began to administer Professor G. Deycke Pasha's nastin B. 1 in doses of 1 c.c. subcutaneously once a week, and after a time this was supplemented with 10 minims chaulmoogra oil in 1 drachm of Scott's emulsion internally three times a day. The oil has been gradually increased to 25 minims three times a day, and it has been well tolerated. It is proposed to still further increase it up to a drachm three times a day. She is also receiving 1-60th of a grain of strychnia three times a day.

The reaction to the nastin B. 1 treatment was very slight and only on one occasion was there a rise of temperature—viz., from 98 4° to 99·2° F. four hours after the injection. When the nastin was injected directly into the largest nodule on the face there were redness and swelling of the nodule four hours afterwards, but no rise in temperature occurred, and afterwards the nodule remained its ordinary size. The technique of the injections was that described by Dr. J. Ashburton Thompson.[1]

As is well known, Deycke cultivated a streptothrix (but not the lepra bacillus) from the nodules of leprous patients. In this cultivation a well-defined neutral fat appears which is extracted with ether and called "nastin." When this nastin is combined with benzoyl chloride and injected into leprous patients it is stated to produce bacteriolysis and an arrest of the leprous process. The sterile ampoules were obtained from Merck, and the contents (proportionately 1 part nastin in 100 parts of hot sterile olive oil) were injected into the subcutaneous tissue of the arm but never into the deeper structures. No unfavourable symptoms followed the use of the preparation and no inflammation of the eyes has occurred.

The treatment has now lasted for five months and we do not think that there has been any general mental or bodily improvement. The leprous process has not been arrested, the nodules not only remain almost as they were, but others have appeared on the ears, and more ulcers are seen now on the foot through the breaking down of nodules. Yet there are several points of interest in the case.

1. *The means of conveying the contagion.*—There are several modes of invasion, and it is suggested (Macleod) that by the nose and upper respiratory tract is the most common. The mouth, through the tonsils, &c., is another, the bacilli being sometimes found in the sputum. The alimentary canal is also looked upon as a possible channel, but, as the lepra bacillus of Hansen has never been discovered as a saprophytic growth outside the body, this channel, except through the contagion of human milk for infants at the breast, is not a frequent one. The skin, after injury or after dermatitis, may possibly be a means of infection, and it is generally agreed that the genital tract may afford access for the entry of the bacillus.

Our patient's sister suggests two possible channels: (*a*) Some cowkeepers in Demerara employ East Indian coolies to milk their cows; amongst these are some leprous ones, and such labour is cheaper to hire. Also there is local black labour, and some of these coloured natives also suffer from leprosy which is undiscovered. It is asserted that the patient may have drunk milk contaminated in this way. (*b*) That the native washerwoman who washed her clothes had a leprous son who assisted with the washing, and thus infected the clothes which conveyed the infection to our patient.

As the period of incubation of leprosy is anything between 3 and 20 years, it is possible that our patient may have been invaded in one of several other ways. It is stated that the descendants of mixed marriages (white and coloured) are more subject to leprosy than those of pure European descent. Our patient is not stated to be of coloured origin, and there are no such possibilities from her general appearance.

As with sleeping sickness and malaria, the comparative immunity of white persons is probably due to greater cleanliness and the adoption of a more careful and hygienic habit of life. No insect, however, has been known to be a carrier of the lepra bacillus and none of the lower animals are susceptible, although the bacillus has been inoculated into guinea-pigs, rabbits, and monkeys, and no immunising serum has been successfully prepared up to the present for lepers from lepromatous nodules analogous in its effects to tuberculin for tubercular persons.

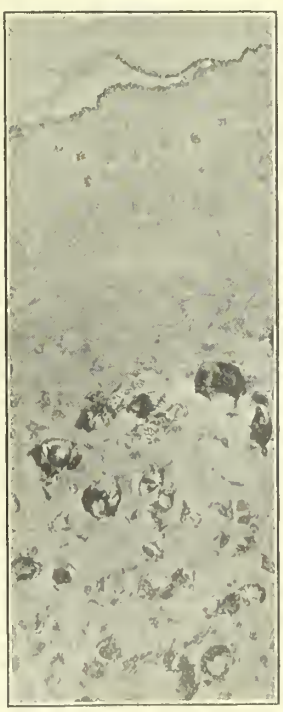
2. At the suggestion of Dr. F. W. Mott, some blood was taken by Dr. J. P. Candler and one of us from the basilic vein, and the Wassermann reaction was ascertained by Dr. H. Dean of the Lister Institute. Contrary to the usual experience, which states that the Wassermann reaction is positive in cases of leprosy as well as in syphilis, the opposite occurred, and no deviation of the complement took place, the reaction being negative.

Some nasal mucus was collected by Dr. Candler at the same time on sterile swabs. The smear was stained by the Ziehl-Neelsen method and numerous lepra bacilli were found (see Fig. 3). Further, one of us excised one of the nodules on the face and colonies of the bacilli were shown in the

FIG. 3.

Micro-photograph of lepra bacilli in smear of nasal mucus. Stained by Ziehl-Neelsen method. × 1650 diameters.

FIG. 4.



Micro-photograph of skin from a leprous nodule showing clumps of lepra bacilli in the cells and lymphatics of the cutis vera. Note that there are no bacilli in the epidermis. Stained by Ziehl-Neelsen method. × 350 diameters.

[1] Brit. Med. Jour., March 5th, 1910.

cells of the subcutaneous tissue, but none in the epidermis, showing that there is no great probability of contamination from an infected to a non-infected person unless the true skin is exposed (see Fig. 4).

The lepra bacillus, although it does not fulfil all the postulates of Koch, is nevertheless present in all cases of leprosy and is not found in other diseases. It possesses characteristics which differentiate it from all other micro-organisms and it is admitted by all authorities to be the specific cause of leprosy. It is an acid-fast bacillus, and it is probable that it belongs to the class of streptotrichæ (Macleod). No medium outside the human body has been discovered on which it will invariably grow. Emil Weil's most successful experiment was by inoculating a hen's egg. He then incubated it and a small nodule was observed on the yelk. This proved to be a colony of lepra bacilli.

3. *The relation of insanity to leprosy.*—As is generally accepted, insanity is the product of two factors—viz., stress and heredity. The immediate ancestry in the present case is presumably defective, for the father may have committed suicide, and there was also the predisposing stress of a severe school examination, added to which was the onset of this chronic disfiguring and incurable disease, which was the "last straw." The incidence of a mental shock of such a nature and at the onset of a promising career in a girl of a sensitive nature, without doubt, precipitated her mental breakdown.

No mention is made in most text-books on insanity of the association described in our case, indeed, the name leprosy does not even occur in the index; but in the last report on "Lepers and Lunatics in the Cape of Good Hope" eight lepers—one a female European—were admitted as insane into Robben Island leper insane wards.

It is stated in the above-named report that chaulmoogra oil had been given with advantage; that some patients were specially treated with liquid extract of red mangrove bark and with "mangrove water" hot baths. Local treatment with "Jagger's roots" had been tried as well as Professor Deycke's nastin B. 1 and B. 0, the latter in the case of four patients (three Europeans), but Mr. Ernest Moon, the chief medical officer of one of the leper colonies, felt it was as yet too early to report results, although he adds that neither a general nor a local reaction followed the injections.

Our best thanks are due to Mr. Charles Geary of Dr. Mott's laboratory for his kindly help in the preparation of the specimens and the micro-photographs.

Claybury, Essex.

FURTHER RESEARCHES INTO THE BACTERIOLOGY OF EPIDEMIC SUMMER DIARRHŒA,

WITH SPECIAL REFERENCE TO THE CLASSIFICATION BY ABSORPTION OF ORGANISMS ISOLATED BELONGING TO THE PARATYPHOID B, SUIPESTIFER GROUP.

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IN the year 1907 we investigated an organism recovered from the heart blood of a case dying from epidemic diarrhœa. The results of our examination into its cultural and other characteristics were published in THE LANCET. Briefly, we were able to allocate the organism to the region of the group Paratyphoid B. It was shown to be a Gram-negative, short, motile bacillus, with readily demonstrable flagella, producing no obvious change in litmus milk; forming gas in media containing mannite, maltose, dulcite, sorbite, glucose, and arabinose; and no gas in media containing lactose, saccharose, raffinose, salicin, inulin, and galactose. The agglutination reactions showed a close relationship with Bacillus paratyphoid B, but none with Bacillus paratyphoid A, Bacillus Gaertner, or Bacillus coli. It was virulent by inoculation for the usual laboratory animals, and gave rise to diarrhœa and wasting when added to the food of puppies. In course of time, we found a gradually developing alkalinity in litmus milk and gas formation in galactose media. Independently this change in litmus milk was observed by Revis [2] in an early culture obtained from us.

On the basis of these modifications we continued our investigations during the year 1908 with material obtained from the City Hospital, Fazakerley. 40 cases were investigated by the following methods: (*a*) In the course of the disease, one to two loopfuls of fæces were emulsified in 10 c.c. of normal saline. Second and third dilutions were made, and from these bile-salt, lactose, neutral red agar plates were streaked; pale colonies were picked off and inoculated into litmus milk. It was found that the best results were obtained in the later stages of the disease. (*b*) Cultures were obtained from post-mortem scrapings of liver, spleen, and intestinal mucosa, and from the heart blood immediately after death. Our experience during the year 1907 had led us to give up the method of blood culture during life.

Of the 40 cases investigated, 17 were discarded, no colonies which did not clot milk being isolated from the plates. From the 28 cases remaining, 162 tubes were obtained. These were roughly differentiated by agglutination with Bacillus F serum (titre: 3000) in a dilution of 1 in 100. 94 tubes from 17 cases showed a positive result, the vast majority being completely agglutinated statim, and all well marked within half an hour. The 68 tubes from 12 cases which showed no agglutination presented considerable variations in their cultural reactions. Nearly all were indol positive. In litmus milk 7 cases showed marked acidity, rapidly developed; in 4 cases no change was observed; and in 1 case there was acid in one tube and no change in others. They were not further investigated. The tubes where agglutination was positive all alkalinised litmus milk with the exceptions noted below, and their sugar reactions were the same as in the case of Bacillus F. At this point owing to a regrettable accident the large majority of our cultures was lost, but it will be noted that the cultural and agglutinative reactions of all the tubes lost give us reason to expect that their fuller examination would have tallied with those that remained.

Cultural reaction.—We were left with 28 tubes from 7 cases, all alkaline in milk after two weeks, except Case 7, consisting of two cultures. These 28 tubes included cultures from fæces, in all 7 cases; scrapings from intestine, liver, and spleen in 2 cases; and in 1 case cultures from heart blood. All showed a Gram-negative, short, motile bacillus, producing gas in mannite, maltose, dulcite, glucose, arabinose, and galactose; and no change in lactose, saccharose, raffinose, salicin, and inulin. These cultural reactions correspond to Bacillus paratyphoid B and to the present condition of Bacillus F. All the tubes showed fluorescence in glucose neutral red broth. The only anomalous reaction, therefore, was the slight permanent acidity in litmus milk in Case 7. In all other cultural, agglutinative, and absorptive tests these two tubes fell in line with others of the series. Lately this permanent acidity has tended to disappear and inoculation into litmus milk after a few daily subcultures on agar usually leads to the development of slight alkalinity.

Agglutination reactions.—The cultural reactions confirm our results of the previous year and demonstrate that the organisms are neither Bacillus typhosus nor Bacillus paratyphoid A, but are intimately related to the paratyphoid B, suipestifer group. Agglutinative tests also with typhoid serum (titre: 2000) and paratyphoid A serum (titre: 3000) showed no agglutination in any beyond 1 in 100. Agglutination with a Gaertner serum (titre: 2000) barely reached 1 in 100, and at once put that organism out of court. It seemed, then, that it only remained to find out to which part of the paratyphoid B group these organisms belonged, and in this work we have to acknowledge our indebtedness to Dr. F. A. Bainbridge and Dr. J. C. G. Ledingham of the Lister Institute, the former for his paper in

[1] Bacillus F: an Organism Obtained in a Case of Epidemic Diarrhœa THE LANCET, Jan. 30th, 1909, p. 301.

[2] C. Revis: The Stability of the Physiological Properties of Coliform Organisms, Centralblatt für Bakteriologie, Parasitologie, und Infektion, Band xxvi., 1910, Hefte 6 and 7, p. 171.

the *Journal of Pathology and Bacteriology*[3] and for information privately supplied, and the latter for cultures. These 28 cultures, when tested against paratyphoid B serum (titre: 3000), Bacillus F serum (titre: 3000), and Bacillus suipestifer serum (titre: 3000) gave agglutination to the limits of the titre. Bacillus suipestifer, Bacillus paratyphoid B, and Bacillus F also were each found to agglutinate to the limit of the serum of the other two. In all cases the microscopic method at laboratory temperature was adopted with a time limit of two hours, a little of the cultnre being emulsified in the diluted serum. It was therefore quite impossible to differentiate these organisms by agglutination methods alone. We continued the investigation by absorption tests in the hope that these would give us the necessary information.

Absorption reactions.—As the labour entailed was considerable, one culture tube was chosen from each case—from the fæces in Nos. 1, 2, 3, 4, 7, and from the heart in No. 5, and from spleen scrapings in No. 6. An excess of 24-hours old agar growth was added to the agglutinating serum diluted 1 in 200, was shaken for four hours, and then centrifugalised for 12 hours. The supernatant fluid was pipetted off and used for the tests. All necessary controls were made. The results are shown in the accompanying table:—

—	Agglutination after absorption.									
	Para. B.	Bac. F.	Bac. Suip.	1	2	3	4	5	6	7
Serum Bac. Para. B. (titre: 5000).										
Absorbed with—										
Bac. para. B.	—	—	—	—	—	—	—	—	—	—
,, Bac. F. ...	+	—	—	—	—	—	—	—	—	—
,, Bac. suip. ...	+	+	—	+	+	+	+	—	—	—
,, Case 1 ...	+	—	—	—	—	—	—	—	—	—
,, ,, 2 ...	+	—	—	—	—	—	—	—	—	—
,, ,, 3 ...	+	—	—	—	—	—	—	—	—	—
,, ,, 4 ...	+	—	—	—	—	—	—	—	—	—
,, ,, 5 ...	+	+	—	+	+	+	+	—	—	—
,, ,, 6 ...	+	+	—	+	+	+	+	—	—	—
,, ,, 7 ...	+	+	—	+	+	+	+	—	—	—
Serum Bac. F. (titre: 5000).										
Absorbed with—										
Bac. F. ...	—	—	—	—	—	—	—	—	—	—
,, Bac. para. B.	—	+	+	+	+	+	+	+	+	+
,, Bac. suip. ...	+	+	—	+	+	+	+	—	—	—
,, Case 1 ...	—	—	—	—	—	—	—	—	—	—
,, ,, 2 ...	—	—	—	—	—	—	—	—	—	—
,, ,, 3 ...	—	—	—	—	—	—	—	—	—	—
,, ,, 4 ...	—	—	—	—	—	—	—	—	—	—
,, ,, 5 ...	+	+	—	+	+	+	+	—	—	—
,, ,, 6 ...	+	+	—	+	+	+	+	—	—	—
,, ,, 7 ...	+	+	—	+	+	+	+	—	—	—
Serum Bac. Suip. (titre: 3000).										
Absorbed with—										
Bac. suip. ...	—	—	—	—			—	—	—	—
,, Bac. para. B.	—	+	+	+	+	+	+	+	+	+
,, Bac. F. ...	—	—	—	—	—	—	—	—	—	—
,, Case 1 ...	—	—	—	—	—	—	—	—	—	—
,, ,, 2 ...	—	—	—	—	—	—	—	—	—	—
,, ,, 3 ...	—	—	—	—	—	—	—	—	—	—
,, ,, 4 ...	—	—	—	—	—	—	—	—	—	—
,, ,, 5 ...	—	—	—	—	—	—	—	—	—	—
,, ,, 6 ...	—	—	—	—	—	—	—	—	—	—
,, ,, 7 ...	—	—	—	—		—	—	—	—	—

It is at once apparent that none of the organisms are identical with Bacillus paratyphoid B, since after absorption of paratyphoid B serum with any of them agglutinative power for paratyphoid B still remains. Further, we are able to divide these 7 cultures into two groups—(*a*) Nos. 1, 2, 3, and 4, which are identical with Bacillus F; and (*b*) Nos. 5, 6, and 7, which are indistinguishable from Bacillus suipestifer or B. aertryck. Absorption of Bacillus F serum brings out precisely the same differentiation. Absorption of Bacillus suipestifer is interesting in that no agglutinative power is left over for any except Bacillus paratyphoid B. If it be permissible to draw any deduction from this, it would appear that all eight cultures (i.e., Nos. 1–7 and Bacillus F) are very much closer to the suipestifer end of the group than to the paratyphoid B end.

In view of these results it becomes necessary to affirm the standard nature of the culture of Bacillus paratyphoid B employed. The source was McWeeney, and in no cultural test did it show any deviation from the ordinary. At the same time, work on absorption lines would tend to make us hesitate to give Bacillus paratyphoid B the title of an entity. It is possible, if not probable, that different strains labelled paratyphoid B by cultural and simple agglutination reactions would show, if tested by methods of absorption, gradations similar to our two groups. An attempt which we made to settle this point failed by reason of the marked way in which all our laboratory strains of paratyphoid B (except McWeeney) clumped in saline control. It is apparent, then, that we have isolated two sets of organisms lying at different points on a line linking up Bacillus paratypboid B and Bacillus suipestifer, and distinguishable only by absorption tests.

Animal reactions.—All our strains were virulent for guinea-pigs by inoculation, and when added to the food of puppies produced within four days diarrhœa followed by wasting.

Case agglutination reactions.—The agglutination reaction against Bacillus F was done in 54 cases. Of these, 46 were children and 8 were doctors or nurses in attendance upon them who themselves suffered from diarrhœal attacks. Of the children, 18 were negative; 10 positive to 1 in 25; 11 positive to 1 in 50; and 12 to 1 in 100. Of the adults in attendance, all were positive; 3 to 1 in 25 (two slight); 3 to 1 in 50; and 2 to 1 in 100. The most acute cases rapidly dying showed no agglutination at all. In all cases where positive the reaction was most marked in the later stages of the illness. The reaction was tested in 13 of the 17 cases discarded because no colonies which did not coagulate milk were obtained. 11 of these were positive: 2 to 1 in 25; 4 to 1 in 50; and 5 to 1 in 100. This series shows that even where we failed to isolate the organism there was some evidence that it might be the cause of the disease.

By way of control, agglutination reactions were done on 226 cases of miscellaneous disease and healthy individuals. The age in 168 of these was under 6 years. (No inquiry as to their having had a previous attack of diarrhœa was made at the time. The importance of the point, however, appeared to us later, and a further series of 104 miscellaneous cases from the same source was investigated. Under stringent conditions of interrogation, in only 16 instances was it probable that the child had had an earlier attack.) Agglutination was negative in 143; positive to 1 in 25 in 37; and to 1 in 50 in 46 cases. None, it will be noted, showed agglutination in a dilution higher than 1 in 50. It would seem, then, that agglutination to 1 in 50 is no evidence that the individual is suffering from infection by Bacillus F.

Investigation of normal stools for these organisms.—By the courtesy of Dr. D. Moore Alexander, pathologist to the Brownlow Hill Workhouse Hospital, the stools of 100 healthy children, varying in age from a few months to six years, were obtained and investigated by our usual method. In 12 cases pale colonies on MacConkey plates were isolated which did not clot milk, but these when tested against Bacillus F serum (titre: 5000) failed to produce any agglutination. We have therefore been unable to obtain these organisms from the stools of normal children. Confirmation of this absence of (cultural) Bacillus paratyphoid B from normal stools is found in the work of Seiffert,[4] who failed to find it in a series of 600 individuals.

Stability of reaction of Bacillus F.—Revis,[5] working with our original Bacillus F culture, has found that its reactions are not modified by long-continued sojourn in soil.

Conclusions.—1. We have isolated from the fæces, heart blood, and scrapings of abdominal organs of cases of

[3] F. A. Bainbridge: On the Paratyphoid "Food-poisoning" Bacillus, &c., Journal of Pathology and Bacteriology, vol. xiii., 1909, p. 443.

[4] Seiffert: Zeitschrift für Hygiene, Band lxiii., 1909, Heft 2.

[5] C. Revis: Loc. cit.

epidemic diarrhœa two groups of organisms producing diarrhœa in puppies, the one group apparently new, and corresponding exactly with our original strain Bacillus F, and the other identical with Bacillus suipestifer. 2. These groups are distinguishable from each other, from Paratyphoid B, and from Bacillus suipestifer by absorption tests alone. 3. They were not present in the stools of 100 normal children.

THE TECHNIQUE OF A SIMPLIFIED FORM OF THE WASSERMANN REACTION.

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THE results of the use of the Wassermann reaction are so very satisfactory, and so many modifications of the original technique have been introduced, that the publication of a new method can only be justified on the grounds that it is simpler and quicker in application and gives as good results as any of the other processes now in use. The method that I am about to describe fulfils, I believe, these conditions. It is simple, easy, and quick in application, and, so far as I have been able to test the results clinically, is most accurate. I admit fully that before a final estimate of its value can be formed it ought to be compared with the results of the original Wassermann reaction in a large series of cases. This I have not been able to do; but a process that has given accurate results in 95 per cent. at least of cases cannot be very greatly inferior to any other. I do not claim any originality for the idea of the process, which is a modification of that of Tsernugobow, whereas the details of the technique are very similar to those of Flemming. No complement is added, that which is present in the serum being sufficient. The corpuscles used are human, a point of great advantage to workers who have not access to living animals or to the slaughter-house. The only substance used which necessitates the use of animals is the immune body which joins up human complement and human red corpuscles. This is prepared by injecting thoroughly washed human corpuscles into a rabbit. It is not necessary to give more than two or three injections, which should not be at a greater interval than a week, each dose consisting of about 10 cubic centimetres of 50 per cent. emulsion, given intraperitoneally. The serum will probably not be very powerful, but this is not of much importance, since a very small amount is used in the reaction, and the serum from one rabbit will serve for many hundreds of tests. It is prepared for use as follows: The animal is bled to death and the blood collected under aseptic conditions. The serum is then standardised with human corpuscles and fresh human serum so as to determine the minimal hæmolytic dose under the conditions of the experiment. It is then diluted with sterile normal saline solution in the proportion indicated in the standardisation experiments, pipetted off into sterile vaccine bulbs (½–1 cubic centimetres in each), sealed, and heated to 60° C. for half an hour. If there is any doubt as to its sterility the heating should be repeated on two other successive days.

The method of standardisation will be seen from an example. The requisites are: 1. A 20 per cent. emulsion of human red corpuscles in normal saline; it should have been rewashed at least three times. 2. Fresh normal human serum. 3. Normal saline. 4. The serum to be tested, which must have been previously heated to 60° C. for half an hour. The following tubes were prepared:—

(*a*)	Emulsion 1 vol.	+	serum 5 vols.	+ immune serum 1:0	1 vol.
(*b*)	,,		,,	,, 1:3	,,
(*c*)	,,		,,	,, 1:5	,,
(*d*)	,,		,,	,, 1:10	,,
(*e*)	,,		,,	,, 1:20	,,
(*f*)	,,		,,	,, 1:50	,,
(*g*)	,,		,,	,, 1:100	,,

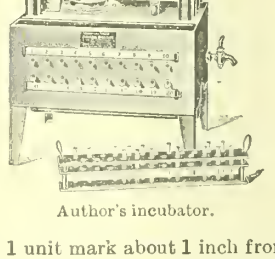
The mixtures of the ingredients were made by means of an ordinary Wright's opsonic pipette with a unit mark about one inch from the end and the serum dilutions prepared in a similar way. The mixtures were placed in a small test-tube about ⅛th inch internal diameter, well-stirred with the pipette, and incubated at 37° C. for one hour. (They were thoroughly stirred after half an hour.) The following was the result: with *a*, *b*, *c*, and *d* there was complete hæmolysis; with *e* there was a trace of hæmolysis and much agglutination; with *f* there was agglutination, but no hæmolysis; and with *g* there was partial agglutination. This serum was only diluted 1 in 4 for use, so as to make sure of there being an excess of immune body in the conditions of the experiments. I may say that the 5 volumes of serum contain a large excess of complement.

The blood for the test is collected in the ordinary way from a skin puncture, and about ¼ cubic centimetre of blood is ample, even if the test has to be repeated. I may point out, what I find is not known as generally as it should be, that if a large crop of serum is desired it is advantageous (*a*) that the blood shall not be allowed to cool after it is collected, and (*b*) that the clot shall be separated from the sides of the vessel in which it is contained, so as to allow of free retraction. To meet the former indication it is a good plan to put the pipette in the incubator as soon as possible after it has been filled; to meet the latter shake the clot as soon as it has formed towards the curved end of the pipette and back again.

The "antigen" used has been the ordinary alcoholic extract of normal heart, prepared by grinding up a weighed amount of heart muscle with four times the number of cubic centimetres of absolute alcohol that there are grammes of muscle, allowing it to stand 24 hours and repeating the grinding, repeating the maceration for another 24 hours, after which it is heated to 60° C. for one hour. It must be quite clear when used, a little being withdrawn from the top layer by means of a pipette. It is diluted with nine times its volume or more, as determined by experiments, of normal saline for use. Before use and afterwards occasionally it is in the highest degree necessary to test this extract. To be of use it should (*a*) give complete deviation of the complement in a known case of late secondary or early tertiary syphilis, even when 1 volume of fresh normal serum from a healthy person is added; and (*b*) used in the conditions of the test about to be described should cause very little absorption (or destruction?) of complement in a normal blood. This is tested simply as follows: Two tubes are prepared, of which the first contains 1 volume of normal serum, 4 volumes of normal saline, and the second 1 volume of the same serum, and 4 volumes of the diluted extract. These are incubated together for half an hour, and to each is added 1 volume of the immune serum prepared as above, and an excess (5 volumes is usually enough) of 20 per cent. emulsion of washed human corpuscles. The incubation is repeated for one hour, the tubes being stirred once or twice. At the end of that time they are centrifugalised, and a definite quantity of the clear blood-stained fluid pipetted off and examined in a hæmoglobinometer. In a good extract there should be *no* difference between the two, and this is sometimes the case. Usually there is a slight difference which naturally tends to interfere with the accuracy of the reaction. This, of course, is common to all methods. I am not prepared to give exact figures, but if there were a marked difference between the amount of hæmoglobin dissolved in the two tubes the extract should be discarded or tested again at a higher dilution.

The only other ingredients—normal saline and a 20 per cent. emulsion of human corpuscles, well rewashed—do not call for mention.

The only apparatus required consists of (1) a Wright's pipette, rather wide—i.e., about 1 millimetre in internal



Author's incubator.

diameter, with a 1 unit mark about 1 inch from the end and a 4 unit mark; (2) a series of small test-tubes about ⅛th inch internal diameter and 2 inches long; and (3) an incubator. Good results can be obtained with an ordinary biological incubator at 37° C., and, indeed, most of my results have been obtained in this way. It is, however, a very great advantage, as will appear subsequently, that the mixtures shall not be cold at the

final stage. To avoid this the stand in which the tubes are held may be placed in a water bath at 37° C., and the last addition made whilst they remain *in situ*. I have recently devised a form of incubator specially for the purpose. It is a modification of Hearson's opsonic incubator, part of the top of which is removable and forms a stand adapted to 24 tubes such as I have described. This can be removed and placed on a table and the tubes filled in the ordinary way. It can then be returned to the incubator for the rest of the process. The final additions—of immune serum and emulsion—can be made with the tubes *in situ* and surrounded by warm water. The emulsion and serum may be warmed in the incubator, so that the test-mixture need never be cooled at all. I think bacteriologists will find this incubator useful for many purposes.

The process is as follows. Prepare a Wright's pipette with a 1 and 4 unit mark. Place in each of the tubes of the front row of the incubator 4 units of normal saline solution; these are to serve as controls in order to make sure that the serum to be tested contains sufficient free complement and that the hæmolytic system is in working order. In each of the tubes of the back row 4 units of the diluted extract are placed and the pipette carefully washed out.

One unit of the first specimen of serum is now added to each of the first two pairs of tubes, that containing the normal saline solution receiving its addition first, then that containing the extract; this is to avoid carrying over a little extract into the control. In each case the fluids are thoroughly mixed by repeatedly sucking them into the pipette and expelling them, and in each case it is advisable to see that the mixture forms a continuous column. The pipette is then rinsed out with normal saline solution, and the process repeated with as many sera as are to be tested.

Then the hæmolytic system is prepared thus. Take 1 unit of red corpuscles which have been centrifugalised three or four times, and mix them with four times their volume of the prepared rabbits' serum. This will be more than enough to saturate them with amboceptor and also with agglutinin. Put them in the incubator so as to hasten the combination of the corpuscles and the antibodies.

The final stage of the test consists in the addition of these sensitised and agglutinated corpuscles to the tubes containing the diluted serum. A point which I particularly wish to emphasise is that it is not necessary to wait for an hour before this addition is made. Numerous tests have shown me that the combination in the extract tube is complete in five minutes after it has reached 38° C., and almost complete in two and a half minutes. Of course, if the tubes are incubated in air these times are greater, since the tubes and their contents take an appreciable length of time to get heated up to this temperature; but when the two substances are placed in a narrow tube surrounded with warm water the combination takes place, as I have stated, in five minutes. This is one of the advantages of the incubator made by Messrs. Hearson for me. When a series of half-a-dozen sera have to be tested the first is ready for the sensitised corpuscles as soon as the last mixture has been prepared.

The sensitised corpuscles are strongly agglutinated and form a mass at the bottom of the tube. They are thoroughly stirred up by alternately sucking them into the pipette and expelling them into the tube (still surrounded by warm water in the incubator), and then one unit of the mixture is added rapidly (so that agglutination does not have time to take place again) to each tube of diluted serum. In making these additions, I am in the habit of making the first of each pair to the tube containing serum and extract, then to that containing serum and saline; by so doing I avoid carrying over a trace of complement to the second tube. In each case the corpuscles are very thoroughly mixed in.

The great practical advantage of the method is now apparent. The hæmolysis of the first tube—that containing no extract—is almost instantaneous; warm fluid containing complement has added to it warm corpuscles fully sensitised. On the other hand, the clearing of the second tube (in the case of a positive reaction) is very rapid; the corpuscles are saturated with agglutinin, and being kept warm clump with great rapidity. If the clumping takes place too quickly it may be advisable to give it a second stir before taking the final reading, though, as a matter of fact, I have rarely seen this convert a negative into a positive test.

The great advantages that I wish to claim for this method are its simplicity and rapidity. The latter is most striking. Given that the preparations have been made, the corpuscles washed, and the extract diluted, a serum can be tested within 10 or 15 minutes. As compared with Flemming's method (the modification most used in this country), it has the additional advantage of being (as far as I have seen from an examination of over 200 sera) universally applicable. I have not yet encountered a specimen of serum which did not give abundant hæmolysis when tested in the manner described without the addition of extract within 48 hours of its being collected.[1] As far as my experience goes, this is frequently the case with Flemming's method, more frequently than some experimenters find. Thus in seven specimens of serum three gave no trace of hæmolysis with sheep's corpuscles, but all gave a perfect reaction when tested by my method. Where Flemming's method is applicable it seems to give identical results, though less obvious, the amount of hæmolysis being less. I am aware that Flemming's method can be made applicable in all cases by the addition of known hæmolytic serum, but this introduces a complication which at the present time has been unnecessary with my own. Another convenience is, of course, the fact that normal human corpuscles are employed.

An advantage over the classical Wassermann reaction is the fact that the serum is not heated. This is not only a convenient simplification of the method, but is of theoretical advantage.

The only objection to the method is the variation in the amount of complement present in the serum of different persons and of the same person from hour to hour. This is most marked, and, of course, it prevents any quantitative work from being done by the method except by a somewhat laborious process involving the use of a considerable amount of serum. As against this we must set the convenience and rapidity of the test, regarded as a qualitative rather than as a quantitative one, and the good results that it has given in actual practice.

It has now been used in over 200 cases, and the results have been uniformly excellent. In my first 100 cases, in which the diagnosis was known or supposed to be known accurately to the medical man under whose care the patient was, 40 were patients in whom there was no suspicion of syphilis, and all were negative. They included cases of abscesses, boils, abscess of the lung, phthisis, surgical tubercle, malignant disease (both carcinoma and sarcoma), gonorrhœa (both acute and chronic), soft sore, lupus, pernicious anæmia, diabetes, jaundice, typhoid fever, &c. Of the 60 known cases of syphilis, five were primary; three gave the reaction, one of them in a man who averred that the chancre had only appeared four days previously. This, of course, is much earlier than the reaction usually occurs, and I think there must have been an error on the part of the patient. Ten only were examined in the secondary stage; all without exception were positive. Thirteen were congenital cases and all were positive; in three of these cases the apparently healthy mother was tested and found to give the reaction. Two cases of tabes and four of general paralysis were examined; all positive (this refers to the blood, not to the cerebro-spinal fluid, in which I have had but little experience). The remaining 23 patients had various forms of tertiary lesions (mostly gummata, ulcers of the skin, and joint lesions) or were old cases with a perfectly clear history of syphilis, but without active disease at the time of the examination. Twenty-one (all except two) gave positive reactions. Of the two remaining, one was a patient with a history of syphilis 36 years ago, but with no active symptoms for many years. The last patient was the only one in which a real failure had to be recorded. The physician in charge of the case arrived at the diagnosis by a process of exclusion, but was quite convinced of its accuracy.[2] The patient showed no signs of improvement after a month's antisyphilitic treatment, and denied all history of the disease in a most emphatic manner, and gave no reaction. Thus of 60 cases of syphilis, two early primary cases, one case of 36 years' duration, and one which must be called at the least doubtful, gave no reaction. I may say that in most of the cases recorded I did not know the diagnosis until the examination

[1] Since writing this I have found one specimen (from a case of spleno-medullary leucocythæmia), which caused but very slight hæmolysis on the only occasion on which it was tested.

[2] He has since come to the conclusion, on clinical grounds alone, that the case is not syphilitic in nature. The serum diagnosis is therefore probably correct.

was made. These results are, I think, sufficiently striking to prove the practical value of the method.

PS.—Since writing the above an experience of more than another 100 cases has convinced me that the method yields results which are decidedly better than those claimed for the standard Wassermann test. Regarding every case as a failure in which the result does not accord with the clinical diagnosis, I still obtain more than 95 per cent. of successes, as compared with the 85 per cent. usually quoted. I have examined 12 cases of tabes; all reacted, showing 100 per cent. of correct results in place of the 50 per cent. in which the reaction is supposed to be present when tested by Wassermann's method.

A CASE OF CEREBELLAR HÆMORRHAGE

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THE patient, a boy, aged 10 years, was admitted to the General Hospital, Birmingham, on June 3rd, 1910. The following history was obtained from the schoolmaster and the patient's father. The boy was first taken ill on May 28th, 1910. He complained of severe colicky pains in the abdomen and was sent to bed. Next day he was worse and complained of severe frontal headache; he also vomited several times. Two days later he screamed at intervals of about half an hour in addition to his other symptoms. He was quite conscious. During 24 hours previous to admission he commenced to get "drowsy," although on the morning he was removed to hospital he was able to answer questions. The child belonged to a large family of healthy children. The mother was very neurotic; the father was quite healthy. Six years ago the patient was knocked down by a motor-car and one wheel of the car passed over his head, and he was said to have sustained a fracture of the base of the skull. His mental condition had always been poor. He had had no other illness. There was no history of phthisis in the family and no history of recent injury could be obtained.

On admission the patient lay in bed on his right side; head retraction was well marked, the arms were folded on the chest, and the knees were drawn up so as to nearly touch the abdomen. The abdomen was markedly scaphoid. He resented any interference and cried out when touched; if moved into any fresh position he soon resumed his old attitude. The patient was quite unable to answer any question put to him. Both eyes were wide open and both pupils were widely dilated; there was no squint noticeable. Both cheeks had a pronounced malar flush. The patient's breath was very fœtid and the tongue was coated with a thick brown fur over the dorsum. His temperature was 98·5° F. The pulse was 84 per minute, of full volume, low tension, and regular.

On examination the patient had well-marked head retraction. Examination of the cervical spine distressed him. Muscular power on both sides of the body was apparently equal. There was no paralysis or paresis of either the upper or the lower extremities. The body was fairly well nourished. Sensation appeared to be unaffected. On examining the eyes the pupils reacted sluggishly to light; no nystagmoid movements were observable. It was impossible to make a proper examination of the optic discs as the patient resented a strong light being thrown into his eyes; from a fleeting glance the discs appeared normal and the veins were congested. No lesion of the cranial nerves could be detected. Urine was passed involuntarily. The bowels had not been opened since admission. On examination of the patient's reflexes, both plantar reflexes were flexor. There was no ankle clonus on either side. Both knee-jerks were absent. Kernig's sign was well marked. The abdominal reflexes were unobtainable. The supinator triceps and the jaw jerks could not be obtained. Nothing abnormal could be detected on examination of the chest or abdomen. Examination of a catheter specimen of urine revealed no pathological condition. Seen the same evening at 8.30 the patient was apparently sleeping; both eyelids were semi-closed, and he lay in the same attitude as on admission. From time to time he gave vent to loud cries. Seen again the following morning, the patient's condition was unaltered. Lumbar puncture was performed at 11.30; the needle was introduced between the first and second lumbar vertebræ with considerable difficulty, as the patient writhed about in the bed. The fluid was found to be under considerable pressure and squirted from the orifice of the needle. The fluid was quite clear; a little over 10 cubic centimetres were withdrawn. Nothing pathological in its constitution was found on examination. At 2.30 P.M. the same day the patient suddenly stopped breathing. All efforts to restore respiration were unavailing. The pulse was present at the wrist for three-quarters of an hour after the cessation of respiration; it improved for a time while artificial respiration was being performed, but at the end of three-quarters of an hour the heart ceased to beat.

Necropsy.—The result of the post-mortem examination was as follows. The body was well nourished. Rigor mortis was present in the upper and lower extremities. His height was 4 feet 1½ inches, his weight was 3 stones 4½ pounds, and his chest measurement was 23 inches. With regard to the respiratory system, the epiglottis was normal, the trachea and bronchi were injected and contained frothy mucus, and the pleuræ was normal except for some slight adhesions to the diaphragm on the right side. As to the lungs, the weight of the right was 7 ounces and of the left 9 ounces; they showed marked emphysema, which was most noticeable just below the pleuræ, and they were congested and slightly œdematous. There were no signs of pneumonia. The lymphatic glands at the roots of the lungs were not enlarged. With regard to the circulatory system, the capacity of the pericardium was 177 cubic centimetres. The heart weighed 4¾ ounces. The pericardium contained a small amount of free fluid; there was no pericarditis. The mitral and tricuspid valves of the heart were normal. Each of the pulmonary and aortic valves had only two cusps, one large one, and one about the normal size. The appearance was as if the two anterior pulmonary cusps had fused to form one large one, and as if the two posterior aortic cusps had done likewise. Both coronary arteries were normal, so also were the large blood-vessels. The cavities were not enlarged. The heart muscle was normal in colour and in consistence. The œsophagus was normal. The stomach and small intestines were all healthy. Small post-mortem intussusception was found in the jejunum. The mucous membrane of the large intestine was injected and showed well-marked post-mortem staining. The liver weighed 28 ounces; it was very congested, dark purple in colour, very firm, and not easily friable. The gall-bladder and bile-ducts were normal. The pancreas was normal. The kidneys were both very firm, the left being the larger; the right weighed 2½ ounces and the left 3 ounces; the capsules stripped readily. Fœtal lobulation was well marked. There was marked congestion of both organs. The cortex and medulla were normal in thickness. There was no nephritis. The ureters and bladder were normal. As to the ductless glands, the thyroid was normal. The spleen weighed 3½ ounces, was firm, and dark red in colour; the capsule was thick and tough. The suprarenals were normal. Microscopical sections of the various organs revealed no pathological change. With regard to the central nervous system, the brain weighed 43 ounces. The cerebral membranes did not show any meningitis. The brain showed some œdema of the cerebral hemispheres and internal hydrocephalus. Behind and external to the lateral ventricle, in the left side of the cerebrum, was a small cystic area of about the size of a pea showing the remains of an old hæmorrhage. In the right lateral lobe of the cerebellum there was a large hæmorrhage of about the size of a golf ball, the blood clot being black and shiny with two whitish firmer areas. The substance of the cerebellum round the clot was darker than normal. The hæmorrhage had almost reached the surface posteriorly. The blood-vessels of the brain were quite healthy. Microscopical examination did not show any pathological condition. No trace could be found of the injury received to the cranial bones by his accident six years ago.

The above case was of peculiar interest from the fact that it showed many of the typical signs of a basal meningitis which indeed was the provisional diagnosis. I am indebted to Sir Robert M. Simon for permision to publish the case.

Birmingham.

Reviews and Notices of Books.

The Diseases of Infants and Children. By EDMUND CAUTLEY, M.D. Cantab., F.R.C.P. Lond., Senior Physician to the Belgrave Hospital for Children, &c. London: Shaw and Sons. 1910. Pp. 1042.

WE have several excellent clinical works on the diseases of children written by English authors, but they lack, in every case we can recall, that precision which is demanded by students who have had a thorough grounding in the preliminary scientific subjects and in modern laboratory methods. The scientific methods of hæmatology, bacteriology, and chemistry play such important parts in the diagnosis and treatment of disease that, no matter how good a book may be from the point of view of clinical picture-drawing, unless it supplies full details of the latest scientific and laboratory methods required in the practice of these subsidiary branches of medicine, it cannot expect extensive patronage. The days of the leisurely text-book are over; the modern student, and, indeed, the more progressive of the younger practitioners, require their medical facts, unfortunately, in predigested form. It is only in a spirit of genuine appreciation that we express the view that Dr. Cautley's book fulfils this requirement with remarkable completeness. To attain his ends both style and individuality have been in part sacrificed, but in spite of these concessions the book does not make tedious reading, nor does it lack in character. Dr. Cautley is not fond of pronouncing judgment, although he is a most ruthless critic; hence it is not surprising to find that on many of the vexed and controversial subjects of the day in the domain of pediatrics he has subjected the evidence afforded by both sides to severely destructive criticism, without expressing any definite views of his own. In the chapter on Tuberculosis, and especially in that part of it in which the mode of infection is discussed, this attitude of mind can be clearly traced. Again, in the chapter on Chorea there is something masterly in the non-committal character of the following summary of the pathology: "At present it is advisable to regard the disease as a functional disorder, due in some cases to imperfect nutrition, and in others to microbial infection, which may or may not be the same as that of acute rheumatism." This summary would be difficult to controvert in any one of its aspects. On the other hand, it would be easier to criticise an earlier statement, which is to the following effect: "That the poison in a microbe rather than a toxin is suggested by the frequent unilateral character of the disease." Surely the systematic distribution of the manifestation of chorea is one of the strongest arguments against this view of the pathology?

The general arrangement of the subject-matter of this decidedly ambitious work is excellent; it is divided into 73 chapters, each one of which is complete in itself. Groups of chapters, numbering anything from four to six, make up independent sections which comprise large subjects, such as the disorders of metabolism, the alimentary system, the special sense organs, and the hæmopoietic system. Each chapter, though unembarrassed with a multiplicity of quotations or references, represents a short and concise abstract of the recent literature on the subject. Although the author only claims that his work fulfils the requirements of practitioners, we have ourselves found that it is a reliable work of reference for special subjects and rare conditions. We have compared it with several systematic works on the same subject which include many volumes, and we have found it in almost every instance more helpful than the larger works. For instance, we could find in none of them a better account of chloroma, chondrodystrophy fœtalis, cleido-cranial dysostosis, and ateleiosis. It is not, however, only on recondite and rare conditions that Dr. Cautley writes to the point; on such commonplace subjects as infant feeding, infant management, and the common ailments incidental to childhood he is equally lucid and practical always. We have little hesitation in saying that for its size this is the best English text-book on the subject of the diseases of children with which we are acquainted.

A Handbook of Medical Diagnosis. For the use of Practitioners and Students. By J. C. WILSON, A.M., M.D., Professor of the Practice of Medicine and Clinical Medicine in the Jefferson Medical College and Physician to its Hospital; Physician to the Pennsylvania Hospital; Physician in Chief to the German Hospital, Philadelphia. With 408 text-illustrations and 14 full-page plates. London and Philadelphia: J. B. Lippincott Company. 1909. Pp. 1435. Price 25s. net.

THIS book is of more ambitious character than the majority of works upon the subject of medical diagnosis, since it not only deals with the methods of diagnosis, but also with the etiology and symptomatology of diseases; in other words, it is practically a combination of a work on diagnosis with one on medicine, save that considerations of treatment are not included, and pathology is only incidentally referred to. It is not surprising, therefore, that it extends to 1435 pages. It is obviously the outcome of a large experience both of practical diagnosis and of teaching, and is therefore calculated to be of value, especially as a work of reference.

It is divided into four parts, the first of which treats of medical diagnosis in general, and is concerned with general principles, with a review of the topography of the body, and with the methods of case-taking and case-recording. The second part gives detailed descriptions of the methods of diagnosis and of their immediate results. It comprises the various procedures usually classed under the head of clinical methods. The ordinary routine of physical diagnosis is discussed fully and the explanations and significance of physical signs are admirably set forth. The sections dealing with percussion and auscultation may be mentioned as worthy of special note. They are thoroughly lucid and abound in practical hints and cautions. The examination of the blood, urine, and sputum is described in sufficient detail to enable satisfactory reports to be worked out, and the methods recommended are given with such instructions as to enable them to be applied practically. The examination of the nervous system is dealt with at some length, and the manner of investigating and interpreting the various symptoms and signs is clearly worked out. The investigation of the eye is also described in detail, and some very good coloured plates illustrating the varieties of the appearance of the normal fundus and the morbid appearances in disease are given. The applications of the X rays to diagnosis are discussed in a special chapter.

The third section is devoted to a consideration of symptoms and signs, more especially in regard to their topographical distribution and their significance in diagnosis. This constitutes a somewhat original feature in a work of this kind, and one which should be of considerable value to the student. Questions of temperament and diathesis are also included, and an interesting account of the characteristic facies of certain diseases is given. Posture, attitude, and gait are all discussed and their indications are clearly pourtrayed. The symptoms and signs occurring in diseases of the various systems of the body are then categorically considered—e.g., in connexion with the nervous system the following symptoms and signs are described at length and their diagnostic significance indicated: pain, tenderness,

paræsthesia, vertigo, convulsions, tremor, fibrillary twitchings, emotional states, and derangements of consciousness, including delirium, stupor, coma, catalepsy, and insomnia.

The fourth section deals with the clinical applications of diagnostic methods, and comprises descriptions of the various diseases under the following headings: Definition, Etiology, Symptoms, and Diagnosis. The actual diagnosis is divided into direct and differential. Under the former is given a summary of any pathognomonic or characteristic features, while in connexion with differential diagnosis the various conditions simulating the disease are briefly dealt with and the points of distinction are clearly brought out. It will be seen that this section comprises more than is usually included in works on diagnosis, but it certainly has the merit of bringing together all the information necessary to arrive at a diagnosis and thus to facilitate the use of this book as a work of reference. The accounts given of the individual diseases are by no means mere compendia of symptoms, but are clearly written and afford sufficient descriptions of the diseases dealt with. In some cases brief pictures of the essential pathology are included, and where any special methods of diagnosis, chemical or bacteriological, are available these are thoroughly discussed. Considerations of space prevent a detailed analysis of this part, but some of the descriptions given are of a high order of merit, notably the specific infections, diseases due to parasites, and aneurysms. A useful index is given, and the table of contents is a very full one.

The book is written in a style easy to read, it is well printed, and the numerous plates and illustrations are uniformly good. The author's object, according to the preface, was to bring clinical phenomena and their associations in disease into correlation in such a way as to facilitate reference to special methods in obscure cases and to afford a comprehensive text-book for the student. He has carried out his objects in a satisfactory manner, and we can commend his book as a valuable work of reference.

Vetera et Nova: or Extracts from the Diary of a Medical Practitioner. Studies and Essays by THOMAS LOGAN, M.D. Aberd., L.R.F.P.S Glasg. Edited by QUINTIN MCLENNAN, M.B., Ch.M. Glasg., and P. HENDERSON AITKEN, M.A., B.Sc., D.Litt. In three volumes: Vol. I., Biological Physics, pp. 576; Vol. II., Physic, pp. 284; Vol. III., Metaphysics, pp. 110. London: H. K. Lewis. 1910. Price 24*s.* net.

THE late Dr. Thomas Logan was a cultured and widely read man, who was busily engaged during a long professional life as a general practitioner and public health officer, but found time to take an interest in the scientific problems of medicine and to offer speculative suggestions in connexion with them. The three volumes before us represent the various speculations he evolved and the views he entertained in regard to these matters. Originally not intended for publication, he appears to have later worked them up for the press. He died before he was able to fulfil his intention, but the work has been carried out in strict accordance with his wishes by his trustees and the editors.

The first volume is devoted to biological physics, and in it Dr. Logan develops views which are, to say the least, heterodox. He starts with a generalisation, *circulatio circulationum omnia circulatio*, and endeavours to establish the existence of numerous circulatory processes and cycles within the living organism other than that great system to which this term is usually applied. It was especially in regard to the nervous system that Dr. Logan developed his conception. He described a neural lymph as well as a hæmal lymph, and believed that the nerve cell or neuron does not receive its nutritive material directly from the blood circulation but from the matrix of the neuroglia, and in one sentence, which we find it difficult to follow, he claims that "its (i.e., the neuron's) dendritically imbibed protoplasm is excreted along its axonal process or processes into the sensory and motor terminal arborisations respectively in the form of organisable material which is utilised by the skin and muscle structures respectively as nutritive plasma in turn." The cerebro-spinal fluid secreted by the pia mater and choroid plexuses is described as being distributed along the spaces and interspaces of the entire nervous system and as finally exuding from special exits, or from the free surfaces of the skin, mucous and serous membranes, and into the sarcolemmal sheaths of the muscle fibres and thence into the systemic lymphatic circulation. This cerebro-spinal lymph circulation, the gastro-intestinal, and the blood circulation make up the three principal circulations. These views are developed at some length and are applied to the explanation of many of the ordinary phenomena of living organisms and to physiological processes, but they are expressed in involved language and with great repetition. In the second volume these views are applied to pathological considerations, and many diseases are attributed to disturbances of this hypothecated neural circulation. The third volume deals with metaphysical considerations and is outside our own province.

From the very brief summary we have given of Dr. Logan's views it will be readily seen that they are rather speculative and transcendental than founded upon observation and experiment. This work must be regarded mainly as a monument to the author's industry and imagination, but there are suggestive places where Dr. Logan's surmises may later be found to accord with ascertained fact.

LIBRARY TABLE.

Applied Religion. By W. WINSLOW HALL, M.D. Edin. Second edition. London: Headley Brothers. Letchworth, Herts: The Alpha Union. 1910. Pp. 94. Price 1*s.* net.—Under the four headings—personal, social, national, and international—Dr. Winslow Hall endeavours to show how religion may be applied to the affairs of everyday life, believing that religion and the humdrum everyday life are one and indivisible. This is the essence of that all-important change in outlook which marks the beginning of existence on a spiritual plane, an existence wherein lies the only immortality, an ecstacy which comes of the conviction of God's existence and the cultivation of a loving personal relation to Him. No one can read Dr. Winslow Hall's book without feeling that he describes a real experience when he writes of the "rapture wherein the soul ceases to be its petty separate self, and feels, with a flash, its absolute oneness with all other souls and God." The quest for the beatific vision is not the "higher selfishness"—the "mean wish to dodge one's own dastard soul into heaven, no matter who may burn in hell"—but the attainment, by absolute and gladsome giving, to oneness with God. There is a hymn and a sonnet in each chapter, and these sometimes reach a high standard of beauty, reflecting the lofty thoughts, the hope and inspiration of the writer. The book is a reflection of the pure simplicity of an earnest and practical man not sectarian in thought or practice, but imbued with a sense of the reality of religion and the impossibility of life apart from its practice. It is good to know that such men live and work amongst us.

Die Syphilisbehandlung mit dem Ehrlich-Hata'schen Mittel (Dioxydiamidoarsenobenzol). (The Treatment of Syphilis by the Ehrlich-Hata Remedy.) Von Dr. JOHANNES BRESLER. Halle a/S: Carl Marhold Verlagsbuchhandlung. 1910. Pp. 30. Price 1 mark.—We refer elsewhere to some of the reports of the results of the new remedy for syphilis which was introduced by Ehrlich in September of last year. The first report was published in March of this year, and

ow the number of papers on the subject is rapidly increasing. 'his little pamphlet contains, in a convenient form, nearly ll that has appeared in print up to the present on the ubject. It gives full particulars as to the mode and technique f the injections. Those who wish to know about the new reparation and its method of use will find in this treatise hat they require.

First Principles in the Art of Physical Development. By V. A. CHAPPLE, M.P., M.D., Ch.B. New Zealand, M.R.C.S. ng., D.P.H. London: Cassell and Co. 1910. Pp. 87. Price s.—Strong and powerful muscles do not presuppose either ealth or human efficiency. The healthy development of the ital organs is of as much importance as the development of he muscular system, and the aim of our author is to focus ttention on that training and development of the vital rgans which makes for efficiency in the human economy and esistance to disease. He regards the ideal in development to e the production of well-balanced organs rather than over-eveloped muscles, and places swimming first among the xercises which tend to this end. The issue of a small book y a medical man enunciating such common-sense and nportant principles should do much to check the xtravagant ideas in regard to physical development which re abroad to-day.

How to Cut the Drug Bill. By A. HERBERT HART, M.D., .S. Durh., M.R.C.S. Eng., &c. Second edition. London: ohn Bale, Sons, and Danielsson. 1910. Pp. 57. Price 2*s.* 6*d.* et.—The object of this book is threefold: to enable medical en to reduce the drug bill by from 20 to 50 per cent., to reate a greater enthusiasm for pharmacy, and to preserve to ie profession useful medical prescriptions. Reduction of cost effected by the substitution of method for disorder, by the rovision of ready tables whereby strong acids and con-ntrated extracts are purchased and diluted to pharma-opœial strength, and liquors and infusions made up in the rgery from the crude drug. All the directions given are mple and clear, and there is a useful list of abbreviations.

Four Common Surgical Operations in India. By Major . C. GABBETT, I.M.S. London: Luzac and Co. 1910. p. 57. Price 2*s.*—The conditions of surgical practice in dia differ so considerably from those met with in European wns as almost to justify the application of the term opical surgery. Some operations, such as those for ephantiasis of the scrotum and abscess of the liver, are most peculiar to tropical surgery, and some, although often rformed in Europe, are so much more frequently done in dia as to make them characteristically Indian. Major abbett has given the details of the performance of the ree common operations—that for the radical cure of hernia, r the cure of hydrocele, and the removal of the scrotum in ephantiasis—as these are carried out in the Madras General ospital. Major R. H. Elliot, I.M.S., has added a chapter on e method of cataract extraction practised in South India, hich differs in some material particulars from that in vogue Europe. The book will be of help to surgeons of the dian Medial Service who are likely to be called upon to ke up surgical work in the districts of India where these aladies are common.

The Green Book of London Society. Edited by DOUGLAS LADEN and W. WIGMORE. London: J. Whitaker and Sons, mited. 1910. Pp. 487. Price 5*s.* net.—This reference book issued from the office of "Whitaker's Almanack," d to say that alone is an impressive recommendation. It scribes itself as "Being a Directory of the Court, of ciety and of the Political and Official World; including lebrities in Art, Literature, Science and Sport, with many her Subjects of Current Interest." The chief part is the Directory of British Titles," which occupies 218 pages and a complete list of every person bearing a British title, with the address, official position, and explanation of who the bearer of the title is. It includes all the colonial politicians who are "Honourables" for life. It is a careful, concise, and clear compilation. The next largest section is the "Directory of Peers, Peeresses, and Principal Official Personages," which occupies 111 pages. Some pages are devoted to the Court and to politics, and then we come to the celebrities who are public speakers, to preachers, to the most distinguished persons in science, literature, art, music and the drama, and to the best performers and chief supporters of the various kinds of sport. The whole work shows evidences of originality, enterprise, and industry.

The Law of the Bolo. By STANLEY PORTAL HYATT. London: T. Werner Laurie. 1910. Pp. 271. Price 6*s* — Mr. Hyatt, in a foreword, tells what is the Law of the Bolo, of the terrible two-foot-long knife of the Filipino, the law which has the crowning merit of simplicity and the force of antiquity, the law which says that the spoil shall go to the man with the longest reach. The story is of Felizardo, the ladrone leader, who, for the love of a woman, kills a priest and takes to the hills and to outlawry. In the course of his pursuit by the Philippines Constabulary under Captain Basil Hayle, the daughter of the outlaw falls into the Captain's hands and he returns her to Felizardo, who requites the service by settling a private affair of the Captain's according to the Law of the Bolo. The characters are well drawn and the situations real in a story which will maintain the author's reputation for terse and vivid writing.

JOURNALS AND MAGAZINES.

Journal of Pathology and Bacteriology (Official Organ of the Pathological Society of Great Britain and Ireland). Vol. XIV., No. 4, containing 18 plates, 2 of them coloured. Published from the Department of Pathology, Cambridge University. Pp. 209. Price 15*s.* net.—This number contains a series of very interesting articles, and calls for more detailed comment from us than is usual. The first of these articles, by C. Bolton, is A Study of the Mode of Action of Gastrotoxin and the Healing of Gastrotoxic Ulcers. It is pointed out that gastrotoxin (serum of rabbits immunised against gastric cells of guinea-pig or of another rabbit), hepatotoxin, enterotoxin, and hæmolysin, on injection into guinea-pigs, devitalise the cells of the gastric mucosa and allow it to be digested. The necrosis and ulceration produced in this way does not occur if the digestive ferments are put out of action by neutralising the contents of the stomach with sodium carbonate. Hyperacidity (hydrochloric above 0·7 per cent., sulphuric 0·9 per cent., acetic 2·5 per cent., and lactic 6 per cent.) produces necrosis, and a degree of acidity which, by itself innocuous, much increases the effect of gastrotoxin. The acid acts as a protoplasmic poison, and similar results are given by sodium taurocholate and formaldehyde. Localised ulcers are best produced by the local injection of gastrotoxin into the stomach wall. Normally they are healed in three weeks; a moderate degree of hyperacidity or hypoacidity does not delay healing. J. M. Beattie describes Further Experiments with a Streptococcus Isolated from Cases of Acute Rheumatism. Two strains of streptococci were used, and one of these had lived on artificial media for five years. In thirteen experiments both strains uniformly produced arthritis in rabbits, and occasionally endocarditis, on intravenous or intraperitoneal injection. The disease produced is a chronic relapsing arthritis which moves about suddenly from joint to joint; severe attacks may be produced by exposure to cold. The joints show no gross anatomical change; cultures from the heart blood and the fluid in the joints are sterile, but the streptococcus may be recovered from the synovial membrane of one or more joints. W. K. Hunter, in the Histological Appearances of the

Nervous System in a Case of Acute Chorea, found that the ganglion cells of the cord and in some cases the nuclei were normal, but nearly all the large cells of the motor cortex showed loss of tigroid substance, the result of over-activity. With Donaggio's method, from 5 to 10 per cent. of the nerve fibres in the brain and spinal cord showed early primary degeneration. He does not regard the changes as specific.

C. Powell White contributes two articles, one on Experiments on Cell Proliferation and Metaplasia, in which he points out that oleic acid, palmitic acid, or turpentine give rise to aseptic abscesses when injected subcutaneously; olive oil, liquid paraffin, and equimolecular mixtures of oleic or palmitic acid with cholesterin give negative results. If epithelium (epidermic, hair follicles, sebaceous glands) come into contact with the abscess it grows round the walls and forms a lining of stratified squamous epithelium, the whole resembling a dermoid cyst. The proliferating epithelium may infiltrate the surrounding tissues to some extent and form emboli in the neighbouring lymphatics, but there is no evidence that the abscess exerts any characteristic influence on the epithelium. The second article is on a Case of Carcinoma Myxomatodes of the Testis occurring in Infancy. This was a tumour of the testis in a child 15 months old. It was composed of epithelial tubules embedded in a loose fibrous stroma. The epithelium contained mucous globules, which were excreted both into the lumen of the tubules and into the underlying connective tissue. This tumour originated in the intratesticular ducts and infiltrated the rest of the organ. C. M. Stevenson, in a paper on the Resistance of the Arteria Wall, gives the results of his experiments when water at different known pressures is circulated through pieces of brachial and carotid arteries, removed after death, and the pressure is measured which must be applied to the outside of the artery to partly, or wholly, obliterate the lumen. In these cases contraction is excited by adrenalin, chloroform, or barium salts; the arteries are also examined, after being kept in salt solution for 24 hours, when they are fully relaxed. The details of 37 cases are given, the results varying widely in individual cases and being more influenced by the degree of contraction than by the amount of sclerosis. The excess of external pressure over internal pressure (resistance of the arterial wall) which is required to close a contracted brachial artery is on the average about 21 mm. Hg; for a relaxed artery about 14 mm. The resistance is, however, a function of the internal pressure, and increases as the internal pressure increases. Thus, if P is the external pressure required to close an artery, the pressure of liquid inside the artery is $P - (9{\cdot}5 + \frac{P \times 10{\cdot}1}{100})$.

C. H. Browning, J. Cruickshank, and I. McKenzie write on the Constituents concerned in the Wassermann Reaction, with Special Reference to Lecithin and Cholesterin. The authors separate a crude alcoholic extract of fresh ox-liver into a part soluble in cold ethyl-acetate and a part insoluble (= lecithin). These are compared, along with the crude extract, as regards lytic effect, activation of cobra venom, action on serum complement, and action in the Wassermann reaction. They find that a saturated solution of cholesterin in alcoholic lecithin is a very efficient substitute for a crude organ extract in the Wassermann reaction. A. S. M. Macgregor, in a paper on Immunity Phenomena in Cerebro-Spinal Meningitis, Opsonins, and Agglutinins in their Relation to Clinical Features, Prognosis, and Therapy, states that agglutinins are generally absent in very acute fatal cases of cerebro-spinal meningitis, in cases which are chronic from the beginning, and in short acute cases which last two or three days and recover; cases with acute severe outset, abating by crisis about the seventh or eighth day, agglutinate to 1 80–100. The opsonic index tends to be less than 1 in t early stages of the acute disease, and tends to be highe during the second and third weeks of illness. The highe indices are found in those cases which show most agglutin tion. The index is of no prognostic value. Free opsonin not found in the cerebro-spinal fluid. L. Cobbett contribut an excellent paper on the Portals of Entry of the Tuberc Bacillus which causes Phthisis, in which he examines t probability of setting up primary pulmonary tuberculosis alimentary infection by means of experiments with carb particles, B. prodigiosus, and tubercle bacilli on guinea-pig He finds that feeding with finely divided carbon does n cause pigmentation of the mesenteric or other lymph glan or of the lungs, and that there is no reason to suppose th anthracosis is produced by particles absorbed from t intestine. Pulmonary tuberculosis in the guinea-pig can readily produced experimentally by inhalation of, but not feeding with, tubercle bacilli, and in guinea-pigs fed wi tubercle bacilli it does not occur as part of a generalis infection. Bacilli inhaled in fine droplets of water rea the periphery of the lungs in less than five minutes. A. Boycott finds—Peritoneal Blood Transfusion—that rabbi blood injected intraperitoneally into other rabbits is quick absorbed into the circulation and produces polycythæm The excess of red cells is destroyed more quickly than t same quantity injected intravenously, probably because t cells are rendered "more foreign" by being passed throu the peritoneum. Phagocytosis of red cells is much mo active with intraperitoneal than with intravenous injection there is no actual hæmolysis in either case. J. Ritchie co tributes an article on Meningitis associated with an Influen like Bacillus. He describes three cases of fatal meningi in young children. From the cerebro-spinal fluid cultur of a hæmophilic bacillus were obtained, pathogenic guinea-pigs and monkeys but not for rabbits or mice, a not differing from the B. influenzæ of Pfeiffer.

Other papers are: G. S. Middleton and A. R. Fergus on a Case of Extreme Emphysema Universally Affecti Both Lungs in a Child of Five Years. They find th the "honeycomb" cavities arise in the majority of ca from dilatation of alveoli with rupture of the septa. A f cavities probably arise from distension of bronchioles. Shennan and J. Miller describe a Case of Wool-sorters' Dise in which the source of infection could not be traced. Mau E. Abbott and J. Kaufmann describe an Unusual Case Congenital Cardiac Disease: Defect of the Upper Part of t Interauricular Septum (Persistent Ostium Secundum). D. Welsh and J. E. V. Barling—Hæmogregarina Petauri: Hæmogregarine of a Marsupial Flying Squirrel—find t parasite in the red blood corpuscles of Petaurus sp. (probab B. sciureus). D. A. Welsh, E. J. Dalyell, and M. B. Burt describe Hæmogregarina Dasyuri: a Hæmogregarine of t Australian Native Cat. This parasite they found in the r blood corpuscles of Dasyurns viverrinus. D. A. Welsh a E. J. Dalyell, Hæmogregarina Paramelis: a Free Hæm gregarine of an Australian Bandicoot (free forms only fou in blood of Parameles nasuta). H. Henry, in a preliminar note on the Hæmoprotozoa of British Sea Fish, notes that 348 fish examined 55 were infected, 11 out of 29 spec showing parasites. Nine known species were found. Ni new forms are named (including a spirochæta), but descriptions or figures are given.

In this number are included index for volume and ca index for the part.

The Dublin Journal of Medical Science.—The August iss of this journal contains the pathological report of t Rotunda Hospital for the year 1908–9, written by R Robert J. Rowlette. Dr. St. George Gray writes on dysente

as seen in West African prisons, in which the condition appears to be due largely to unsuitable food and to yield most readily to treatment with magnesium sulphate, pecacuanha being useless and opium actually harmful. Dr. Madeleine S. Baker discusses the temperature curve in pulmonary tuberculosis, noting among other things the production of intermittent pyrexia by the tubercle bacillus alone without the presence of pyogenic organisms and also the occurrence of apyrexial cases of progressive disease; while Sir John Moore contributes an article proving once more by statistical evidence the efficacy of vaccination in the prevention of small-pox. "He that hath ears to hear, let him hear."

Jahreskurse f. Ärztliche Fortbildung. (Annual Post-graduate Course in monthly parts.) July number. Munich: Lehmann. Price 16 marks per annum. This number is devoted to the subject of gynæcology and obstetrics, the former by Professor Veit and the latter by Professor Franz. The rôle of the X rays in uterine therapy is discussed at some length, and the evidence in favour of its employment for myomata brought forward and compared with the somewhat similar claims made for Apostoli's treatment when the latter was introduced. In the subject of cancer of the uterus the chief emphasis is laid upon the early diagnosis and the thoroughness of removal. It appears probable to the writer that the abdominal removal of the malignant uterus will be the routine operation of the future, even if it has not become so already. The high mortality of the early operations has now been superseded by much better results. As evidence of this, Wertheim's and Zweifel's recent figures with 160 recoveries in 173 cases are quoted. The subject of so-called endometritis is one of great complexity, and its etiology and treatment are critically considered. A favourable view is taken of the use of serum injections for those cases of uterine hæmorrhage without definite local disease. In the treatment of post-operative peritonitis the injection of sterile camphorated oil (about 50 to 100 cubic centimetres) appears to have given very good results. In the treatment of uterine displacements, especially prolapse and retroversion, the use of the pessary is condemned very strongly, and the correct manner of operative treatment indicated. The section on obstetrics contains an extremely valuable epitome of the results obtained (chiefly by German authors) in the treatment of contracted pelvis. The size of true conjugate in contracted pelves permitting of delivery through the vagina is given as between 9·5 and 6·5 centimetres, and this size allows of ready classification into three degrees, one centimetre dividing each from the next. High forceps, preliminary version, and premature delivery are all condemned because of the high child mortality which they cause (between 25 and 50 per cent.). Symphyseotomy has now been almost entirely replaced by hebosteotomy, the operation in which the body of one pubic bone is divided from within outwards by means of a wire saw. This avoids the urethra which lies in the mid-line and is not likely to lead to non-union. But in considering the results of the operation in 700 cases, the maternal mortality is 5 per cent. and that of the children 4·3 per cent. (as compared with about 2 and 40 respectively in the case of the above alternative measures), so that this operation can claim to save a large number of children but at the expense of a small number of mothers. The operation should not be employed in pelves of less diameter than 7½ centimetres. The various modifications of Cæsarean section (extra-peritoneal and vaginal) and the value of morphia scopolamine anæsthesia are shortly described. The subject of getting patients up within a few days of operation or delivery is considered in both sections of the book and recommended.

New Inventions.

THE NICURA BICYCLE STAND AND LOCK.

THE accompanying illustration shows a very useful and comparatively simple attachment to a bicycle which serves to keep the machine in an upright position when not in use, and at the same time to prevent anyone but the owner from using it. It is thus at the same time a stand and a lock. The ends of the stand fit to the axle of the back wheel, and is kept in position by the nuts at each end at the axle. Its position is strengthened by the use of stays on the horizontal bars. By means of hinges the stand can be brought into a position over the mud-guard and just at the back of the fork immediately under the saddle. It is then parallel, in fact, with the fork, and may be kept there by means of a small spring and clamp attached to the saddle pillar. When the stand is brought down near the ground the bicycle is pushed a few inches backwards, when it mounts the stand in trunnion-like fashion. At the same time a lock on the stand, situated a few inches below the axle of the bicycle, receives a bolt which locks the stand, which can then only be released

again by a key. As soon as the lock is turned by the key the bicycle is pushed forward a little, the back wheel comes to the ground again, and the stand may then be swung round out of the way over the mud-guard and fastened there. With a little experience the Nicura stand is easily fitted to any ordinary bicycle; it costs 6*s.* and does not weigh more than 2 pounds. Amongst the obvious advantages of the stand are: (1) the bicycle can, as soon as it is dismounted, be put into an upright stable position, so that the uncertain recourse to a lamp-post, the kerb, &c., is not required; (2) in that position it is, at the same time, locked, so that the machine cannot easily be stolen; (3) it is equally safe in the bicycle shed; and (4) the raising of the back wheel from the ground enables the parts of the machine (gear-case, speed-gearing, chain, and so forth) to be easily examined and cleaned, the wheel and chain being free to move without any motion of the bicycle itself. The stand is supplied by the "Nicura" Patents Co., of 110, Fenchurch-street, London, E.C.

WE are requested to state that the Universities Mission to Central Africa are in need of the assistance of a medical man in their mission work, one who would go out to Nyassaland for a period of not less than two years, who is in sympathy with the aims and methods of the mission and a communicant member of the Church of England. There are small hospitals or dispensaries at each of the stations in the diocese and several nurses at Nyassa; at Likoma (the central station) the out-patients in 1908 numbered 37,268 and the in-patients 326. The medical man would be required to superintend the hospitals, visit patients, and take the medical care of the staff.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 3, 1910.

"606" in the Treatment of Syphilis.

THE position which mercury has held in the treatment of syphilis almost from the first recognition of the disease in the last decade of the fifteenth century has hardly ever been seriously assailed until within the last few years, when an attempt has been made to put forward arsenic as a rival, and especially have organic compounds of arsenic been advocated as suitable for the treatment of syphilis. Several of these organic arsenical compounds have been introduced and they have been extensively employed. It is surprising in what large doses they can be given, and for a time they were considered to be comparatively harmless, and, in fact, the names given to some of these compounds claimed that they were non-poisonous, but a more extended experience has shown that in a few cases serious results have followed, and the most important of these is optic atrophy. Therefore, although the efficacy of arsenic in the treatment of syphilis cannot be denied, there has been a very definite tendency of late to restrict the employment of these organic arsenical compounds to those comparatively rare cases of syphilis in which mercury cannot be given.

In the last few months, however, the whole position has been altered. A new organic compound of arsenic has been brought forward by EHRLICH which is believed to possess marvellous therapeutic powers in syphilis, and yet to be in the doses employed of perfect innocuousness. Our foreign correspondents have already given some valuable information on the matter. The substance is called from its constitution dioxydiamidoarsenobenzol, but as this name is rather long, even for German use, the substance has been called "606" for short. Several observers have experimented with the drug, and in the present issue of THE LANCET we publish a paper by Dr. JAMES MCINTOSH on its use, another by Mr. J. E. R. MCDONAGH, and we also refer on another page to a pamphlet on the same subject by Dr. JOHANNES BRESLER of Lueben. The article contributed to the *Deutsche Medizinische Wochenschrift* of August 11th by Dr. WECHSELMANN of Berlin, who has employed the substance in the treatment of 503 cases, has, moreover, been read by this time by many of our readers, who are now, therefore, in possession of a good deal of practical knowledge on the whole position. It is remarkable that in addition to its action on the disease the drug exerts a beneficial effect on the general condition, for the body-weight definitely increases after its use. There is a marked feeling of well-being experienced by most of the patients on the very day of injection or on the following day; this fact is noted in several of Mr. MCDONAGH'S cases. The patients feel much stronger and able to accomplish hings which they could not do before. The rapid relief of chronic pain is one of the most striking effects of the drug. Soreness of the throat, which may have lasted for months or years, or pain in the mucous membrane of the mouth, may disappear almost magically the first night after the injection. It may, of course, be said that this relief from pain is the effect of suggestion; but the relief is often so complete in cases where the pain has lasted for several years that it is impossible to ascribe all or even the greater part of the benefit to the action of suggestion. One of Dr. WECHSELMANN'S patients had for five years suffered from swelling of the ulna with severe pain, but after the injection he had a peaceful night, the first for five years. Other cases are recorded by him, Mr. MCDONAGH and other observers in which a rapid and complete cessation of pain occurred within 24 or 36 hours of the first injection.

The action on the lesions of syphilis is surprising. Primary sores of the mouth become completely healed within a few days, and mucous plaques of the mouth will disappear within 24 to 48 hours. The definite specific action of the drug was shown in a case of a new-born child under Dr. WECHSELMANN who was attacked with a very severe form of bullous syphilide. One ala of the nose and the last joint of a finger were gangrenous and in addition there was œdema of the face and legs. The use of the drug was followed by a complete recovery of the skin manifestations in a few days, though the child died ten days later from pulmonary complications. In Mr. MCDONAGH'S fifth case the same rapid clearing up of inflammatory conditions was observed. It is clear then that this drug exerts a marvellous influence on many syphilitic conditions, but all lesions produced by syphilis are not equally easily affected. Thus, in one case while a primary sore of the tongue healed completely in two or three days and the enlarged submaxillary glands also diminished rapidly the papular syphilide which was also present showed very little change three weeks later, so that a second injection was required. Dr. WECHSELMANN explains this difference of action by suggesting that in those lesions where an endarteritis has occurred and the vessels have become blocked thereby or by thrombosis the drug cannot be carried into the tissues, because the blood stream is cut off; but if the vessels are still pervious the results are rapid and complete. In a few cases a second injection seems to be required before much benefit is noticeable, and it is early yet to speak definitely with regard to the question of recurrences. It seems clear that the drug has a definite effect on the spirochætes, which rapidly disappear but it may well be that some of the germs may remain unaffected by the drug and may develop later. It is of interest to note that in most cases WASSERMANN'S reaction becomes negative within a few days of the injection, but later it may again become positive. The drug has an effect, not only on syphilitic manifestation of the skin, mucous membranes and bones, but also on the disease of the viscera. Syphilis of the brain seems to be amenable to the treatment and some excellent results have been obtained. Those affections which are called parasyphilitic also seem to be affected; in some cases of tabes a rapid improvement in the condition of the pupil was noticed, but only a few cases of tabes have been treated. In one case, under Dr. WECHSELMANN, in which

eakness of the sphincter of the bladder had caused in-ntinence of urine for eight years, the condition dis-ppeared two days after the injection.

The question naturally arises, "Does the drug ever do ıy harm?" Dr. WECHSELMANN has seen none, and no ıthenticated case has reached us. In one case an old ıralytic died in a typical fit a few days after the injection, ıt it is probable this had no connexion with the injection. o case of injury to the optic nerve has occurred, although some of the cases the optic nerve was not perfectly healthy ;fore the injection. Local paralysis, constipation, vomiting, ıd rise of temperature have been noted, but the sym-oms have been transient. Five of Dr. WECHSELMANN'S tients were women near the end of pregnancy, but in ne of them was there any interference with the egnancy. It would seem then incontestable that dioxy-amidoarsenobenzol has a very definite effect on many rms of syphilis. It appears to have a direct action the micro-organism and it acts rapidly, but some philitic manifestations are much more resistant than ıers. No absolutely refractory case has yet been met th, and it is far too early to make any very finite statement with regard to recurrence. So far, rmful effects are few, but it must not, at this early ıge of the inquiry, be accepted that no ill results can ɔur. We consider, however, even on the small amount of idence yet available, that a new weapon of great value s been placed in our hands for the treatment of syphilis: full power we do not yet know, and only with the ssage of time can we be fully assured of its capabilities ıd its limitations. The papers by Dr. MCINTOSH and Mr. DONAGH, which fully explain the dosage and methods of ıstration, will, we are sure, be read with much pleasure.

Ventilation and the Mosquito Curtain.

IN countries infested by biting flies that carry disease, e the mosquito, the net curtain becomes a necessity to all sons except the few who are immune. This precaution, en to ensure safety from fever, involves a sacrifice which, hough rarely defined, is none the less real. In hot ıntries a much more active circulation of air about the nan body is necessary than in cold countries, in order to pose of the surplus animal heat, and, although the night ıperature is lower than that of the day, the increase of ıtive humidity and the absence of wind often render the ht period oppressive. The custom of sleeping on mattresses ɔ, which are well-known non-conductors, aggravates situation, and when to this is added a mosquito , with all the resistance it offers to the passage air, it is not surprising if the discomforts of the tropical ht are regarded as the chief penalty of residence in hot ntries. The mosquito net is very heavy in proportion to mesh. The thread of the net occupies 39 per cent. of total area, and in addition to this numerous cotton fibre jecting into the openings offer a considerable friction stance to the passage of air. 39 per cent. is thus the of area in a net that completely covers a bed. If bed is a camp cot with a calico roof to the curtain the reduction of area due to the roof is 25 per cent. and to the material of the net 39 per cent. on the sides of the curtain. On a double bed the calico roof would represent a loss of one-fifth of the total area, and as currents due to small increases to temperature escape with difficulty in any but a vertical direction it is easy to understand how the sleeper, under the conditions above stated, suffers from accumulation of animal heat. Men who smoke in bed have an opportunity of observing the rate at which the smoke disperses when the curtain is up or down. The movement of the smoke represents exactly the movement of the air about a bed; it makes clear how very slowly the atmosphere is renewed within a curtain, and how greatly ventilation is interfered with.

One of the chief attractions of Indian hill stations is the ability, in the absence of mosquitoes, to sleep without a net; a greater sense of refreshment is felt in the morning, due to the free circulation of air. The resistance of a mosquito net to a light horizontal current of air is nearly 60 per cent.; the use of a net, therefore, is sufficient in hot weather to destroy the comfort of the sleeper. The net is made strong in order to resist the brutal treatment of the laundry, for as soon as holes begin to appear the mosquito gets through. Cotton is plainly not strong enough for the purpose of giving safety from the attack of flies, as it will not resist the washing process. Among the possible fibres that might be used rhea seems to stand out conspicuously for its strength, fineness, and durability. It is already used for many purposes requiring these qualities, for it is made into racing sails for yachts, and thread for lace-making, and is employed in harness work, and as fishing lines. A mosquito net of rhea, having at least three times the strength of cotton, might be of much finer thread, offering less surface to the air, and the meshes, owing to the resemblance of rhea to linen, would not be encumbered with straggling fibres. In places where the sand-fly is common the net ceases to be a protection, and nothing coarser than muslin can be used, whose resistance to circulation must be at least twice that of mosquito net. Muslin is much used by the natives of India, and especially by women when sleeping on balconies or verandahs on account of the privacy it affords. Sometimes the roof is made of net, but in any case the ventilation is greatly impeded. The loss of current due to the curtain may be restored by means of the punkha, but the attendant coolie is a grave nuisance. When, a few years ago, a self-acting portable fan was put on the market in India, it was welcomed by the public and sold in thousands. It consists of a small hot air engine of well-known pattern, geared with, or driving direct, a revolving fan, in shape like the electric fan. The engine is heated by means of a spirit or a kerosene lamp, and the whole packs conveniently in a case for transport. The saving in cost, as compared with the *punkha walla*, not to speak of its trustworthiness and handiness, has gained for it considerable popularity, but a serious fault has been observed by medical men in the arrangement of the machine. All the products of combustion and so much of the heat as is not converted into work are carried into the fan current, so that the air blown by the machine is both raised in temperature

and reduced in purity. This is inevitable under the best conditions, but as the lamp is generally managed by a servant it is very often badly trimmed, and fouling of the air may occur easily if the wick is turned too high, when smoke escapes, or too low, when partially burnt gases, escape. In cases of extreme carelessness or stupidity mosquito nets have been blackened in a single night. In the large cities like Calcutta, Madras, and Bombay electric current is available for all who wish to use it, but elsewhere, except in the palaces of native princes or in large manufactories, punkhas must continue to be driven by other sources of power. The small portable machine has, therefore, a good future before it. At present it offers a very interesting, and by no means easy, problem to the inventor: that of separating all the products of combustion from the air current produced by the fan. It is also possible that the efficiency of the fan itself may be increased by a better design, for in common with the majority of electrically driven fans the propelling angle of the blades has no variation from tip to root. It thus produces currents of varying velocity, that interfere with each other and affect prejudically the efficiency of the machine. Even in the angle at the tip air propellers vary enormously, the range being at the least from 9° or 10°, with the plane of rotation, to 18°.

We have entered into these details at considerable length because it cannot be too often insisted that the chief art of living healthily in the tropics consists in the means of procuring sound rest at night, so as to arise refreshed in the morning. This is accomplished principally by reducing the usual amount of bedding and by ensuring an adequate air current to carry away the surplus animal heat. If the ordinary mattress is used heat will accumulate beneath the sleeper, and a stronger current will be required to keep him cool. He is thus exposed to irregular cooling, which is more than likely to cause a chill. If the bedding is reduced until the body appears to cool at an equal rate below and above a very moderate air current will suffice to produce the desired comfort. To write of tropical heat in such weather as we have experienced this summer may seem uncalled for, but nowadays all the world travels, and many of our readers are asked for advice upon these points.

Surgery and Anæsthetics in Medical Diseases.

THE increasing tendency towards specialisation in the practice of medicine, using this term in its widest sense to include all applications of what has been tritely called the healing art, is a condition which demands careful consideration in the best interests of the public and of the profession alike. The advances made by the application of surgical methods to medical diseases, more especially in those which German writers not inaptly describe as the boundary zone, have led to an invasion by the surgeon of the territory of the physician from all sides. The pioneer in all phases of human activity is particularly prone to be a zealot and a propagandist. A calm and dispassionate analysis of the results and after-results of new forms of treatment and of new adaptations of surgical procedures is therefore a necessity, if these are to be applied intelligently and with judgment. This can but rarely be achieved by one individual, and hence the value of congresses, where men of different zones of practice, and, still more important, men with various points of view, may foregather, express their opinions publicly, and thus afford the general practitioner and the consultant physician and surgeon, upon whom in the majority of cases rests the responsibility of the choice of treatment, an opportunity for estimating the value of their work. We cannot but feel after some of the discussions before the recent annual meeting of the British Medical Association that the time is ripe for a review of the value of the surgical invasion of medicine with the object of securing a more careful selection of the cases to which surgery should be applied so as to afford the best chance of relief with the least risk. The age of therapeutic nihilism which followed the studies of the morbid anatomists of the middle of the last century gave place to an age of polypharmacy with special symptomatic treatments largely as a consequence of the labours of the physiologist, the pharmacologist, and the synthetic chemist. This phase seems to be giving place to a surgical period, when practitioners and public both demand the drastic and dramatic methods of surgery. Surgical technique has now advanced to such a degree that there are but few operations which the mind of man can devise that cannot be successfully carried through by the practised special surgeon. The time has, however, arrived for something more than a consideration of mortality statistics as a criterion of the value of surgical treatment. The percentage mortality of a given operation is for the most part the measure of the technical skill of the operating surgeon, and, to a less degree, of his ability in the selection of cases. It is this second factor which requires further development, and for this purpose we need much more information regarding the after-histories of the patients operated upon, information which the surgeon is not always able to afford owing necessarily to the conditions of his practice. It sometimes happens that the triumphs of surgery in certain fields are less apparent to the patient and the family practitioner, who are concerned with the after-results, than to the surgeon, whose responsibility often ceases when the patient has recovered from the immediate effects of the operation. In the past the surgeon has had to deal with gross and for the most part tangible conditions, and has therefore been but little concerned with those vague but none the less real factors in disease—personality, temperament, and constitution—which loom large upon the horizon of the family practitioner and physician. Now that the surgeon is also concerned with matters formerly in the field of what the Germans and Americans term internal medicine, it is important that he should also extend his point of view to these factors, otherwise the somewhat selected nature of the cases he encounters is liable to give him entirely erroneous conceptions of the symptomatology of medical diseases, and to lead him to appraise them at other than their real value.

An interesting illustration of this position is afforded by the discussion before the Surgical Section of the British Medical Association of the operative treatment of exophthal-

itre, so ably opened by Professor THEODORE KOCHER of rne, of which a report appears in our issue of August 13th 471). Professor KOCHER discussed the pathology of the ease, its symptomatology, and, most important of all from e practical point of view, the principles of selection of ses for operation. He gave statistics of his own operations this disease, amounting to 619 operations in 469 cases, any of the cases requiring more than one operation; they owed a decreasing mortality from 5 per cent. at first to 1·3 his latest series of 72 cases. It is tempting to draw the nclusion that this decreased mortality is in the main due to proved selection of cases, the more so when we are told at the only fatal case in the 72 last mentioned was in a ung woman with nephritis in whom the operation was only rformed at the special request of the patient and her ends, and the case was admittedly one which should not ve been operated upon. Mr. H. A. BRUCE of Toronto oted collected statistics of 1055 cases with a direct erative mortality of 4 per cent, and complete cure in per cent., as many as 85 per cent. being able to resume eir ordinary occupations. Dr. HECTOR MACKENZIE stated at under medical treatment 36 per cent. of hospital patients covered completely, and not more than 20 per cent. ended ally. He gave some statistics of operation so unfavourable to suggest that Professor KOCHER'S cases were of a ferent type from those seen in London. The case for incriminate treatment of the condition by surgical methods n hardly be said to be established as a result of the cussion, and we are still in need of more detailed and act analysis of the after-history as regards symptoms, ns, and duration of life in these patients. It is of some erest to note that many of the deaths from operation in s condition usually occur during, or shortly after, anæsesia, and that in this disease, which in its manifestations ers the very anatomy and physiology of terror, and in ioh the patients are obviously over-sensitive to emotional luences, one of the improvements in the technique of æsthesia recommended should be in the direction of sening the psychical shock of this procedure after the nner suggested by Professor G. W. CRILE. This conts in giving the patient brief and, in a sense, fictitious alations on several days as a preparation, and then a settled day giving morphia and going on to complete æsthesia. Professor CRILE contributed a highly suggestive per to the section. The special interest of his work in conxion with the subject we are now discussing was his statent that fear alone in animals was capable of causing wideread histological changes in the brain cells, especially in se of the cerebellar cortex. These changes, like those luced by other factors—such as trauma, anæmia, and infecn—were capable of being demonstrated by the well-known ssl's method of investigating the minute structure of nerve ls. Fear and these other factors influenced the immediate rgical risks and decreased the margin of safety in erative procedures upon patients with any grave handicap m disease or other conditions. Professor CRILE emasised the existence of hypersensibility to fear and to uma in exophthalmic goitre, and claimed that the adopn of the principles he described had totally altered the mediate results of operation. He lessened the influence of the factor of fear by judicious management of the patient after the manner already referred to, and he excluded the factor of surgical trauma by interrupting the physiological connexion between the brain and the field of operation by means of local anæsthesia. His arguments are certainly very ingenious.

These experiments and the recommendations deduced from them serve to illustrate what a number of details may have to be taken into consideration in the applications of surgical methods to grave medical diseases, even apart from the question of the selection of the cases. In this boundary zone, where physician, surgeon, and anæsthetist meet, each can bring special experience in regard to certain matters concerned, but equal coöperation is a necessity if the best results are to be obtained, and if surgical methods are to be prevented from falling into disrepute owing to over-zeal on the part of some of its exponents. The surgeon must be more than an operator, he must be a medical practitioner as well and must look at all sides of the problem. In this connexion we cannot but feel that some surgeons have something to learn in regard to what was aptly called the Æsthetics of Anæsthetics by Dr. F. W. HEWITT, in an interesting lecture published in THE LANCET of March 5th, p. 623. His recommendations in regard to the anæsthetist gaining the confidence of the patient and sparing him all unnecessary fear and apprehension acquire further support from Professor CRILE'S experiments, and it would be as well that the patient should be spared the sight of the fear-inspiring garb of the modern aseptic surgeon and his assistants before operation, and also that instruments should be covered if a separate room for anæsthesia is impracticable. We do not wish in any sense to belittle the advantages which have accrued to medicine from the application of surgery, but simply to register a plea for more scientific application of surgical methods, and for careful analysis of records of results with a view to the formulation of the rules which should guide us in the selection of cases for operation.

Annotations.

"Ne quid nimis."

THE METROPOLITAN WATER-SUPPLY.

Dr. A. C. Houston, the director of water examinations for the Metropolitan Board, presented on July 15th his fourth annual report on the Results of the Chemical and Bacteriological Examinations of the London Waters for the 12 months ended March 31st, 1910. Dr. Houston also presented with this his fifth report on Research Work in Connexion with the Metropolitan Water. The reports contain most interesting and important records of careful, painstaking, and accurate labour, and Dr. Houston is to be congratulated on the valuable work which has been done under his direction during the period dealt with in his writings. The purity of the metropolitan water is of vital importance to the health of some millions of consumers, and a very great responsibility rests on those to whom is entrusted the task of rendering the raw London waters fit for drinking purposes. It would be dangerous to trust to merely empirical methods of purification, and it is essential that the engineers of the Metropolitan Water Company, who have immediate control over the working of

the various water stations, should have guidance as to the actual value of each step in the purification process. They should know exactly what can be expected from efficient storage and proper filtration, and their methods should be checked at each step in the processes to which the water is subjected. A careful perusal of the reports of Dr. Houston shows that those in charge of the various water stations have at the present time that necessary scientific help and guidance by the chemical and bacteriological investigations which are continuously being made. They are not working in the dark, but know what is to be expected from the methods they employ, and the results of these methods are checked by the constant analyses that are being made. Where there are imperfections as regards the efficiency of the "plant" and working at any particular station these are known, and hence every endeavour can be made to rectify them. Dr. Houston in his report again emphasises the great importance of adequate storage of all water before filtration; as he puts it, there should be "active storage," not a simply "passive storage," for emergencies. No water should be filtered that has not been stored under suitable conditions for an adequate period. Dr. Houston, though realising the great value of filtration, recognises that it is unsafe to trust to this alone, but with adequate prefiltration, storage, and proper filtration he clearly demonstrates that there is no possible risk of pathogenic microbes finding their way into the water supplied to the consumers. The research report shows that Dr. Houston is continuously criticising and checking the accuracy of his own methods of investigation so that it shall be impossible for any pathogenic water infection to escape detection. It is interesting to learn that the special search for the bacteria of "epidemic diarrhœa" in the raw London waters has yielded negative results. The chemical and bacteriological results for the period dealt with in the reports are satisfactory and reassurring. We fully appreciate the excellent work which is being done by the Metropolitan Water Board in safeguarding the purity of the London water, and we feel assured that the Board will continue to take the fullest advantage which is afforded by the valuable guidance and help it is receiving from the scientific investigations of Dr. Houston.

"PHYSICIAN AND DIPLOMATIST."

UNDER this title an interesting book might be compiled, as the "Memoir of Sir John McNeill" comes opportunely to remind us.[1] The Memoir, indeed, adds another to the many proofs of how easily the "mens medica" can adapt itself to the diplomatist's *métier*. Trophilus the physician, according to Athenæus, when asked to define "the perfect practitioner," replied, "He who can distinguish between what can, and what can not, be done"—he, in fact, who by his knowledge, his experience, and his skill can essay the solution of problems, more or less complex, under conditions demanding decision and promptitude. Are not these the qualities, is not this the definition, of diplomatist and consultant alike—men whose training and whose professional life induce a mental habit in which concentration combines with circumspection, to the avoidance of "raw haste" and its "half-sister, delay," in circumstances, moreover, in which the personal equation is a dominant factor? No wonder, then, that history abounds in examples of the "body physician" passing gradually and inevitably into the "confidential assessor"; the trusted "consultant" in affairs of which he has been the silent if, officially, detached spectator; the *Συνειδὼς ἀκροατής* (or "thoroughly instructed auditor") who can give wise and opportune counsel in situations analogous to those with which he has had, professionally, to deal. An Arbuthnot at the Court of St. James, a Wyllie at that of St. Petersburg, a Conneau at that of the Tuileries, a Lanza at that of Turin, a Viale-Prilà or a Ceccavelli at that of the Vatican, are types which have their counterpart in many medical practitioners. If ever, in the highest of all *metiers*, there was a man of affairs and a man of action as well, it was the "ambassador in bonds" to the Gentiles; and who can study his discourses in the Acts of the Apostles without recognising what Dr. Hobart has so amply illustrated in a special treatise—the use of terms borrowed from the vocabulary of his companion and "consultant," the "beloved physician"? To revert to the language of diplomacy in the last century, to whom but to the medically qualified Sir James Mackintosh does it owe one of its most characteristic phrases, "masterly inactivity," a coinage in the days when an "expectant treatment" was in clinical favour—a coinage, moreover, for which the continental chancelleries can devise no better equivalent than "inertia, sapientia"? The theme might be carried into many another by-way, all leading up to the point from which we started—the ease with which the "mens medica" can adapt itself to the diplomatist's rôle. Meanwhile, Sir John McNeill's life and work have an interest of their own beyond the special conclusion we have ventured to draw from them, passing as he did from medical qualification and practice to a brilliant diplomatic career, first in our great Indian Dependency, then as an envoy accredited to the Court of the Shah at Teheran, where his experience and observation, as set forth in letters and diaries, are of singular relevance in the crisis through which Persia is now passing. On his return from that mission he became "Chairman of Her Majesty's new Poor-law Department, the Board of Supervision for Scotland, in which the organisation of parochial relief owed much to his forethought and fertility of resource. Yet again, "being dead, he yet speaketh"; his report on the causes of the destitution and distress in the Highlands remaining, as has been authoritatively admitted, "the final word on the question" Later still we find him associated with Colonel (afterwards Sir Alexander) Tulloch on a commission of inquiry into the condition, sanitary and other, of the British army in the Crimea; and, later again, rendering equal, if ill-requited, service in the report of the Chelsea Board of General Officers. The less than little acknowledgment of what he achieved for the State in his long life of 88 years adds a pathetic tone to his memoir and seems to justify the indignant words of Sir David Brewster: "It is a memorable saying, and pregnant with great results, that 'England expects every man to do his duty.' But history in tears, has written the fatal counterpart upon the wall that 'No man expects England to do hers!'"

[1] Memoir of Sir John McNeill, K.C.B. By his Granddaughter. London: John Murray. Price 15*s.* net.

THE CHOLERA IN RUSSIA.

THE Local Government Board has issued a circular calling attention to the fact that cholera is again seriously epidemic in Russia, particularly in the St. Petersburg district and at Cronstadt and other Russian ports. The sanitary authorities of British ports are warned to be on their guard against the importation of cholera into this country by vessels coming from places where the disease has appeared or is likely to spread. In this connexion it is essential that medical officers of health of British ports shou d keep themselves informed as to the spread of the present outbreak of cholera and especially as to the continuance of the disease in parts where it now exists, and its appearance in other parts not yet known to be affected by it. C

Sept. 9th, 1907, the Board issued a revised General Order relating to cholera, yellow fever, and plague on ships arriving from foreign ports to apply and have effect throughout England and Wales, except as regards Bristol and Gloucester, Harwich and Ipswich, and Liverpool and Manchester, the revisions having been introduced chiefly to secure the observance of principles embodied in the Paris Convention of 1903. The main principles on which the regulations have proceeded are that a report with regard to infected vessels arriving from foreign ports should be made to the sanitary authority of the place of arrival, that infected vessels should be temporarily detained pending visitation by the medical officer of health, who may order the further detention of the vessel, the removal of persons suffering, or suspected to be suffering, from plague, cholera, or yellow fever, and the adoption of steps to free the vessel from causes of infection. He may also take such other action as is expedient for the purpose of tracing the further movements of persons allowed to leave the vessel. The regulations in 1907 were made more stringent so as to include "suspected" as well as "infected" ships, and gave to the medical officer of health the power of prohibiting the landing of any person unless he is satisfied as to his name, intended place of destination, and address at that place, placing upon any such person the further obligation that if within five days he changes his address he must notify the new address to the medical officer of health. At the time of writing it is reported that the visit of some Russians from Odessa to the relics of San Nicola di Basi has now introduced the disease into South-Eastern Italy, and several deaths have occurred in the province of Apulia. All Russian ports on the Black Sea and Sea of Azov, including ports on the rivers running into either sea, are officially declared to be infected with Asiatic cholera, and sanitary measures will be applied to any vessel which left any of these ports since August 12th.

SUTURE OF THE FAUCIAL PILLARS FOR HÆMORRHAGE FOLLOWING TONSILLECTOMY.

THE possibility of serious and even fatal hæmorrhage after tonsillectomy must be borne in mind, even when there is no history of a tendency to hæmorrhage. In the *Boston Medical and Surgical Journal* of July 21st Dr. H. H. Gilpatrick states that three cases of severe hæmorrhage which have come under his observation have convinced him that firm and complete approximation of the faucial pillars by suture is the most efficient means of controlling the hæmorrhage. But the difficulty of the operation is so great that he recommends it only as a life-saving measure after ordinary methods have failed. The difficulty is due to the small space in which the work must be done, to failure to obtain a view of the lowest portion of the pillars, where the suture must begin if it is efficient, and to the tying of knots. The difficulty of tying the knots in his first two cases led Dr. Gilpatrick to secure the sutures with perforated shot in the last case. This method, which appears to be new, proved both easy and efficient. The operation usually has to be done without anæsthesia and the condition of the patient is often such that none is needed. Dr. Gilpatrick prefers Rose's position, in which the patient's head is but little elevated above the chest—an important point in an exsanguine patient. At the same time less blood and mucus are likely to be inhaled. A good light is necessary. The jaws must be opened to the full extent and the tongue kept on the floor of the mouth. This is best done with the Whitehead self-retaining gag with attached tongue depressor. A small round-pointed fish-hook-shaped needle is threaded with black linen or silk about 18 inches long. A long-shaped Mayo needle-holder may be used. When the suture is ready the pharynx is quickly wiped out and an ordinary right-angled tongue depressor is introduced so that its tip presses against the base of the tongue at the lowest point of the faucial pillars and away from the side operated on. This gives a view of the point where the needle should be first inserted. The point of the needle is carried behind the posterior pillar and is introduced forwards through both pillars, taking enough tissue to ensure its not tearing out. The needle is pulled through, leaving the tail of the suture sufficiently long to reach beyond the incisors, where it is twisted with the main portion of the suture between the thumb and forefinger. A perforated shot is now slipped over the needle and tail of the suture and the shot is grasped in the jaws of the needle-holder. One hand holds the suture taut, while the other, grasping the needle-holder, forces the shot against the point of suture and crushes it upon the thread. The tail of the suture is now forced been two convenient teeth and the thread is passed as a continuous suture, with intervals of a quarter of an inch, to the other ends of the pillars. When the last suture has been drawn tight the head and tail of the suture are twisted together and secured with another perforated shot as before. If the ends of the thread are left long and secured to teeth the possibility of the shot dropping into the larynx in case the suture should break or tear out is obviated. The advantages of this method are the ease of application, the short time required, and the security with which the bleeding is controlled. As soon as the suture is passed through the pillars the second tongue depressor may be removed, for the placing of the shot does not require the tongue to be held out of the way.

THE DAILY VARIATION OF BODY TEMPERATURE IN HEALTH.

WE have received a reprint of a paper published in the *Journal of Tropical Medicine and Hygiene*, by Colonel Matthew D. O'Connell, R.A.M.C., in which it is suggested that the control or regulation of the body temperature of man in health is not the result of a reflex nervous mechanism, but of the daily meteorological changes in environment. This conclusion has been arrived at as a result of some observations on the effect on body temperature of exposure for short periods to an atmosphere artificially heated and humidified in glass houses. He sums up his conclusions by affirming that body temperature increases from 7 A.M. to 1 P.M. daily, because during these hours loss of heat from the body by radiation is reduced owing to the increase of the temperature of the air, and because the production of heat in the body is increased by the taking of food. An excessive rise is prevented by increased loss due to evaporation owing to the increased drying power of the air, and by conduction and convection owing to the movement of the surrounding air. The rise between 1 P.M. and 6 P.M. is attributed to diminished loss of heat by evaporation owing to the reduced drying power of the air, and also to the increased production from food intake. An excessive rise is prevented by increased loss of heat from radiation, owing to the falling temperature of the air, and increased loss by conduction and convection owing to the movements of the air. The fall of temperature during the night hours is regarded as being due to increased loss of heat by radiation, owing to the fall of atmospheric temperature and to diminished production of heat owing to abstinence from food, an excessive fall being prevented by reduced loss by evaporation, owing to the lessened drying power of the air, and diminished loss by conduction and convection owing to the stillness of the atmosphere. While admitting that changes in the meteorological conditions do influence bodily temperature, we cannot say we are convinced by Colonel O'Connell's reasoning·

His observations were of too short duration, and he does not state if the temperatures were taken in the mouth or rectum. The extraordinary adaptability of the body to extremes of temperature finds a more ready explanation on the current views of a delicately adjusted controlling nervous mechanism.

THE RELATION OF RODENT ULCER TO SQUAMOUS-CELL CARCINOMA OF THE SKIN.

AN interesting paper by Dr. Henry MacCormac in the last volume of the Archives of the Middlesex Hospital [1] is devoted to a consideration of the nature of rodent ulcer. It is generally stated that this form of growth is usually confined to the face, that it begins at an earlier age than other forms of carcinoma, that multiple growths are not uncommon, and that glandular and visceral metastases do not occur. Dr. MacCormac has analysed the cases (43 in number) admitted into the Middlesex Hospital during the seven years 1902 to 1908. The disease was situated on the nose in 18 cases, the cheek in 10, the eyelid in 6, the lips in 4, the temple, forehead, ear, labium majus, and the occipital region in one each. It will therefore be seen that the disease originated away from the face region in two cases. Other instances of this are on record, including its occurrence on the thigh, the sternum, the back, the groin, the forearm, and near the umbilicus, so that the statement that rodent ulcer is confined to the region of the face is by no means accurate. It would also appear that rodent ulcer does not originate at an earlier age than other cancers. In 39 cases, where a fairly accurate estimate of the age of onset could be made, this gave an average of 53·7 years. The occurrence of multiple growths was confirmed, since four cases of Dr. MacCormac's series showed this peculiarity, and many other examples are on record. The explanation offered is that owing to the chronic course of this condition the chance of another growth occurring is greater than with more rapidly growing cancers. No evidence of lymphatic permeation was found and no glandular metastasis. This latter condition has, however, been described by Beadles with microscopic confirmation. An analysis was made of all the cases of squamous-cell carcinoma of the skin during the same seven years, excluding all cases originating on mucous surfaces. Twenty-one examples were found, 12 being confirmed by microscopical examination. The sites of the growths were: the cheek in 6 cases, the eyelids in 3, the nose in 2, the temple in 2, the leg in 2, the brow, neck, thumb, finger, abdomen, and vulva in 1 each. The average age at commencement was found to be 51·5 years. Glandular enlargement was noted five times, but microscopical examinations were only made in two cases, neither being cancerous, hence glandular metastasis is certainly uncommon. From a study of their histological characters Dr. MacCormac differentiates three groups of rodent ulcer. The first comprises the majority of his cases. In this form masses of malignant cells are arranged in islands clearly marked off from the connective tissue cells. At the edge of the growth there is frequently a row of columnar cells like the basal layer of the epidermis. Sometimes cysts are found within the growth and occasionally cell nests. The second group comprises the mixed rodent ulcers, in which, in addition to a growth corresponding to the type just described, there is also a new formation identical with the common squamous-cell carcinoma—i.e., one composed of cells similar to those of the prickle cell layer or stratum Malpighii. The third group includes a few growths in which great difficulty was found in determining whether the neoplasm should be classified as a rodent ulcer or as a Malpighian cancer. The occurrence of prickle cells was established in one case of rodent ulcer of nine years' growth, so that their absence cannot be regarded as characteristic of rodent ulcer; moreover, they can be shown to disappear in many cases of squamous cell carcinoma. Dr. MacCormac concludes that there is but one form of carcinoma of the skin excluding mucous surfaces. If the disease grow slowly the cells assume the rodent type, if more rapidly the Malpighian type.

[1] Archives of the Middlesex Hospital, vol. xix. The ninth report from the Cancer Research Laboratories. London: Macmillan and Co. July, 1910. Pp. 172.

EXCESS OF MORTALITY IN COLLIERY DISTRICTS.

THE excess of mortality from all causes, and more especially the excess of infant and child mortality, in those counties in which coal-mining is a prevailing industry should convince the Local Government Board of the urgent necessity for a special and thorough investigation of the sanitary condition of colliery districts. Dr. A. Newsholme's recently issued and valuable report calls attention to the intimate relation between housing and child-mortality, and to the seriously defective housing of the population which prevails in many parts of the counties of Durham, Northumberland, Glamorgan, Lancaster, Stafford, and the West Riding of Yorkshire, all of which counties include many large colliery districts. The following selected figures from the last issued report of the Registrar-General, relating to the year 1908, accentuate Dr. Newsholme's appeal to the defaulting sanitary authorities in the above-mentioned counties. The death-rate from all causes in England and Wales in 1908 did not exceed 14·7 per 1000, whereas the rate, after correction for abnormal sex and age conditions, was equal to 17·1 in the county of Northumberland, 17·5 in Durham and in Monmouth, 17·8 in Glamorgan, and 18·7 in Lancaster. In the distinctly urban population in the county of London the corrected death-rate in the same year did not exceed 14·7 per 1000, and corresponded with the mean rate in England and Wales. The excess of infant mortality in these counties, including a large proportion of colliery districts, was fully as marked as was the rate from all causes. In England and Wales the deaths of infants under one year of age were equal to 120 to each 1000 registered births; this proportion in the principal colliery counties was, however, equal to 143 in Northumberland, 144 in Lancashire, 147 in Durham, and 151 in Glamorganshire; these were the four highest rates of infant mortality in any of the counties of England and Wales in 1908. Moreover, the counties of Monmouth, York (West Riding), Stafford, and Nottingham, each including large colliery districts, had rates of infant mortality only slightly lower than those of the four before-mentioned counties. The mortality of children aged under five years showed similar excess in those counties having extensive colliery districts. The mean rate of mortality in 1908 among children under five years in England and Wales was equal to 40·6 per 1000 of the children estimated to be living at these ages, while the corresponding rate was equal to 51·4 in Northumberland, 53·9 in Monmouth, 55·3 in Glamorgan, and 55·4 in Durham, these rates being higher than in any other of the counties in England and Wales in 1908. Dr. Newsholme severely criticises the insanitary condition of the houses and their surroundings in many parts of the county of Durham, and the intimate connexion between defective housing and mortality from enteric fever is sufficiently obvious. The continuous and steady decline of enteric fever mortality in England and Wales is one of the most conclusive and satisfactory features of undoubtedly general health progress. In 1908 the death-rate from enteric fever in England and

Wales did not exceed 75 per million of the estimated population, whereas the mean annual death-rate from this disease in the 10 years 1871–80 was equal to 326 per million. In the county of Durham, however, the death-rate from enteric fever in 1908 was equal to 146 per million, against an average rate of 186 per million in the five preceding years, and in Auckland, Easington, and Houghton-le-Spring districts of that county the rate from this disease in 1908 exceeded 300 per million. The above-mentioned statistics point conclusively to the serious sanitary shortcomings in all the counties containing extensive colliery districts. Much sanitary improvement may be expected to result from the compulsory appointment of county medical officers of health, but the value of these appointments would be much increased by independent investigation by Local Government Board inspectors of the long-existing defective housing conditions in many of the colliery districts.

PROGNOSIS IN PULMONARY TUBERCULOSIS.

THE problem presented to a practitioner in attempting to arrive at a prognosis in a case of pulmonary tuberculosis is generally accepted as being a most difficult one. The varied course of the disease in different individuals renders the question exceedingly complex, and it is only by carefully considering every detail and aspect of the case that an opinion can be given. In the *British Journal of Tuberculosis* for July of this year Dr. R. C. Macfie draws attention to some points which are of importance in connexion with this subject. He points out that prognosis in pulmonary tuberculosis is difficult because there are but few means of estimating either the virulence of the seed or the fertility of the soil, and yet a correct estimate of both is essential to a correct opinion. One case may show a very small incipient lesion and yet have received a very large dose of virulent bacilli; another may exhibit a very large lesion and yet show very few toxic symptoms. Some patients appear to have a very mild affection and yet, having "poor resistance," succumb rapidly. Likewise, disease apparently arrested may, without discoverable cause, suddenly flare up again, and acute trouble may as suddenly and inexplicably subside. We agree with Dr. Macfie that a mere microscopic count of the bacilli is futile, for there is no proved constant relation between the number of bacilli discoverable and the virulence of the disease, and, further, mixed infection may any day quite alter the state of affairs. Dr. Macfie believes that in the majority of cases a correct prognosis can be given, but only if all the circumstances of each case be duly considered and weighed, as we have already suggested above. All physicians who have had extended experience in the treatment of phthisis will agree with him in his statement that it is useless to try to forecast the future if we confine our observations to the physical signs. We think, however, that the following sentence requires modification: "The division of cases so often made, according to extent of lung lesion, is a very suitable classification for a pathological museum, but is quite misleading for most other purposes; and the first thing the prognostician has to learn is that the lesion by itself has very limited prognostic value." The expression "extent of lung lesion" is rather ambiguous; taken with the context, "stage of the disease" would have been more appropriate. For instance, the fact that four lobes are involved would influence the prognosis more than the fact that a cavity was present in one lobe, provided that in the latter instance the other lobes were not affected. The contention that the pulse-rate and temperature are at least as important in prognosis as any estimation of râles, rhonchi, and the like is perfectly correct, and fewer mistakes in prognosis would be made if the temperature curve and general condition of the patient were more carefully observed. Closely connected with this subject is another aspect of tuberculosis which promises to claim much attention in the near future—namely, the alleged occurrence of traumatic tuberculosis. It may be remembered that at a meeting of the Life Assurance Medical Officers' Association held in May of this year Dr. F. Parkes Weber read a paper on Traumatic Tuberculosis, Traumatic Pneumonia, and Traumatic Pleurisy. He divided cases in which tuberculosis is said to have been caused by accident into three groups: (*a*) Cases in which a decided traumatism of some kind is followed by signs of either acute disseminated miliary tuberculosis or acute metastatic localised tuberculosis; (*b*) cases in which signs of pulmonary tuberculosis follow or are first noticed after a supposed injury to the lungs; (*c*) cases in which an injury to bones or joints or parts of the body other than the lungs is followed by signs of tuberculosis more or less localised to the region of the trauma. We agree with Dr. Weber in the opinion that in the majority of cases "traumatic tuberculosis" may be explained as the rendering manifest and active of a pre-existing tuberculosis, however limited in extent, quiescent, and latent the former lesion may have been.

THE TENTH REPORT OF THE SLEEPING SICKNESS COMMISSION.

THE Tenth Report of the Sleeping Sickness Commission, recently issued, contains some 13 contributions by the Commissioners and their fellow workers in this country respecting work done from August, 1908, to December, 1909. Several of the papers have already appeared in the Proceedings of the Royal Society, and we have commented upon some of them in the columns of THE LANCET. The subjects dealt with include the experimental treatment of trypanosomiasis, the development of T. gambiense in Glossina palpalis, sleeping sickness in Uganda and the duration of infectivity of the tsetse-fly after removal of the shore population, Glossina palpalis as a carrier of T. vivax, and amakebe, a disease of calves in Uganda. In other papers relating to what are regarded as newly discovered trypanosomes, Colonel Sir David Bruce and his colleagues on the Commission make some observations on the classification of trypanosomes, which they say is at present in a state of chaos. They point out that the three most important questions to be borne in mind in classifying these parasites are: (1) The animals they are capable of infecting; (2) the gravity of the infection; and (3) the carrier of the infection. To these also may be added consideration of the morphology of the trypanosome, its cultural characters, if any, and the results of cross inoculation experiments. It is suggested that if these several facts could be set down for each trypanosome encountered in Africa, the classification of the African species might then be successfully attempted. Only for a few species—e.g., T. gambiense and T. brucei—do we possess such data. As regards a special trypanosome discovered in a horse at Zanzibar by Dr. A. Edington, the Commissioners, who made a careful investigation into the claim that it was a new species, come to the conclusion that it is probably T. dimorphon. But they admit that an important link in the chain of evidence is wanting—namely, the identity or non-identity of the carrier. The Commissioners also describe two new trypanosomes, to the first of which they give the name of T. ingens, owing to its extraordinary appearance. It was found in the blood of a reed-buck in Uganda, afterwards in a bush-buck, and later still in an ox. As the wild animals fed in the same pasture as the ox, it is not surprising that the latter animal became infected. Up to the present the carrier of T. ingens has not been discovered. The second trypanosome, to which the name of T. elephantis has been

given provisionally, was found in the blood of an elephant which was shot in Uganda near Lake Albert. Comparison of this new parasite with T. cazalboui, T. evansi, T. gambiense, T. pecaudi, and T. soudanense was made, and as a result the Commissioners are inclined to hazard a guess that it may be ultimately found to have identity with T. soudanense. Until, however, its nature is better known it is proposed to call it T. elephantis.

MEDICAL TREATMENT OF LONDON COUNTY COUNCIL SCHOOL CHILDREN IN NORWOOD.

A FORM of "concordat" has been recently devised between practitioners in Norwood and the London County Council. The basis of the arrangement is that seven or eight practitioners are to be appointed yearly who are to devote one-half day per week to the treatment of special cases, such as skin diseases, ophthalmic cases, and throat, ear, and nose cases, including the removal of adenoids and tonsils. The County Council undertakes to provide properly equipped premises and a nursing staff. Presumably the equipment provided will include a complete X ray apparatus and a supply of electricity, but these points are not sufficiently clear in the circular which has reached us. The Council demands that a minimum of cases should be treated yearly by each practitioner—viz., 250 ear, nose, or throat cases, 400 eye cases, and 100 ringworm cases, the treatment having to be by X rays. For this work an honorarium of £50 per annum is offered—i.e., £2 for each day of work. This cannot be considered princely pay for arduous and highly specialised work, but there would be less room for cavil if the payments were assured. It is not apparent, however, that the practitioners will receive the amount decided upon. We find that while the committee believes that the financial arrangements made with the London County Council for the maintenance of the centre are fully adequate this can only be proved by experience. And in order to provide for the possibility of their not proving adequate the applicants for posts are required to guarantee a sum not exceeding £15 to meet the deficit (if any) in equipment and working expenses during his year of office. That is in effect that each member of the staff has to provide 30 per cent. of his scanty earnings for the provision of equipment promised by the County Council. The wisdom of the bargain is open to question.

THE OUTBREAK OF CEREBRO-SPINAL MENINGITIS IN LEICESTERSHIRE.

AS far as present information goes, the outbreak of cerebro-spinal meningitis in Leicestershire is confined to Melton Mowbray and the villages of Long Clawson, Hose, Nether Broughton, Harby, and Ashfordby. A Local Government Board inquiry may place us in possession of further cases. The disease was first reported at Long Clawson and cases quickly followed at the other places. There were also three cases under treatment in Nottingham on August 26th, which were imported, but not, as would be expected, from Leicestershire. It is believed that Melton Mowbray is now practically clear of the disease. In all there have been 35 cases spread over an area of 50 miles, the subjects being mostly children between the ages of 2 and 11 years. Four deaths have been reported. Only six cases have come under observation in the Melton Mowbray urban district, and these have been distributed over as many weeks. These cases have occurred in six widely separated houses, in most of which there are several other children. They appear to be as completely dissociated as if they lived in separate towns. The cases have been of a very mild type and in no instance here has the disease proved fatal. It is doubtful if some of them would have been diagnosed were it not for the existence of better defined cases in the Melton Mowbray rural district. Most of the cases have been unaccompanied by rash, and we are not aware that lumbar puncture has been resorted to in any instance. We understand, however, that a number of bacteriological examinations of cerebro-spinal fluid from cases in the rural district have been made. The disquieting reports which have appeared in the lay press must therefore be considered somewhat exaggerated, but it is noticeable that the outbreak has been received with nothing like the general apprehension that would have been expressed some three or four years ago, a thing which is of good augury in showing an increasing popular trust in preventive medicine.

VOLKMANN'S ISCHÆMIC CONTRACTURE.

THE deformity known as Volkmann's ischæmic contracture, which follows the too tight bandaging of fractures, is fortunately very rare, and for that reason is not sufficiently recognised. Though described by Volkmann as long ago as 1875, only a very limited number of cases have been recorded in this country. In the *Edinburgh Medical Journal* recently Mr. David M. Greig has reported two cases which emphasise the ease and rapidity with which this permanent deformity may be produced. In the first case a boy, aged 5 years, was knocked down and sustained a fracture about the middle of the left femur. He was taken to hospital, and under anæsthesia coaptation of the fragments proved easy. Extension was applied, four splints were adjusted round the thigh, and the child was put in a double knock-knee splint. This was not done under Mr. Greig's supervision, for he does not apply extension in such young children. A turn of the bandage fixing the extension was evidently drawn too firmly just below the knee, causing pain and swelling of the foot with discolouration of the toes, which necessitated inspection 36 hours later. The limb was put up in a similar way, but the extension was omitted. After a fortnight the splints became loose and were readjusted. The limb was still slightly swollen and blue, and there was a ring of discoloured skin below the knee. After a month the splints were finally removed, and good union had taken place. The condition below the knee suggested an abrasion, and there was a slight abrasion on the outer side of the foot near the little toe. The boy was discharged. The skin below the knee healed, but the ulcer on the foot spread, and some talipes equinus developed. He complained of much pain in the foot and of some in the leg, and there was marked hyperæsthesia. The ulceration of the foot gradually healed and the limb became less sensitive but remained cold and blue. He was readmitted six months later with the foot cold and blue and a slight tendency to swelling. The foot was rigidly maintained in the equinus position. The muscles of the calf were atrophied and hard and the tendo Achillis was drawn up. An attempt to move the ankle joint under anæsthesia produced no improvement. A month later tenotomy of the tendo Achillis was done and the foot was placed at a right angle. After two months he was able to put the foot down flat and walk, though unable to move the ankle joint. The foot became bluer and more ulcerated. The ulceration healed and 15 months later there was slight movement at the ankle and walking had improved, but the muscular atrophy remained and the leg was cold. In the second case, a lad, aged 18 years, sustained a compound fracture of the bones of the right forearm in a fall. The radius was fractured near its upper end and the ulna lower down. The fracture was placed in as good position as possible, although the lower fragment of the ulna was drawn somewhat towards the radius. Anterior and posterior

splints were applied and left on for two days, causing much pain. The splints felt tight and the hand was swollen and dark blue. On the third day the splints were readjusted and the swelling rapidly diminished. When the splints were finally removed marked anæsthesia, flexion of the fingers, and inability to straighten them were found. Four months later he came under Mr. Greig's observation with considerable atrophy of the right forearm. On the anterior surface and above the middle was an irregular cicatrix, due to the compound fracture. A little lower over the back of the ulna was a 2-inch vertical cicatrix, said to be due to the pressure of the splints or bandages. The fingers were flexed at the interphalangeal joints and could not be extended. Pronation and supination were considerably interfered with, and flexion and extension of the wrist diminished. The thenar and hypothenar eminences were much wasted. There were complete anæsthesia of the fingers and partial anæsthesia of the rest of the hand. To investigate the condition of the median and ulnar nerves they were dissected out almost in the entire forearm. They were to some extent perhaps adherent to scar tissue but not involved in callus. Ten months after the accident sensation was practically normal and the fingers were still flexed but could be straightened when the wrist was flexed. Volkmann's contracture is due to necrobiosis of muscle from deprivation of its blood-supply by tight bandaging. It usually occurs in the flexor muscles of the forearm of children after fractures near the elbow. These are attended with much effusion of blood which may render the distal circulation difficult even before the bandage is applied. There is always pain, which ought to excite suspicion that all is not right, with swelling and congestion. On readjusting the bandages these symptoms disappear but necrobiosis has been produced. A similar effect, ischæmic neuritis, may be produced in the nerves.

WE regret to announce the death of Professor William James, the well-known psychologist, who occupied at the time of his death the chair of philosophy in Harvard University.

A TOWN PLANNING CONFERENCE IN LONDON.—The Royal Institute of British Architects has announced a Town Planning Conference which will be held in London during the week from Oct. 10th to 15th next. It says that the recent passing into law of the Housing and Town Planning Act of 1909 has rendered the careful consideration of the architectural development of town planning a matter of immediate importance, and that therefore the conference has been organised to study the questions involved in the improvement and extension of our cities, with special reference to the artistic and constructional problems involved. His Majesty the King has graciously extended his patronage to the conference and many distinguished gentlemen have consented to become vice-presidents. The Honorary President is Mr. John Burns, the President Mr. Leonard Stokes, President of the Royal Institute of British Architects, and the Secretary-General of the conference Mr. John Simpson, F.R.I.B.A., to whom all communications should be addressed at the Royal Institute of British Architects, 9, Conduit-street, London, W. The preliminary announcement is also countersigned by Mr. Ian MacAlister, who is the secretary of the Institute. The membership fee will be 1 guinea. By the courtesy of the Royal Academy an exhibition of models and drawings illustrating important town planning schemes in various countries will be held in the galleries of the Royal Academy, Burlington House, Piccadilly, and there will be an exhibition of literature, maps, and drawings in the library of the Institute. The conference dinner will take place at the Hotel Cecil on Oct. 12th. Visits will be paid to Letchworth, the London County Council housing schemes, Hampstead Garden City, Port Sunlight, Bournville, Bath, and Oxford.

THE BRITISH MEDICAL ASSOCIATION.

SEVENTY-EIGHTH ANNUAL MEETING IN LONDON.

THE MEDICAL MUSEUM.

THE Medical Museum this year replaced the former Pathological Museum, and the success of the new departure has fully justified the change. The museum was divided up into a number of sections, each section being under the care of an expert honorary curator, who had selected a few subjects to deal with, and had collected from all available sources such specimens as illustrated in the most useful manner the subjects chosen. As a result the museum contained a large number of series of exhibits rather than a collection of miscellaneous items. Special attention was paid to methods, and the honorary curators, as far as was possible, offered to the visitor an ocular demonstration of recent advances and of the methods employed both in practice and in the laboratory for the diagnosis and treatment of disease. Much attention was given to the section dealing with anæsthetic apparatus, which would not have found a place in former years, when the museum was described as "pathological," but which in a museum entitled "medical" was certainly a valuable addition; Dr. Ada M. Browne, the honorary curator, had collected many historical as well as modern anæsthetic apparatus. Another section, which was unusual, was that organised by Dr. A. J. Rice-Oxley, in which engravings, prints, and other objects of medical interest were exhibited. Messrs. E. Leitz, of London, placed over 300 microscopes at the disposal of the museum, being more than three times the number of instruments that have on previous occasions been lent to the Association. The museum catalogue is valuable as a permanent record of the collection, and with this end in view as much descriptive detail of each exhibited specimen as was available and as could be introduced into a catalogue was included.

The Section of Bacteriology had for its honorary curator Dr. J. Henderson Smith. The method of isolating and identifying bacillus typhosus was shown by plates illustrating the various media in use for the isolation of the typhoid bacillus from mixed cultures of this and other organisms. There were exhibits illustrating their identification by the fermentation of carbohydrates, showing the action of typhoid bacilli in this respect in comparison with other organisms; there were also tubes showing the identification by means of "complement deviation" illustrating the technique of the Bordet-Gengou reactions in general, and tubes demonstrating identification by means of agglutination. There were charts illustrating the use of vaccines in therapeutics and the anaerobic methods of culture.

The Section of Tuberculosis, with Dr. G. F. Petrie as honorary curator, contained specimens illustrating the examination of milk for tubercle bacilli lent by the Lister Institute of Preventive Medicine, and specimens of tuberculin. Dr. C. Russ contributed the apparatus used in electrical experiments with bacteria; the instruments used are: a source of current (conveniently obtained from Leclanché's cells) which is distributed by means of a switch-board containing an ampère-meter, volt-meter, contact-maker, and reverser to a testing stand. The latter consists of a platform supporting a series of glass U-tubes, which are held vertically in spring holders and into the upper ends of which platinum foil electrodes descend by the lowering of a moving beam fastened by a screw-clamp to the required level. By that assembly of instruments a current was measured and directed through a series of U-tubes in which suspensions of bacteria had been placed. As an alternative to the U-tube stand, the current might also be passed from the switchboard through another apparatus, which consisted of two upright standards holding two adjustable electrical terminals, which were immersed in the limbs of a modified U-tube, and in one of which a bacterial trap was also fixed. The whole was mounted on a simple platform. The results obtained are as follows: When a constant current traverses a suspension of bacteria in certain electrolytes there ensues a migration of the organisms to one or other electrode. This occurs whether the organisms are dead or living and motile or non-motile. The aggregation at one electrode varies with the nature of the fluid (electrolyte) used. In certain fluids there is no

movement. This property of movement by the electric current was utilised to cause the aggregation of tubercle bacilli at one electrode placed in tuberculous urine, and by arranging the electrode at which they would arrive in the form of a bacterial trap, the bacilli were withdrawn from a series of such urines and recognised in stained films, prepared from the trap contents.[1] The means of combating tuberculosis were demonstrated and there was an exhibit of specimens of tuberculosis and other diseases of the lower animals, mounted in solid media by a new method, lent by Professor Sheridan Delépine.

The Section of Protozoology was entrusted to Miss Muriel Robertson as its honorary curator, and the excellent specimens in this section were lent by her and Professor Minchin from the valuable collection in the possession of the Protozoological Department of the University of London.

The Section of Tropical Medicine had Dr. Hutton as honorary curator, who showed series of blood films demonstrating the three varieties of malarial parasites. A series of specimens showed the development of the malarial parasite in the mosquito, and there was a good section of human spleen from a fatal case of kala-azar which showed the Leishman-Donovan bodies in the spleen cells. The development of the filaria larvæ in the mosquito was demonstrated, and lantern slides illustrating the parasite *Leishmania tropica* seen in smears of the discharge of the oriental sore of Cambay, stained by Giemsa, were shown.

The Section of Cancer Research was under the honorary curatorship of Dr. J. A. Murray. It contained the exhibit of the Imperial Cancer Research Fund, consisting of wall charts illustrating statistical investigations, the phenomena of immunity induced against propagable tumours, and the development of sarcoma during the propagation of two transplantable mammary carcinomata of the mouse; lantern slides illustrating the ethnological and zoological distribution of cancer, the reproduction of the lesions of spontaneous cancer by transplanted tumours, the phenomena of growth, and the histological features of propagation in normal and in immune animals; bottle specimens illustrating malignant new growths in the cow, and spontaneous and transplanted tumours in mice and rats; and microscopical preparations of malignant new growths in mice. The exhibit of the Cancer Research Department of the Middlesex Hospital was a series of photographic plates, showing the silver deposition caused by various animal and other substances under conditions of complete darkness (skotographs), the silver deposition being unrecognisable until the plate has been developed. Also a series of microscopic slides, showing the absence of Altmann's granules from sarcoma and malignant growths generally, and their presence in inflammatory tissue, non-malignant growths, and normal tissues. The exhibit of the Pathological Department of the Cancer Hospital, Brompton, consisted of specimens of malignant disease of various human organs. The exhibit of the Cancer Research Department of this hospital consisted of specimens showing malignant disease (spontaneous and experimental) in the mouse.

Physiological and pathological chemistry was represented in a section with Mr. J. H Ryffel as honorary curator. It contained samples of blood illustrative of carbon monoxide poisoning and Ryffel's method of estimating lactic acid in urine, Rothera's test for acetone in urine, and the apparatus used for the determination of the dissociation curve of blood.

The Section of the Alimentary System contained specimens of pharyngeal and œsophageal pouches, of "idiopathic" dilatation of the œsophagus, of pyloric stenosis in infants, of Hirschsprung's disease, of diverticula of the colon, of sarcoma of the alimentary canal, of gastric ulcer experimentally produced by the injection of gastro-toxic serum lent by Dr. Charles Bolton, and two specimens of cirrhosis of the liver in patients who were teetotalers, lent by Dr. Braxton Hicks. One was a typical "gin-drinker's liver" weighing 26 ounces, removed from a man, aged 39 years, who was a total abstainer. Two months before death he was admitted with ascites, and had a history of blood spitting and epistaxis of six months' duration. The other was a typical multilobular cirrhosis of the liver from a woman, aged 28 years, who had been in the incurable ward of the Westminster Hospital for 16 years with extreme arthritis deformans. The liver weighed 21 ounces.

The sections of the Genito-urinary System and of Gynæcology attained a high degree of excellence.

[1] See THE LANCET, July 3rd, 1909.

The Section of the Respiratory System showed specimens of glanders, actinomycosis, hydatid cysts, bronchiolectasis, and syphilis.

The Section for the Cardio-Vascular System was under the charge of the honorary curator, Dr. T. Lewis. The anatomical exhibits showed that the research work of the past few years had brought to light certain new structures in the mammalian heart. Among the most important of these is the sino auricular node, a specialised tissue lying at the junction of the superior vena cava and the right auricle. In this tissue, of which the muscular fibres are small and scattered amongst a dense meshwork of connective tissue and nerves, the normal heart beat probably takes its origin. The auriculo-ventricular bundle courses from the right auricle in the neighbourhood of the coronary sinus termination to the membranous septum of the ventricles, where it divides to distribute itself to the right and left ventricles respectively. At its commencement a "node" is situated (the so-called "node of Tawara") consisting of specialised tissue, not unlike that of the sino-auricular node. The auriculo-ventricular junctional system, which has been proved to convey the impulses of the normally beating auricle to the ventricle was exemplified by macroscopic and microscopic specimens. When the bundle has divided into its two main branches for the supply of the right and left ventricles respectively, these branches pursue their course towards the papillary muscles and break up into a complex arborisation and network (the so-called "network of Purkinje"). The structure of this network is very special, the cells are very large, fibrillation is sparse, and they are often multinucleated. The general arrangement of the structures comprising the auriculo-ventricular junction system was shown in diagram. The structure of Purkinje's substance was exemplified by exhibits. When the auriculo-ventricular bundle is damaged, either by experimental interference or by disease, the impulses which normally pass through it are hindered in their transmission from auricle to ventricle and a condition known as heart-block results. Clinically, damage to the bundle has been repeatedly found to give rise to heart-block. The ventricle in this condition beats slowly (more slowly than the auricle), and frequently the condition is accompanied by phenomena dependent upon deficient cerebral nutrition. The Adams-Stokes syndrome is a condition in which bradycardia and epileptic phenomena are combined. Exhibits showed lesions of the auriculo-ventricular bundle in patients who developed this syndrome.

It is now known that many disturbances of the heart's mechanism may occur in patients. Our knowledge of such irregularities is chiefly derived from observations from two new methods: the venous pulse method and the electro-cardiographic method. The first purpose of graphic record in the investigation of irregularities is the determination of the time at which auricle and ventricle respectively enter systole. The exhibit showed that the instrument generally employed for venous pulse work is Mackenzie's polygraph; it consists of a registering apparatus and two writing tambours, which are connected to receivers resting upon an artery and vein respectively. The arterial record gives, after certain corrections are made, the time of onset of ventricular systole (this may also be obtained by curves taken from the apex beat). The venous record is an approximate duplicate of intra-auricular pressure and gives the time of onset of auricular systole. The venous pulse consists of three waves—auricular, carotid, and ventricular—and the interpretation of these waves and the dips which intervene between them were illustrated. The time relationships of the venous curve to the curves of carotid, aortic, ventricular, and auricular pressure were also shown. The second method employed, the electro cardiographic, also gives the times of onset of auricular systole and ventricular systole. Electro-cardiograms are obtained by means of a highly sensitive galvanometer, the invention of Professor Einthoven. The patient is placed with two limbs (usually the right arm and the left leg) in baths of salt solution, and these baths are connected to the galvanometer. The electric current produced in the body as a result of the heart beat moves a fine fibre, the shadow of which is magnified and photographed. Both auricle and ventricle yield currents which may be recorded. A diagram of a typical normal electro-cardiogram was given.

It has been said that the normal heart beat is probably generated in the neighbourhood of the sino-auricular node.

This was shown by an electro-cardiographic method. The shape of the electro-cardiogram is determined by the direction in which the heart muscle contracts. If it contracts in the normal direction the electro-cardiogram will be normal. If a contraction is started at an abnormal point it will travel in an abnormal direction, and will give rise to an electro-cardiogram of a distinctive type. Now the auricular contraction and the ventricular contraction each have their representatives in the electric curve. If an abnormal beat is artificially started in the auricle at a point distant from the pacemaker, the resultant auricular curve will be abnormal. The ventricular curve will be much the same in whatever part of the auricle the beat is started, for it will always start the ventricle contracting from the same point.

One of the simple forms of irregularity of the heart may be taken as a type. The ventricular extra-systole is a premature beat which, arising in the ventricle before the normal response to the auricle is due, produces an interruption of the ventricular rhythm. It does not disturb the auricular rhythm. The ventricle, having contracted prematurely, awaits the arrival of the next auricular impulse; the pause so produced is termed the "compensatory pause." Diagrams showing the mechanism of the heart and the curves produced in carotid and jugular tracings by ventricular extra-systoles were shown. The appearances found in radial pulse curves and the auscultatory signs when ventricular extra-systoles, seldom or frequent, early or late, interrupt the normal rhythm were illustrated. It was clearly shown that several ventricular extra-systoles may follow each other in rapid succession (constituting a short paroxysm of tachycardia), yet the fundamental rhythm may not be disturbed.

The mechanism of the heart's action when auricular extra-systoles are present was shown and was contrasted with that occurring with ventricle extra-systoles. Tracings were shown of paroxysmal tachycardia which may be due to one or other of the following causes: neurogenous, rapid alterations of frequency as a result of nerve influences, and cardiac, due to the degeneration of new impulses (of pathological type) in some portion of the cardiac musculature. The impulses are subdivided into successive impulses: (*a*) an auricular form, and (*b*) a ventricular form; and multiple impulses—auricular pulsation. The cardiac forms and those which arise as a result of the formation of successive impulses of a pathological type were dealt with by means of tracings. Demonstrations indicated that this impulse formation is independent of the withdrawal of vagal impulses. Figures were shown to prove that the paroxysm arises in the ventricle, and demonstrated the possibility of the origin of a spontaneous and rapid rhythm away from the heart's pacemaker. New and dominating rhythms must now be recognised as an important factor in cardiac pathology. The polygraph curves showed the abrupt onset and offset of the paroxysms and the long pauses which succeed them. These are features of dislocated rhythms. The electro-cardiographic curves demonstrated definitely that the rhythms are dislocated or ectopic.

Auricular fibrillation gives rise to the commonest clinical irregularity. The proof of the condition in man was shown by a close comparison of clinical and experimental curves. By electro-cardiograms it was shown that oscillations are maximal in the patient when the leading-off electrodes are placed over the right or superficial auricle, and that the oscillations are maximal in the animal when the electrodes are placed on the auricle. Auricular fibrillation is frequently paroxysmal. When the normal rhythm returns the oscillations are replaced by variations, representative of the returned and coördinate auricular activity. Complete heart irregularity occurs in the horse, and the auricle may be seen to fibrillate on opening the chest.

When there is damage to the conduction of impulses from auricle to ventricle heart block is seen. It was shewn to occur in several grades. At first the interval between the onsets of auricular and ventricular systoles is increased. Then ventricular beats are occasionally missed. Later ventricular beats are missed at frequent intervals. Lastly, separate rhythms are established in auricles and ventricles. Auricular fibrillation is sometimes encountered in patients with slow pulses. That the combination is due to the presence of heart block and fibrillation in the same subject was shown by tracings.

Curves were shown exemplifying a condition in which there is a variation in the strength of alternate heart beats. Nothing is known of its mode of production, but it is of great importance on account of its grave prognostic significance.

Extra-systoles started in the ventricle are not uncommonly met with as a complication of auricular fibrillation; when occurring regularly they give rise to the coupled rhythm, the coupling being most frequently seen when digitalis is being administered. Tracings were given in support of this.

The Section of Neurology, with Dr. S. A. K. Wilson as honorary curator, was most interesting, the methods and instruments used for the investigation of the central nervous system attracting great attention. Progress in our knowledge of the structure and function of the central nervous system is likely in the immediate future to depend a good deal on the application of fine insulated needles for the production of electrolytic lesions or electrical excitation by Dr. R. H. Clarke's stereotaxic instrument.

The Section of General Surgical Pathology, under the honorary curatorship of Dr. J. A. Braxton Hicks, contained specimens of splenic enlargements showing most of the causes of enlargement of the spleen, the diagnosis for the main part resulting from a consideration of the general aspect of the case, together with a careful blood examination. The series of specimens of ulcerations of the tongue showed particularly those due to syphilis, and also the relation of such chronic ulcerations to epithelioma. Diagrams and pictures were exhibited of cancer of the tongue and conditions which may be mistaken for cancer. There was a series of specimens illustrating some of the tumours that may occur in connexion with muscles.

In the Section of Dermatology there was an excellent series of wax casts, plates and photographs of skin diseases, and wax casts of some of the cutaneous lesions of syphilis. Plates and photographs of skin diseases were also on view, and photographs illustrating the dermatitis caused by daffodils and by handling large masses of the flowers in the Scilly Islands.

An exhibit by Sir Jonathan Hutchinson illustrated the doctrine of palæogenesis in the colouration pattern in various animals, and the relation of this pattern to certain peculiar conditions displayed in various diseases. The exhibit suggested that the pattern, with endless modifications of detail, may be traced through the whole animal world.

The Section of Ophthalmology, with Mr. M. S. Mayou as honorary curator, contained photographic plates illustrating various ophthalmic diseases, drawings of congenital cataract, and tests for colour-blindness.

The Section of Laryngology, under the honorary curatorship of Mr. W. D. Harmer, and the section of Otology, with Mr. Sydney R. Scott as honorary curator, and the section of Radiology were excellent examples of how such exhibits shou'd be organised.

To detail in any comprehensive way the contents of the museum is obviously impossible; enough has been said to show why it was a thoroughly satisfactory and successful feature of the meeting of the Association.

BRUSSELS MEDICAL GRADUATES' ASSOCIATION.—The annual meeting and banquet was held in the Kaiserhof Restaurant of the Brussels Exhibition on August 6th. Amongst those present were Dr. Richard Paramore (President), Sir Griffith Boynton, Mr. E. Mortimer Ehrlich, Mr. W. F. Kirby, Dr. W. E. Kirby, Dr. E. O Fountain, Dr. F. Howard Humphris, and Dr. Arthur G. Haydon (honorary secretary). The President read letters of regret a-being unable to attend from Professor G. Rommelaere (President of the University), Professor J. Thiriar, Professor C. T. Hanben, and M. Lavachery (secretary of the University). He then gave the toast of "The Visitors," coupled with the name of Sir Griffith Boynton, who expressed his pleasure at being able to attend, and proposed the toast of "The Brussels Medical Graduates' Association." Dr. Haydon said that during the 25 years of the existence of this association this was the first annual meeting and dinner which had been organised in Brussels, and he hoped that the next meeting held abroad would be in Paris at the exhibition of 1920. Dr. Francis H. Edwards was elected president for the ensuing year; Dr. Fountain, vice-president; Dr. Major Greenwood, honorary treasurer; Dr. Haydon, honorary secretary; and ten members of council. All past presidents were elected vice-presidents.

THE METROPOLITAN WATER-SUPPLY.

THE Fourth Annual Report on the Results of the Chemical and Bacteriological Examination of the London Waters for the 12 months ended March 31st, 1910, by Dr. A. C. Houston, the Director of Water Examination to the Metropolitan Water Board, was presented to the Board on July 15th as an appendix to the reports of the Water Examination Committee. The following is an abstract of Dr. Houston's carefully drawn up report:—

The introduction.—Dr. Houston refers to the reports of the Balfour Commission of 1893, of the Llandaff Commission of 1899, and of the Arbitration Court of 1902, and from these findings he states that in the past the "safety" of London water was based largely on the following circumstances: (1) The health prosperity of London, both as regards diseases in general and epidemic water-borne disease in particular; (2) the alleged safety of a sand-filtered water; and (3) the innocuous character, as some persons have assumed, of the raw river water.

Dr. Houston deals with these points seriatim, and points out as regards (1) that it is unsafe to rely on the health prosperity of London as a reliable safeguard against future water-borne epidemics. It is well known that during the last 30 or 40 years there has been in London a comparatively low general death-rate and enteric fever death-rate, but it is pointed out that it is always dangerous to prophesy future security from past and present immunity. The concrete instance of the Lincoln epidemic of typhoid fever in 1904 and 1905 is given as an illustration "where an epidemic caused in less than six months as many deaths as had occurred from a similar cause during the previous eighteen years," and this example illustrates the danger attending the interpretation of health statistics without the ballast of epidemiological experience.

(2) Dr. Houston states that though he is fully convinced of the remarkable bacteriological improvement effected by sand filtration, he still remains a sceptic as regards its absolute value. He says that there is no convincing evidence that sand filters exercise a special selective action in the separation of pathogenic bacteria, and we know that excremental bacteria may pass through them in much the same proportion as innocuous microbes. Sand filtration reduces the number of bacteria about 98 to 99 per cent., but if the filters exercise no special selective action the reduced number of bacteria which pass through the filters are as significant as those which are left behind, the difference being a reduction of numbers only. It is not known how many microbes of of enteric fever, for example, would be necessary to cause the disease in a particular individual, but given a water polluted with typhoid bacilli it is obvious, as Dr. Houston points out, that filtration means only a reduction of dose of pathogenic microbes to the consumer and does not free him from the risk of infection. The Lincoln epidemic is referred to as an illustration of the danger of relying on filtration as an efficient safeguard, for the polluted water of the river Witham was filtered, though not stored, antecedent to filtration.

(3) The assumed innocuous character of the raw river water was apparently based chiefly on an exaggerated belief in the doctrine of the self-purification of rivers, and the favourable health statistics of London were brought forward as arguments in favour of this view. Dr. Houston points out the wide gulf between "prospective security" and "past immunity," and also states that it is well known that the Thames and Lee above their intakes contain water far from pure, chemically and bacteriologically.

In his first annual report (1905) Dr. Houston showed that the raw waters above the intakes contained a considerable number of excremental bacteria, and that the filtered waters in the case of these works using raw river water also contained excremental bacteria, though in fewer numbers, the difference bacteriologically being one of quantity only. There has been a great improvement during the last five years as regards the purity of the filtered river waters, owing to the proper appreciation, as the result of Dr. Houston's researches, of the most important part played by storage antecedent to filtration. As regards excremental bacteria, the purity of the filtered river water now (1910) is considerably greater than that which was obtained in 1905. It is pointed out that the first duty of the Water Board is to control as far as possible the multiple pollutions affecting the watersheds of the Thames and Lee rivers. The conservancy of these rivers rests in the hands of the "Thames and Lee Conservancies," and all that the Water Board can do is to bring pressure to bear through their representatives on boards in cases where the purity of the supply appears to be threatened.

Dr. Houston states that his opinion of the quality of the raw sources of London's water-supply has remained unchanged during the last five years, though there are certain circumstances which would lead one to look with less disfavour than previously on the quality of the rivers Thames and Lee. As a result of carefully elaborated bacteriological tests Dr. Houston states that although the Thames and Lee are sewage-polluted rivers and contain excremental bacteria in abundance, there is direct evidence to show that the microbes of epidemic disease—e.g., the typhoid bacillus—cannot be habitually present in them, unless possibly in such small numbers or in such altered conditions as to be non-recognisable by tests of proved practical utility. He adds that even if they were so present adequate storage would result in their final extinction.

Storage.—The present position (1910) as regards storage if not entirely satisfactory, marks a great advance, for now all the storage reservoirs are utilised to their fullest extent and, so far as this is practically possible, no river water is ever passed on to filter-beds without previous storage. Dr. Houston states that storage is nature's method of sterilisation without the addition of any sterilising agent to the water. Careful tables are given, showing for all the London works the remarkable beneficial effects of storage as evidenced by exhaustive bacteriological tests, and Dr. Houston concludes from his results that London is not drinking filtered raw river water, but water which, antecedent to filtration, has already undergone a striking change for the better. He states that his results place a new and favourable complexion on the safety of the metropolitan supply, and that the "quality question" of the London water in 1910 is totally different from that of 1905.

Meteorological notes.—The rainfall returns of Dr. Mills for the Thames and Lea valleys were 32·33 and 28·85 inches respectively for the 12 months ending March 31st, 1910. A valuable table is given showing for each month the rainfall, the average daily flow of the river Thames, and chemical and bacteriological tests. In December, 1909, the bacteriological conditions as estimated by the presence of bacillus coli and the chemical condition as estimated by oxygen absorbed from permanganate both showed a maximum of impurity. Dr. Houston states that he is unable to accept the view that unfavourable meteorological conditions afford sufficient justification for the delivery into supply of imperfectly purified water.

Storage.—The beneficial effects of storage of the pre-filtration water have been carefully examined from the bacterial and chemical side, and 20 conclusions are given showing the different ways in which this process aids in the purification of the water. Dr. Houston states that the habitual use of stored water would lighten the grave responsibilities of the Water Board as regards the safety of the London water-supply, and would tend to create a sense of security amongst those who watch over the health of the metropolis.

The various "complaints from consumers" are tabulated but only 60 were received during the 12 months under consideration. Usually any really serious defect in the water supplied has been due to some local defect in the pipes or cistern of the house affected.

Bacteriological results.—A great many elaborate investigations have been made into the bacterial condition of the London water during the year, and the results are tabulated. The following figures are of special interest:—

	Thames.	Lea.	New River
Raw water (microbes per c.c.) ...	5268	37,071	2801
Filtered water (microbes per c.c.)	14·3	21·9	10·0
Percentage reduction	99·8	99·9	99·6

And also for the filtered waters, the respective degree of purity as regards number of bacteria per cubic centimetre for the different stations is of interest:—

	Average number of microbes per c.c.		Average number of microbes per c.c.
Kent	7·2	Southwark and Vauxhall	14·6
New River...	10·0	East London (Thames)	18·0
Grand Junction ...	11·8	Kempton Park ...	19·6
Lambeth	11·9	East London (Lee)...	21·9
West Middlesex ...	14·1		

Careful investigations have been made as to the occurrence of bacillus coli and bacillus enteritidis sporogenes in the raw and filtered waters. Also Dr. Houston has carefully investigated the type of the bacillus coli organisms present. Some organisms of this kind do not fully comply with the tests of the typical bacillus coli and these varieties are differentiated.

Chemical results.—The albuminoid nitrogen test and the permanganate tests have been regularly applied periodically to the different waters forming the London supply. These results are tabulated. The Kent and Lee Valley well waters gave very satisfactory results as regards both the bacteriological and chemical tests. A comparison of the results of 1909–10 with those of the preceding 12 months (1908–09) showed that as regards the Thames, Lee, and New River waters the chemical results were quite unsatisfactory as to the raw waters. The albuminoid nitrogen figures were from 18 to 35 per cent. higher and the oxygen absorbed from permanganate figures were from 38 to 45 per cent. higher. The filtered waters as judged by the same chemical tests showed a corresponding but less marked deterioration. Bacteriologically the raw waters contained more bacteria during 1909–10 than in the period 1908–09, and their bacillus coli tests were less satisfactory. The filtered waters, however, showed a slight decrease only in purity which, having regard to the unfavourable meteorological conditions and unsatisfactory state of the raw waters, should afford some ground for satisfaction.

A section of the report deals with vital statistics in their relation to the safety of the metropolitan water-supply. The figures given are very satisfactory, but Dr. Houston wisely adds that the subject is beset with so many difficulties that it does not lend itself to any abridged form of treatment.

Conclusions.—Dr. Houston draws a number of valuable conclusions from the material of his report, and these relate to (1) raw waters; (2) storage; (3) filtration; (4) service reservoirs; (5) the water as finally delivered to consumers; (6) the position of the London water question in 1910; and (7) the question of accident. The conclusions dealing with the last two subjects are of such great importance that they are given *in extenso*.

Position of the London Water Question in 1910.

The *prospective* security of London, as regards its water-supply, should not be based, or only to a limited extent, on past comparative immunity from water-borne diseases. Nor should much, if any, reliance be placed on a comparison between the health statistics of towns using upland and river sources of water-supply respectively where *inter alia* the conditions of life render such comparisons of doubtful or negligible value.

Reliance should no longer be placed on sand filters as an absolute and final safeguard. Storage reservoirs should no longer be used merely to cover periods of emergency.

The aim now should be to abstract *raw* river water as judiciously as possible, to store it for as long a period as is possible, and to filter it as perfectly as is reasonably practicable.

Conceptions as regards safety should be no longer based on relative and often unwarrantable assumptions, but on indices of proved utility (e.g., the death-rate of B. coli). Storage should be no longer regarded as mere sedimentation, but as a devitalising and equalising factor of the utmost importance.

The raw waters are not only now tested for the total number of bacteria, the number of bacteria growing at blood heat, and the number of B. coli and excremental bacteria in general, but they are also examined for the presence of the microbes of water-borne disease.

Representative samples of all the water previous to filtration are now examined at frequent intervals for B. coli and excremental bacteria in general, and in this way a constant check is kept on the quality of London water *antecedent* to filtration.

The filtered waters also are always examined for the total number of bacteria, the number of bacteria growing at blood heat and the presence of B. coli. In addition to the more elaborate tests, rapid tests (chemical and bacteriological) are also made which allow of advance telephone reports being sent to the various works, chemically on the same day as the samples are collected, and bacteriologically the day after.

The Question of Accident.

In previous reports it has been pointed out that it is not only necessary to endeavour to reduce the pollutions of the Rivers Thames and Lee and to store, as well as to filter, the raw water in a satisfactory manner. It is also necessary to guard against the possibility of accident. In this connection questions of drainage, health of workmen, suction of impure water into water mains, laying of new mains, alteration to existing mains, condition of service reservoirs, &c., deserve attention.

To a progressively increasing extent the safety of London's water-supply is being secured; it needs to be remembered, however, that it is useless to purify water to a high standard of excellence if the door is left open to final avoidable accident.

There is a growing tendency to regard any sudden accidental gross infection as of most dangerous significance, and to consider more constant but highly diluted pollutions as relatively speaking of lesser importance. The method of water purification now in progress (storage) renders the position "safe" as regards the river water provided that no *fresh* and dangerous contamination takes place in connection with the storage reservoirs, the filter works, the service reservoirs or the delivery mains.

It is true that the purest water-supplies in the world are also open to the same objection—but in view of the grave interests involved, every effort should be made to guard against the possibility of accident.

In conclusion, my final opinion is that the "*quality* policy" of the Metropolitan Water Board should be directed towards securing an "epidemiologically sterile" water (i.e., a water containing none of the microbes associated with water-borne epidemic disease) *antecedent* to filtration by storage (sedimentation, devitalisation, and equalisation) aided, if needs be, by the occasional employment of supplementary processes of water purification.

Dr. Houston has also presented to his committee a "Fifth Report on Research Work" in connexion with the metropolitan water. This deals with—

I. The results of the examination of samples of raw Thames and Lee water for the presence of the typhoid bacillus and Gartner's bacillus. A detailed description of the methods and tests employed is given. A careful examination of 5451 colonies from 24 samples of raw water was made for the organisms under consideration; one which resembled Gartner's bacillus and another which resembled the typhoid bacillus were obtained. A detailed description of the behaviour of the suspected pathogenic microbes to the various bacteriological tests is given in Addendum C, and Dr. Houston states that the resemblance of the isolated bacteria to the pathogenic microbes is so close that the identity would not be likely to be questioned did the suspected bacteria come from a pathological case.

II. The results of the examination of the raw river waters for fæcal streptococci. Dr. Houston concludes on the basis of the streptococcus test that 10,000 gallons of the raw river waters contain less than 1 pound of human fæces. He states also that since the bacillus coli results show that the processes of storage and filtration improve the raw water bacteriologically at least 1000 times, it may inferentially be concluded that the chances of any appreciable number of fæcal streptococci ever reaching the consumer of stored and filtered water are extremely remote.

III. The results of the examination of the pre-filtration water—i.e., representative samples of practically all the London water (raw, stored, gravel, well, and mixed water) antecedent to filtration. Dr. Houston draws some valuable conclusions from these investigations which indicate the urgent need for a modification in the present system of storage at the different stations. He states that the different works are most unequally circumstanced in regard to the important question of the availability of prefiltration water.

IV. The negative results of the examination of samples of raw Thames, Lee, and New River water for the presence of "Morgan's No. 1 Bacillus." This bacillus has been regarded by Mr. H. de R. Morgan as being the cause of the infective enteritis of infantile diarrhœa. It is satisfactory to learn that the experiments made to isolate this organism from samples of the raw river waters have proved negative.

V. The isolation of cholera vibrios from samples of raw river water artificially infected with only a few vibrios. Dr. Houston has been performing numerous experiments in order to perfect his technique and to determine the delicacy of the tests applied for the detection of the cholera vibrios in the London water. It is assuring to learn that the cholera vibrios die very rapidly in raw Thames, Lee, and New River waters as the result of storage in the laboratory. At least 99·9 per cent. perished within one week, and in none of the experiments could any cholera vibrios be found even in 100 cubic centimetres of water three weeks after its infection.

THE ANNUAL REPORT OF THE METROPOLITAN ASYLUMS BOARD FOR 1909.

THE Metropolitan Asylums Board is one of the most important branches of London preventive medicine. Providing as it does for a population of nearly 5,000,000, spread over an area of 121 square miles, employing over 5000 persons, and spending a revenue of over £1,000,000 a year, it carries on its many activities with, on the whole, a highly organised efficiency, so much so that its conduct is invariably quoted as an example of what good Poor-law work may develop into. No less than 50 institutions are possessed and managed by the Board, including 15 infectious diseases hospitals, with accommodation for over 9000 patients, four imbecile asylums, with accommodation for over 7000, and 17 institutions for children accommodating over 3500, and including one ringworm and two ophthalmia schools, three seaside homes, six homes for defectives, one infirmary, and

three remand homes. The rest of the institutions are made up of the office of the Board, the central stores, the bacteriological establishment, the training ship, and the land and river ambulance services.

Statistics.

During the year ending Dec. 31st, 1909, there were 15,384 admissions of scarlet fever, 4603 of diphtheria, 331 of enteric, 4 of typhus, 2 of cerebro-spinal fever, and 15 of small-pox. There are always more cases notified than admitted, but the disproportion is greatest in the cases of enteric and cerebro-spinal fever, of which there were 1043 and 111 notifications respectively. On Jan. 29th, 1909, the Children's Infirmary was opened at Carshalton with 1000 beds, and is now the largest children's hospital in the world. The children admitted are the "sick, convalescent, and debilitated children" from the metropolitan workhouses and infirmaries. From Jan. 29th to December, 1909, 2042 patients had been admitted, of which 1027 were discharged, 113 transferred to other institutions of the Board, 89 died, and 813 remained. Of these patients, no fewer than 662 were infants under 3 years of age, an unexpected fact which led to the nursing staff being largely increased. Among the cases treated were 317 of various tuberculous diseases, 159 of otorrhœa, 170 of marasmus, 357 of debility after various illnesses, 101 of rickets, and 79 of valvular disease. Nearly 100 operations were performed, ranging from amputation at the hip to removal of adenoids.

Ambulance Question.

The report of the Ambulance Committee records steady progress. The western ambulance station is now equipped with seven motor ambulances, the eastern will be the next to be transformed, and the other stations are being introduced to the advantages of motor vehicles. The committee express surprise that facilities should have been granted for the passage of a private member's Bill in Parliament conferring powers on the London County Council to maintain an ambulance service within the County of London after the Board had been recommended as the authority for this purpose by a Departmental Committee of the Home Office, the London County Council concurring. Perhaps it may be found possible for the Board and the London County Council to undertake a joint scheme, but our readers know that the whole ambulance question is a fruitful source of dispute.

Finance.

One of the most satisfactory features of the Board's report is that of the financial side, for although the daily average number of inmates of its institutions was 75 in excess of the previous year, its net expenditure was less by £44,164, while for the third year in succession it has not been necessary to raise any loan, and the Board has been able to reduce its indebtedness by £184,399, leaving its debt of £2,840,645 more than twice covered by the value of its institutions. The debt, it is estimated, will be completely paid off in 12 years, and the citizens of London will then possess absolutely over £6,000,000 worth of increasingly valuable property. This result of the managers' finance is highly satisfactory, and we presume in saying this that the expectations are well founded.

Royal Commission on the Poor-laws.

The report this year possesses a particular interest in view of two events: (1) the reports of the Royal Commission on the Poor-laws; and (2) the recent decision of the Board (subsequent to the report) to admit cases of measles and whooping-cough. If the recommendations of the Poor-law Commission were carried into law, either on the Majority or Minority plan, their effect would be to do away with the Board and hand over its functions to another authority. The reasons against this are weighty, and appear in the excellent record of service possessed by the Board and in the value of the experience of its members and of its organisation. Both Minority and Majority Commissioners bear testimony to the excellence of the Board's work and have therefore, it appears, fully weighed the reasons against the changes they propose. If, and when, the findings of the Commissioners become law, every effort will presumably be made to conserve what is valuable of the Board's present constitution. Some changes we should welcome, but no case can be made out for anything approaching abolition. If the powers of the Board were handed over to a statutory committee of the London County Council, a proportion of the present members of the Board would doubtless be coöpted on to that committee, which might, indeed, not be so very materially different in *personnel*. The matter is, at any rate, one for detailed adjustment in the committee stage of a Bill in Parliament when the time arrives. The prospect of change does not appear very imminent.

Admission of Cases of Measles and Whooping-cough, &c.

The decision to admit measles and whooping-cough cases, with also puerperal fever and erysipelas, is a supremely important matter. It has been found for some years that there is a large margin of beds unoccupied in ordinary fever hospitals and a larger excess in the small-pox hospitals. This is so marked that the managers recommend that in future only the Long Reach Hospital and the shore buildings adjoining be reserved for small-pox, the Joyce Green Hospital being used for other infectious diseases. It is safe to do this in the managers' opinion, for they say, "experience has so fully established the fact that high numbers of small-pox correspond with low numbers of scarlet fever, and *vice-versâ*," a fact which places a great deal more accommodation at the managers' disposal. The use to be made of the 800 beds at the Orchard Hospital will depend on the experience gained in dealing with the additional cases suggested. The reason which has led the managers to include measles and whooping-cough is, first and foremost, not the prevention of infection but the desire to reduce the mortality from these diseases, which in the years 1891–1900 was greater than that from scarlet fever, diphtheria, and enteric fever combined. Dr. H. E. Cuff, the medical officer of the Board for general purposes, has brought forward very strong evidence as to the advantages of providing hospital treatment for measles and whooping-cough, and considers that this can be done in ordinary infectious hospitals without risk of interchange of infection. The measures of disinfection required are simple and inexpensive, and the only alteration in the internal arrangement of the hospital needed will be the allocation of separate receiving rooms for new patients. It is hoped that the admission of these cases will prevent the sequelæ of measles and whooping-cough, which, as Dr. Cuff says, are more serious in their after-effects on the future efficiency of the individual than those which are associated with scarlet fever.

Additional Provision for Sick Children.

The meeting of the Board on July 8th which decided to admit measles and whooping-cough also decided to make further provision for the sick and debilitated children from the workhouses and infirmaries, the accommodation at Carshalton having proved inadequate. The Park Hospital was decided upon to act as an adjunct to the Infirmary at Carshalton, although an amendment to substitute the Brook Hospital was only lost by 20 votes to 15. In the circumstances we do not feel at all sure that the Park Hospital is the one best adapted for this purpose. The Park Hospital is one of the newest and most up-to-date fever hospitals, but, while very efficient for this purpose, does not appear to have adequate accommodation out of doors in the grounds for the convalescent and debilitated children who would make up a large part of its population. There is further the question of hardship to residents in the district who would have to be sent either to the Brook Hospital, Shooter's Hill, or to Joyce Green at Dartford, which would in some cases entail an unduly long journey. This very important matter has not received proper consideration.

Time-limit for Assistant Medical Officers.

Another matter to which we should like to draw attention is that of the time-limit for assistant medical officers, which has now been fixed at four years, with a maximum of ten years in the case of juniors promoted to be seniors. The reason for these limits is somewhat obscure. On the one hand, why keep an inefficient man four years, and on the other, why get rid of a good servant at any arbitrary period? The matter requires further elucidation; a fuller indication of the Board's reasons for the course pursued is desirable.

Medical Supplement.

The report ends with a medical supplement, including valuable and interesting papers and statistics. The assistant medical officer at Carshalton, Dr. F. W. W. Griffin, contributes a paper on the Treatment by Tuberculin at the Children's Infirmary, and says that "the majority of cases illustrated

well the value of tuberculin as a solvent of tuberculous tissues." Dr. J. D. Rolleston has a paper on Vincent's Angina, and Dr. E. W. Goodall records 3 cases of this, and 35 cases of a Fatal Variety of Ulcerative Sore Throat. Dr. F. M. Turner has a valuable paper on "return" cases.

In conclusion, we congratulate all concerned in the preparation of this annual report, which is a substantial record of well-organised and efficient activity.

BOARD OF AGRICULTURE AND FISHERIES: REPORT FOR THE YEAR 1909.

WE have received from the Secretary to the Board of Agriculture a report addressed to the President of that Board, which contains, *inter alia*, a valuable contribution to comparative pathology from the pen of Mr. S. Stockman, the chief veterinary officer.

The near relationship existing between certain of the most destructive maladies common to man and the lower animals is now generally recognised; and it is satisfactory to realise that the knowledge acquired by pathological study, whilst tending to the elucidation of the nature of certain human diseases, is now being utilised with ever-increasing success for the mitigation of those scourges which periodically infest our flocks and herds and which are known to depend on removeable causes.

Among diseases of this class tuberculosis occupies, for well-known reasons, a foremost place. In the course of the year 1909 a Statutory Order was prepared by the Board of Agriculture which, had its full operation been attained, would undoubtedly have afforded increased protection to the public health against the spread of tuberculosis by means of milk used for human food. As a result of the findings of the recent Royal Commission on Tuberculosis, the Board had become satisfied that this disease is unquestionably communicable from the cow to man. Considering this question in relation to animals, the fact of such communicability by means of the milk-supply appeared to the Board to have a material bearing on administrative policy. Any measure tending to diminish the number of tuberculous bovine animals in the country must obviously reduce the risk of the spread of tuberculosis among human beings; and the Board realised that if by any means infection could be eradicated from milch cows, a material step would have been achieved in the campaign against the disease in man. The Board accordingly decided that its first endeavours should be to secure the destruction of every cow suffering from tuberculosis of the udder and of every cow giving tuberculous milk, as well as of all bovine animals emaciated from tuberculosis, since these are known to disseminate the disease. Political exigencies, however, led to the withdrawal of this beneficent Order, as well as of Mr. John Burns's Bill on similar lines which was presented to the House of Commons in May, 1909. We trust, nevertheless, that the issuing of this Order has merely been postponed, and that effect thereto will be given at an early date.

Among other serious diseases for the most part common to the mammalia and transmissible from animals to man, Mr. Stockman gives interesting particulars concerning the prevalence of glanders, anthrax, and trichinosis.

Glanders.—In consequence of the very extensive prevalence of glanders among horses in London during 1908, stringent operations were set on foot for stamping out that disease, and with such success that in the following year an encouraging decrease was experienced in the numbers affected. During the year 1909 the number of outbreaks was 533, and that of animals attacked was 1753, the numbers in the previous year having been 789 and 2433 respectively. Mr. Stockman reports that glanders is not generally a very fatal disease, and the experience of past years is regarded by him as demonstrating the necessity of slaughtering diseased animals if this virulent disease is to be stamped out.

Anthrax.—The number of outbreaks of anthrax reported in the year under notice was 1317, this total including as well as cattle, 70 sheep, 310 swine, and 74 horses. In one infected farm more than half the cattle died from anthrax. In this, as in previous reported instances, the high death-rate appears to have resulted from carelessness in the disposal of the blood or of the carcase of the animal first attacked. In the year 1909 both the reported outbreaks and the animals attacked were considerably more numerous than in the previous year, but the totals represent only the cases reported as anthrax, not those confirmed as such after examination in the laboratory. From control experiments it is stated that at least one-third of the 720 outbreaks of anthrax reported locally during the year should be eliminated from the list on account of errors in diagnosis.

Trichinosis.—In the course of his remarks on trichinosis Mr. Stockman expresses the opinion that trichinosis of the pig is exceedingly uncommon, and he bases that opinion on the fewness of clinical cases of that disease which occur in human beings in this country. "So far as I am aware," he says, "there has been no outbreak of trichinosis sufficiently severe to attract attention in human beings in this country since 1871, when an outbreak occurred in Cumberland, and the pork which was the cause of it evidently contained a sufficient number of parasites to cause severe illness among the consumers." Experience tends to show that pigs in Great Britain, when they do become infected with this dangerous parasitic disease, owe the infection to the presence of infected rats. Among rats the disease is kept up, not only by embryos from the intestines contaminating their food, but also by the cannibalistic habits of these vermin. The following case occurring in Exeter during 1909 is interesting in this connexion. In February last the medical officer of St. Thomas forwarded to the Board a portion of salted pig's flesh for examination, saying that on microscopic examination he had found in it what he thought to be the Trichina spiralis, and that a labourer who had consumed the flesh had become very ill with what might turn out to be trichinosis. On examining the specimen it was found to be badly infested with Trichina spiralis. On visiting the farm one of the Board's veterinary inspectors found that the flesh had come from a sow which had been ailing for a fortnight, whereupon she was slaughtered, pickled, and used for food. Two people who had partaken of the flesh became seriously ill. The farm was overrun by rats, one of which was forwarded to the Board's laboratory for examination. The abdominal muscles of this rat contained a very large number of trichinæ. From this it seems highly probable that in the case reported the sow became infected through the agency of rats.

OPENING OF THE LONDON MEDICAL SCHOOLS.

WINTER SESSION 1910–11.

St. Bartholomew's Hospital.—The session will open on Oct. 3rd. In the evening the old students' dinner will be held in the great hall of the hospital at 6.30 for 7 o'clock. Mr. C. B. Lockwood will preside.

Charing Cross Hospital.—The session will be opened on Oct. 3rd, at 3.15 P.M., by the annual distribution of prizes to the students in the out-patients' hall at the hospital by Lady Juliet Duff, followed at 4.30 P.M. by the delivery of the Eighth Biennial Huxley Lecture, on the Hereditary Aspect of Nervous and Mental Diseases, by Dr. F. W. Mott. The dinner of the past and present students will take place on the evening of the same day.

St. George's Hospital.—The session will open on Oct. 1st. The prizes will be distributed, and the annual oration, "On Prizes," delivered, by Dr. S. Squire Sprigge, at 3 o'clock. At 4.15 the annual meeting of the St. George's Hospital Club will take place. The annual dinner will be held at Prince's Restaurant at 6.30 for 7 o'clock, when Mr. G. R. Turner, surgeon to the hospital, will preside. Applications for dinner tickets should be addressed to "The Dinner Secretaries, St. George's Hospital, London, S.W."

Guy's Hospital.—The session will open on Oct. 3rd.

King's College.—The session opens on Oct. 1st. The annual dinner of past and present students will be held on Oct. 3rd, at 6.30 for 7 P.M., at the Waldorf Hotel, Aldwych, W.C., when Dr. John Phillips will preside. Applications for tickets should be made to Dr. H. J. M. Playfair, 7, Upper Brook-street, W.

London Hospital.—The session will commence on Oct. 1st. The old students' dinner will be held on Oct. 3rd at the Hotel Cecil at 7.30 P.M., when the chair will be taken by Mr. Mark Hovell.

London (Royal Free Hospital) School of Medicine for Women.

—The inaugural address will be delivered by Dr. E. W. Roughton on Oct. 3rd at 4 P.M. The subject of the address will be "Woman's Sphere in Medicine."

Middlesex Hospital.—The session will open on Oct. 3rd at 3 P.M., when Mr. W. Salmon Nowell will give an introductory address, after which the prizes gained during the year will be distributed. The annual dinner of the past and present students will take place at the Trocadero on the same evening at 7 P.M., when Mr. Thomas H. Kellock will preside.

St. Mary's Hospital.—The session will commence on Oct. 3rd, when the prizes and awards for the past year will be presented by Sir A. Conan Doyle. The annual dinner of past and present students will be held on Oct. 3rd, when Mr. Ernest Lane will preside.

St. Thomas's Hospital.—The session will open with an old students' dinner, which will take place at the Hotel Cecil on Oct. 4th. Mr. W. F. Haslam will preside.

The London School of Tropical Medicine.—The inaugural address on the occasion of the opening of the winter session will be delivered by Professor H. A. Miers, under the presidency of Sir West Ridgeway, on Oct. 14th.

University College.—The session will be opened on Oct. 3rd, at 3 P.M., when the Dean's report on the progress of the school will be read, the medals and prizes distributed, and an introductory address delivered by the Dean of Salisbury. The chair will be taken by Sir Thomas Barlow, President of the Royal College of Physicians of London.

Victoria University of Manchester.—The session, which will be opened on Oct. 3rd, will be inaugurated by an address on "The Evolution of Surgery," by Professor William Thorburn.

Westminster Hospital.—The session will commence on Oct. 3rd, and the annual dinner will take place on Oct. 6th at Oddenino's Imperial Restaurant. The secretary of the dinner is Mr. J. M. G. Swainson, 9, Welbeck-street, W.

BRITISH MEDICAL BENEVOLENT FUND.

AT the August meeting of the committee 19 cases were considered and grants amounting to £190 made to 17 of the applicants. Appended is an abstract of the cases relieved:—

Widow, aged 72 years, of L.R.C.P. Edin. Has supported herself and an invalid daughter by letting lodgings since her husband's death 13 years ago; now finds that her rooms are often unoccupied and that she cannot work as hard as formerly. Voted £12.

M.R.C.S., aged 69 years. Is quite incapacitated and dependent on his wife, whose income is less than £1 a week; children unable to help. Voted £10.

Widow, aged 43 years, of L.R.C.P., L.R.C.S. Edin. Maintained herself for some years after husband's death by acting as matron at a school, but three years ago became permanently deaf and has since had to depend upon precarious earnings by needlework. Son, aged 15 years, has just been apprenticed to the merchant service. Voted £12.

Daughter, aged 59 years, of L.R.C.S. Irel. Was a teacher for many years, but is now unable to obtain pupils, and having no means is dependent on a sister whose only income is derived from two annuities of £20. Relieved once, £12. Voted £12.

Widow, aged 52 years, of L.R.C.P., L.R.C.S. Edin. Quite unprovided for at sudden death of husband about five years ago, and dependent on small uncertain earnings by needlework and slight help from a brother-in-law. Two children, aged 19 and 15 years, the elder at a training college for teachers. Relieved five times, £52. Voted £10.

L.R.C.P. Edin., aged 65 years. Has been quite incapacitated for more than a year past, and is, with his wife and an invalid daughter, dependent on a brother, who pays for their rooms and allows them a few shillings a week. Relieved once, £18. Voted £18.

Daughter, aged 67 years, of late L.S.A. No income and physically unable to undertake continuous work. Relieved three times, £30. Voted £10.

Widow, aged 52 years, of L.R.C.P. Irel. Since husband's death eight or nine years ago has supported herself as a nurse, but has recently had three serious illnesses and is consequently out of work. Relieved once, £5. Voted £10.

L.R.C.P., L.R.C.S. Edin., a medical woman, aged 35 years. For the last four years has been a constant sufferer from colitis and quite unable to earn a living. Relieved once, £18. Voted £18.

Daughter, aged 62 years, of late M.R.C.S. No income, and dependent on friends and small earnings by needlework. Relieved four times, £48. Voted £12.

Widow, aged 40 years, of M.B., C.M. Aberd. Endeavours to support herself by letting rooms, but at present has no lodgers. Two children, aged 12 and 10. Relieved three times, £22. Voted £12.

Daughter, aged 64 years, of late L.S.A. Only income an annuity of £20, and is in delicate health. Relieved 12 times, £116. Voted £12.

Widow, aged 55 years, of L.R.C.P. Edin. No income and dependent on two sons, whose earnings are small. Relieved three times, £30. Voted £10.

Daughter, aged 61 years, of late M.R.C.S. Used to maintain herself as a dispenser, but can no longer obtain work as such, and is dependent on uncertain earnings from wood-carving and slight help from a sister who has to earn a living. Relieved four times, £40. Voted £10.

Widow, aged 53 years, of L.R.C.P. Irel. Quite unprovided for at husband's death a few years ago, and health does not permit of anything but light work. Is at present acting as caretaker, but receives neither salary nor food. Relieved three times, £36. Voted £12.

Widow, aged 80 years, of M.R.C.S. Has a small income, but applies for a little help owing to the infirmities of her children, three of whom are deaf and dumb and one epileptic. Relieved eight times, £55. Voted £5.

Widow, aged 60 years, of late M.D. Edin. Has a situation as companion, but only receives a small salary and has to help a delicate daughter. Relieved once, £5. Voted £5.

Contributions may be sent to the honorary treasurer, Dr. S. West, 15, Wimpole-street, London, W.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 1st, 1832.

MODE OF EMPLOYING FRICTION.—When my wife faints, which is miserably often, I do not apply friction in the usual absurd way,—rubbing backwards and forwards, which must alternately check and accelerate the passage of the blood,—but taking hold of one of her hands with my left-hand, I place the thumb and finger of my right hand tight round her wrist, and then pass them firmly up towards her elbow. Having brought them back loosely to the wrist, I pass them firmly up again, and when I have repeated the operation two or three times, *sometimes* on both arms, I have the pleasure of hearing the ejaculation, "I feel better now." When I first had recourse to this means of resuscitating my lady, she exclaimed *instinctively* on two different occasions, without being at all aware that I had had any particular intention, "Oh! that is what I seem to want." From the invariable and immediate effect of this mode of friction, I flatter myself that it is not unworthy the notice of the medical practitioner in the friction of cholera patients, a process which should be much oftener resorted to, and more energetically persisted in, than it generally is.—N. G. (*Extract from a letter to the Editor.*)

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The City of Birmingham.—In many ways we seem to be approaching what is almost a farce in the matter of the official estimates of population, and we imagine that the authorities of Somerset House would be the first to acknowledge this fact. But under any circumstances we shall be put out of the absurd position we are now in when the enumeration of the people in 1911 takes place. We must live in the hope that the anomalies which this census will reveal will lead to there being quinquennial numberings in the future. The City of Birmingham had in 1909, according to the Registrar-General's methods, a population of 363,629, but according to the medical officer of health, who can and does take into account the number of inhabited houses, this estimate is from 35,000 to 40,000 in excess of the facts, and, if this be so, the death-rate, instead of being 15·5 per 1000 according to the Registrar-General's estimate, is 16·5 per 1000. But when in 1911 the census is taken the population of Birmingham may, owing to extension of the city's limits, reach a figure far in excess of the estimates of either the Registrar-General or the medical officer of health, and the death-rate, in consequence of the inclusion of relatively rural areas, may be found to be much lower than 15·5 per 1000, the position of Birmingham amongst the larger towns being also thereby greatly altered. And we may thus have an additional illustration, if one was needed, of the absurdity of comparing the death-rates of different towns without some regard to the "urban" and "rural" aspects of the several communities. The infantile mortality of Birmingham for the year 1909 was, as in England and Wales as a whole, the lowest on record—135 per 1000 births—the mortality in the several wards ranging from 94 to 211. Administration as regards infantile mortality is under the superintendence of Dr. Jessie G. Duncan, who personally visits each child whose birth is notified. After this first visit the care of the children is handed over to one of the health visitors, who visit once a week until the child is 5 weeks old, when monthly visits are made up to the

end of the first year. If the progress of the child becomes unsatisfactory Dr. Duncan resumes sole charge of it. In addition to these visits "infant consultations" are held twice a week in convenient localities, and they are being patronised to a very encouraging extent. With reference to the much-debated subject of the influence of alcoholism in the parents upon the condition of the offspring, Dr. Duncan states that "alcoholism in the mother has a marked effect on the weight of the child. The children of such women are in all cases puny and weak and much below average weight."

Dr. John Robertson, the medical officer of health, in dealing with the subject of vaccination, reports that many instances of worthless vaccination by medical men have been seen in Birmingham—"cases in which vesiculation is little larger than a pin's head in one or two places." The fault, he says, "lies largely with the general public who crowd to the doctor who will stoop to do what is obviously a fraud on the public at large—inefficient vaccination." This is a statement which, although strong, has, we are afraid, a wide application, with the result that the public vaccinator is placed in a very invidious position in having to make four separate insertions of lymph. In face of the well-known statistics relating to the value of multiple insertions and a large scar area, it is difficult to understand how medical men can agree to perform one-place vaccination. It is practically equivalent to consenting to prescribe a dose of medicine much below the official scale, although the medical man may be well aware that the small dose is relatively valueless. With the object of diminishing as far as possible loss of school attendance through the occurrence of measles, it has been arranged in Birmingham that when a case of this disease occurs in the home of a child attending school those children who have already suffered from this malady shall not be excluded from school, only susceptible contacts being excluded. Dr. Robertson furnishes the yearly notifications of diphtheria in Birmingham since 1893, and he makes the comment that there are no signs of any permanent decline in the prevalence of the disease during the period of compulsory notification. But the figures show that during the last five years there has been a diminution in the case mortality of the disease, a fact which is no doubt largely due to the use of antitoxin. The case mortality from diphtheria in the isolation hospitals during 1909 was 10·9 per cent., as against one of 14·6 per cent. at home. There were 381 doses of antitoxin supplied by the corporation in 1909.

In the Birmingham Sanatorium, which was erected near Cheltenham in 1908, there was during 1909 some shortage of water on the site, and consequently not all the beds were in use, but between Nov. 1st, 1908, and Dec. 31st, 1909, there were 76 cases admitted out of no fewer than 317 applicants for admission, a fact which should have resulted in the admission of eminently suitable cases at favourable ages and good social conditions. It seems that 67 per cent. of the male patients were between 20 and 34 years of age and 66 per cent. of the female patients between the ages of 15 and 24. The average length of stay was nearly four months. There were 48 cases discharged, and of these several lost all expectoration, and in several others the sputum was apparently free from tubercle bacilli. Weight was gained in practically every instance. There are, of course, as yet no after-results of much permanent value, but as in each succeeding January the condition of the patients discharged in 1909 is recorded we shall obtain some clear conception as to the value of the work of this institution. As Dr. Paul Mathews, medical superintendent of the sanatorium, remarks in his report, "It is evident that the treatment of consumptive patients does not end with their discharge from the sanatorium," and he adds that some of the discharged patients have found it difficult or impossible to obtain regular or even casual employment though physically fit to undertake it. This is very regrettable.

Excellent work is being done by Birmingham in the direction of securing a non-tuberculous milk-supply for the city, and offers of assistance are made to every farmer supplying milk to Birmingham whose farm buildings are situated within 10 miles of the city, provided always that the cowsheds are considered suitable for the purposes to which they are put. In the above circumstances the corporation supply tuberculin and veterinary assistance for testing the cows twice annually, the farmer in his turn undertaking to separate the diseased from the healthy cows, wasters and cows with tuberculosis of the udder to be dried off and sold for slaughter. An official certificate is issued quarterly to those farmers who keep their herds free from tuberculosis, and a list of farms at which the cattle are being kept thus free is supplied to any person in the city who desires to have it. Twenty farmers applied to have their cattle tested, but four of these applications were refused on the ground that the cowsheds were not suitable. In the remaining 16 there were 803 cows tested, and of these 567 were regarded as free from tuberculosis, while 209 gave a definite reaction and 27 were regarded as doubtful. The percentage of reactions or doubtful reactions was 29·3. The fees paid for testing amount to about 5*s.* per cow. During 1909 there were 531 samples of milk examined bacteriologically for tubercle bacilli and 7 per cent. were found tuberculous. Doubtless other tests besides the purely bacteriological were carried out, and these tests were verified by inoculation experiments. The whole arrangement appears to us to be well calculated to effect its object. In the appendix to the volume under review Dr. Robertson embodies his report upon the relation of infantile mortality to the industrial employment of married women, a report which was issued separately some months ago.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8346 births and 3724 deaths were registered during the week ending August 20th. The annual rate of mortality in these towns, which had been equal to 10·7 and 11·1 per 1000 in the two preceding weeks, further rose to 11·5 in the week under notice. During the first seven weeks of the current quarter the annual death-rate in these towns averaged only 11·2 per 1000, and in London during the same period the death-rate, calculated on the probably over-estimated population, did not exceed 10·4 per 1000. The lowest reported annual rates of mortality during the week in these 77 towns were 2·1 in Hornsey, 4·0 in Rochdale, 5·7 in Willesden, and 5·9 in Walthamstow; the rates in the rest of the 77 towns ranged upwards to 19·2 in Bootle, 19·7 in Sunderland, and 20·1 in Preston. In London the reported death-rate in the week under notice was again so low as 10·2 per 1000. The 3724 deaths from all causes during the week in the 77 towns showed a further increase of 121 upon the low numbers in recent weeks (almost exclusively due to the greater fatality of infantile diarrhœa), and included 498 which were referred to the principal epidemic diseases, against 347 and 434 in the two preceding weeks; of these 498 deaths, 304 resulted from diarrhœa, 67 from whooping-cough, 65 from measles, 36 from diphtheria, 18 from scarlet fever, and 8 from enteric fever, but not 1 from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns in the week under notice was equal to 1·5 per 1000, against 1·1 and 1·3 in the two preceding weeks. No death from any of these epidemic diseases was registered during the week in Cardiff, Croydon, Walthamstow, Leyton, Halifax, or in ten other smaller towns; the annual death-rates therefrom ranged upwards, however, to 5·7 in Preston, 6·1 in Dewsbury, 7·3 in Burnley, and 7·4 in Bootle. The deaths attributed to diarrhœa in the 77 towns, which had been 115 and 192 in the two preceding weeks, further rose in the week under notice to 304; the highest annual death-rates from this cause during the week were 4·1 in Hull, 4·3 in St. Helens, 4·8 in Preston, 5·8 in Burnley, and 7·4 in Bootle. The 67 fatal cases of whooping-cough showed a further decline from the numbers in recent weeks, the highest recorded rates from this disease during the week under notice being 1·1 in Northampton, 1·2 in Gateshead, and 1·4 in Wallasey. The deaths from measles, which had been 87 and 95 in the two previous weeks, declined during the week to 65; they caused, however, rates equal to 1·2 in Brighton, 1·8 in Tynemouth, and 4·1 in Barrow-in-Furness. The 36 deaths referred to diphtheria somewhat exceeded the numbers in recent weeks; they included 8 in London and its suburban districts, 5 in Stoke-on-Trent, and 2 each in Portsmouth, Liverpool, and Swansea. The 18 fatal cases of scarlet fever were fewer than in any previous week of this year, and included 4 in London, 4 in Liverpool, and 2 both in Portsmouth and in Bury. Only 8 deaths from enteric fever were registered during the week in the 77 towns. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been

1569, 1523, and 1490 in the three preceding weeks, had further decined to 1423 at the end of the week under notice; 143 new cases of this disease were admitted to these hospitals during the week. The 952 deaths from all causes in London during the week under notice included 110 which were referred to pneumonia and other diseases of the respiratory system, showing a further decline from the numbers in recent weeks, and were 16 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 33, or 0·9 per cent., of the deaths registered during the week in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, Salford, and in 51 other smaller towns; the 33 uncertified causes of death in the 77 towns included 4 in London, 4 in Liverpool, 3 in Birmingham, and 3 in Sunderland.

In 77 of the largest English towns 8116 births and 3930 deaths were registered during the week ending August 27th. The annual rate of mortality in these towns, which had increased from 10·7 to 11·5 per 1000 during the three preceding weeks, further rose to 12·1 in the week under notice. During the first eight weeks of the current quarter the annual death-rate in these towns averaged only 11·3 per 1000, and in London during the same period the death-rate, calculated on the probably over-estimated population, did not exceed 10·5 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 3·7 in Hornsey, 5·1 in Walthamstow and in Dewsbury, and 5·5 in Leyton; the rates in the rest of the towns ranged upwards to 19·3 in Huddersfield, 19·4 in Liverpool, 20·5 in Middlesbrough, and 20·7 in Hull. In London the reported death-rate last week did not exceed 10·8 per 1000. The 3930 deaths registered last week in the 77 towns showed an increase of 206 upon the low number in the previous week, and included 720 which were referred to the principal epidemic diseases, against 434 and 498 in the two preceding weeks; of these 720 deaths, 516 resulted from diarrhœa, 77 from measles, 65 from whooping-cough, 33 from diphtheria, 22 from scarlet fever, and 7 from enteric fever, but not one from scarlet fever. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 2·2 per 1000, against 1·3 and 1·5 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Willesden, Tottenham, Norwich, Swansea, Rochdale, or in nine other smaller towns; the annual death-rates therefrom ranged upwards, however, to 6·0 in Birkenhead, 7·0 in Preston, 8·6 in Hull, and 8·8 in Middlesbrough. The deaths attributed to diarrhœa in the 77 towns, which had been 115, 192, and 304 in the three preceding weeks, further rose last week to 516; the highest annual rates from this cause during the week were 5·2 in Bootle, 5·8 in Burnley, 6·0 in Birkenhead, 6·6 in Preston, 8·2 in Hull, and 8·8 in Middlesbrough. The 77 fatal cases of measles showed a slight increase upon the number in the preceding week, and caused the highest annual rates of 1·1 in Oldham and in Rhondda, 1·8 in Tynemouth, and 2·5 in Barrow-in-Furness. The 65 deaths from whooping-cough showed a slight decrease upon the numbers in the two preceding weeks, and caused the highest annual rates of 1·1 in Huddersfield and in Sheffield and 1·6 in Northampton. The 33 deaths from diphtheria showed a decline of 3 from the number in the previous week, and included 10 in London, 3 in Stoke-on-Trent, and 2 both in Croydon and in Portsmouth. The 22 fatal cases of scarlet fever showed an increase of 4 upon the exceedingly low number in the previous week, and included 5 in Liverpool and 3 both in London and in Birmingham. The 7 deaths from enteric fever was the lowest number recorded in any week of the current year. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had continuously declined from 1563 to 1423 in the four preceding weeks, rose to 1447 on Saturday last; 159 new cases of this disease were admitted to these hospitals during last week, against 165, 163, and 143 in the three preceding weeks. No case of small-pox was under treatment in the Metropolitan Asylums at the end of the week. The 1009 deaths registered in London last week included 129 which were referred to pneumonia and other diseases of the respiratory system, showing an increase of 8 upon the number in the previous week, and were 11 above the corrected average number in the corresponding week of the five years 1905–09. The causes of 23, or 0·7 per cent., of the deaths registered during the week in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Sheffield, Bristol, West Ham, Bradford, Newcastle-upon-Tyne, Hull, and in 56 other smaller towns; the 28 uncertified causes of death in the 77 towns included 7 in Liverpool, 4 in Birmingham, 3 in Stoke-on-Trent, and 2 both in Manchester and Blackburn.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 826 births and 481 deaths were registered during the week ending August 20th. The annual rate of mortality in these towns, which had been equal to 12·3 and 12·7 per 1000 in the two preceding weeks, further rose to 13·3 in the week under notice. During the first seven weeks of the current quarter the death-rate in these towns averaged 12·5 per 1000, and exceeded by 1·3 the mean rate during the same period in the 77 largest English towns. The annual death-rates in the week under notice in these eight Scotch towns ranged from 6·0 and 10·1 in Leith and Aberdeen, to 14·9 in Edinburgh and 16·3 in Greenock. The 481 deaths from all causes in the eight towns in the week showed a further increase of 21 upon the numbers in the two preceding weeks, and included 73 which were referred to the principal epidemic diseases, against 44 and 58 in the two preceding weeks; of these 73 deaths, 50 resulted from diarrhœa, 8 from scarlet fever, 7 from whooping-cough, 6 from diphtheria, and 2 from measles, but not one either from "fever" or from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns during the week under notice was equal to 2·0 per 1000, against 1·5 from the same diseases in the 77 English towns. The deaths in the eight towns attributed to diarrhœa, which had been 20, 26, and 35 in the three preceding weeks, further rose in the week under notice to 50, of which 32 occurred in Glasgow, 6 in Paisley, 4 in Dundee, 3 in Edinburgh, and 2 both in Aberdeen and in Greenock. The 8 fatal cases of scarlet fever showed an increase upon recent weekly numbers, and included 3 in Edinburgh and 2 in Glasgow. The deaths from whooping-cough, which had been 4 and 9 in the two preceding weeks declined again during the week to 7, of which 4 were returned in Glasgow and 2 in Greenock. The 6 deaths referred to diphtheria, including 3 in Glasgow, exceeded by 2 the number in the previous week. The 2 fatal cases of measles were fewer than in any recent week. The deaths referred to diseases of the respiratory system in the eight towns, which had been 61, 59, and 47 in the three preceding weeks, further declined to 39 in the week under notice, and corresponded with the number in the same week of last year. The causes of 16, or 3·3 per cent., of the deaths in the eight towns in the week under notice were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death did not exceed 0·9 per cent.

In eight of the principal Scotch towns 753 births and 492 deaths were registered during the week ending August 27th. The annual rate of mortality in these towns, which had been equal to 12·7 and 13·3 per 1000 in the two preceding weeks, further rose to 13·6 in the week under notice. During the first eight weeks of the current quarter the death-rate in these towns averaged 12·9 per 1000, and exceeded by 1·6 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 9·7 in Edinburgh and 11·0 in Aberdeen to 17·5 in Dundee and 17·7 in Greenock. The 492 deaths from all causes in the eight towns last week showed an increase of 11 upon the number in the previous week, and included 83 which were referred to the principal epidemic diseases, against 44, 58, and 73 in the three preceding weeks; of these 83 deaths, 63 resulted from diarrhœa, 8 from whooping-cough, 6 from diphtheria, 4 from scarlet fever, and 2 from "fever," but not one from small-pox or from measles. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 2·3 per 1000, against 2·2 from the same diseases in the 77 English towns. The deaths in the eight towns attributed to diarrhœa, which had increased from 20 to 50 during the four preceding weeks, further rose to 63 last week, of which 43 occurred in

Glasgow, 5 in Paisley, and 4 both in Dundee and in Greenock. Of the 8 fatal cases of whooping-cough, 3 were returned in Glasgow, 3 in Greenock, and 2 in Dundee. Three of the 4 deaths from scarlet fever were registered in Glasgow and 1 in Edinburgh. One fatal case of "fever" was recorded in Dundee and 1 in Perth. The deaths referred to diseases of the respiratory system in the eight towns, which had been 47 and 39 in the two preceding weeks, rose to 49 last week and were 4 in excess of the number recorded in the corresponding week of last year. The causes of 12 or 2·4 per cent. of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,799 persons, 601 births and 361 deaths were registered during the week ending August 20th. The mean annual rate of mortality in these towns, which had been equal to 15·3 and 15·7 per 1000 in the two preceding weeks, further rose to 16·3 in the week under notice. During the first seven weeks of the current quarter the annual death-rate in these Irish towns averaged 16·1 per 1000; the mean rate during the same period did not exceed 11·2 in the 77 largest English towns and 12·5 in the eight principal Scotch towns. The annual death-rate during the week was equal to 15·8 in Dublin, 16·5 in Belfast, 15·1 in Cork, 14·4 in Londonderry, 9·6 in Limerick, and 17·5 in Waterford; the mean annual death-rate in the 16 smallest of these Irish towns in the week under notice was equal to 20·1 per 1000. The 361 deaths from all causes in the 22 town districts during the week showed a further increase of 15 upon the numbers in the two preceding weeks, and included 53 which were referred to the principal epidemic diseases, against 35 and 46 in the two previous weeks; these 53 deaths were equal to an annual rate of 2·4 per 1000; the rate during the week under notice from the same diseases did not exceed 1·5 per 1000 in the 77 English towns and 2·0 in the eight Scotch towns. The 53 deaths from these epidemic diseases in the Irish towns included 34 from diarrhœa, 8 from measles, 4 from whooping-cough, 3 from diphtheria, 3 from enteric fever, and 1 from scarlet fever; but not one from small-pox. The deaths attributed to diarrhœa in the 22 towns, which had been 9, 16, and 34 in the three preceding weeks, were again 34 in the week under notice, and included 6 in Dublin, 22 in Belfast, 3 in Waterford, and 2 in Londonderry. Seven of the 8 fatal cases of measles occurred in Belfast. In Dublin were recorded 2 deaths from diphtheria and 2 from whooping-cough. Of the 3 deaths referred to enteric fever, 2 also occurred in Dublin and 1 in Cork. The deaths in the 22 towns in the week under notice included 42 which were referred to pneumonia and other diseases of the respiratory system, against 59, 44, and 39 in the three preceding weeks. The causes of 12, or 3·3 per cent., of the deaths registered in the Irish towns during the week were not certified; in the 77 English towns the proportion of uncertified causes of death in the week under notice did not exceed 0·9 per cent., while in the eight Scotch towns it corresponded with that in the Irish towns.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 530 births and 377 deaths were registered during the week ending August 27th. The mean annual rate of mortality in these towns, which had increased from 15·3 to 16·3 per 1000 during the three preceding weeks, further rose to 17·1 in the week under notice. During the first eight weeks of the current quarter the annual death-rate in these Irish towns averaged 16·2 per 1000; the mean rate during the same period did not exceed 11·3 in the 77 largest English towns and 12·9 in the eight principal Scotch towns. The annual death-rate during last week was equal to 17·9 in Dublin, 17·5 in Belfast, 17·8 in Cork, 10·8 in Londonderry, 20·5 in Limerick, and 19·5 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 14·8 per 1000. The 377 deaths from all causes in the 22 town districts last week showed an increase of 16 upon the low number returned in the previous week, and included 74 which were referred to the principal epidemic diseases, against 46 and 53 in the two previous weeks; these 74 deaths were equal to an annual rate of 3·4 per 1000; the rate last week from the same diseases did not exceed 2·2 per 1000 in the 77 English towns, and 2·3 in the eight Scotch towns. The 74 deaths from these epidemic diseases in the Irish towns last week included 54 from diarrhœa, 6 from measles, 6 from diphtheria, 6 from whooping-cough, and 2 from scarlet fever, but not one from small-pox or from enteric fever. The deaths attributed to diarrhœa in the 22 towns, which had increased from 9 to 34 during the four previous weeks, further rose to 54 last week, of which 29 occurred in Belfast and 17 in Dublin. Three of the fatal cases of measles and 5 of whooping-cough were recorded in Belfast. Four of the 6 deaths from diphtheria and the 2 fatal cases of scarlet fever were registered in Dublin. The deaths in the 22 towns last week included 50 which were referred to pneumonia and other diseases of the respiratory system, against 39 and 42 in the two preceding weeks. The causes of 12, or 3·2 per cent. of the deaths registered last week in the Irish towns were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exeeed 0·7 per cent., while it was equal to 2·4 per cent. in the eight Scotch towns.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Fleet-Surgeon Richard Francis Bate has been placed on the Retired List at his own request.

The following appointments are notified:—Fleet-Surgeons: C. S. Facey to the *Commonwealth*: W. W. Pryn to the *Victory*, additional, for temporary service at Haslar Hospital; H. C. Arathoon to the *Formidable*. Staff-Surgeons: J. Stoddart and H. C. Adams to the *Gibraltar*, for voyage out, and to the *Challenger* and *Prometheus* respectively, on recommissioning; M. J. Smith to the *Gibraltar*, for charge on voyage home; C. R. Sheward to the *Pathfinder*; L. S. Whitwam to the *Encounter*; and T. B. Shaw to Haslar Hospital, to assist in instruction of surgeons on entry; C. C. Macmillan, D.S.O., to the *Naiad*, on commissioning; S. Croneen to the *Talbot*, temporarily; C. K. Bushe to the *Vivid*, additional, for disposal. Surgeons: T. C. Patterson to the *Gibraltar*, for voyage out, and to the *Challenger*, on recommissioning; K. D. Bell to the *Niobe*, on recommissioning; C. H. Dawe to the *Victory*, additional, for disposal; J. H. McDowall to the *Dido*, on reducing; W. C. Carson to the *Victory*, additional, for disposal.

ROYAL ARMY MEDICAL CORPS.

Surgeon-General J. G. MacNeece has embarked for service in India. Colonel T. J. O'Donnell, D.S.O., from Quetta, has been appointed Principal Medical Officer of the Karachi Brigade. Lieutenant-Colonel J. J. C. Donnet, in charge of the Military Hospital at Belfast, has been selected for increased pay under Article 317 of the Royal Warrant. An exchange on the roster for service abroad has been approved between Lieutenant-Colonel G. E. Hale, D.S.O., and Lieutenant-Colonel R. R. H. Moore. Lieutenant-Colonel G. E. Faunce has arrived home on leave from Gibraltar. Major E. M. Pilcher, D.S.O., from Singapore, has been appointed Professor of Military Surgery at the Royal Army Medical College, Grosvenor-road, vice Major C. G. Spencer, whose tenure of that appointment has expired. An exchange on the roster for service abroad has been sanctioned between Major C. M. Fleury and Major S. H. Fairie. Major H. L. W. Norrington has been placed under orders to proceed to Malta during the coming trooping season. Major H. J. M. Buist, D.S.O., has embarked for South Africa. Captain G. H. Stevenson has been appointed a Specialist in Dermatology and Venereal Diseases to the 7th (Meerut) Division, India. Major C. E. P. Fowler has arrived home on leave from Gibraltar. Captain A. W. Gater, from Jullundur, has been posted for duty at Clifden. Captain W. G. Maydon has been transferred from Bangalore to Secunderabad. Captain T. Scatchard, from Agra, has taken up duty at Kailana. Captain M. Keane has been posted to Landour from Muttra. Captain C. F. White has been transferred from Shwebo, Burma, to Rangoon. Captain W. R. Galwey, from Ferozopore, has joined at Dalhousie. Captain F. Forrest has been transferred from Kasauli to Ambala. Captain A. Chopping has arrived home on leave from India. The following Lieutenants, on termination of their course of probationary instruction at the Royal Army Medical Corps Depôt at Aldershot, have been posted as follows:—W. H. O'Riordan to the

Northern Command; C. T. V. Benson and W. P. MacArthur to the Aldershot Command; E M. Parsons-Smith and L. C. Hayes to the London District; J. Gilmore to the Southern Command; C. Robb to the Irish Command; and E. T. Gaunt to the Eastern Command. Lieutenant A. H. T. Davis has been transferred from Bangalore to Secunderabad. Lieutenant S. S. Dykes, from Edinburgh, has been posted to Barry Camp.

Captain Ralph Koper White, from the Indian Medical Service, to be Captain, vice Arthur A. McNeight, who exchanges.

The undermentioned to be Lieutenants, on probation:—John Darling Bowie, Charles Henry Hasler Harold, John Kennedy Gaunt, Guy Oldham Chambers, Hugh Glencairn Monteith, Eric Leigh Fyffe, Robert Francis Bridges, Charles Herbert Stringer, Leslie Ferguson Kennedy Way, and Thomas John Hallinan. Lieutenant (on probation) Hugh G. Monteith is seconded, under the provisions of Article 300, Royal Warrant for Pay and Promotion, 1909.

INDIAN MEDICAL SERVICE.

Colonel W. A. Corkery, principal medical officer of the Karachi Brigade, has been appointed Principal Medical Officer of the 3rd (Lahore) Division, vice Colonel H. J. Waller-Barrow, R.A.M.C., who has been placed on retired pay. Colonel H. St. Clair Carruthers has been confirmed in his appointment as Inspector-General of Civil Hospitals in Burma. Lieutenant-Colonel A. L. Duke has been appointed to officiate as an Agency Surgeon of the First Class and has been posted as Administrative Medical Officer of the North-West Frontier Province. Lieutenant-Colonel J. Chaytor-White, Bombay, has arrived home on leave. Major A. Hooton represented the Indian Medical Service at the recent Conference on Tropical Medicine at Manila. Major P. Carr White, Madras Presidency, has been appointed Agency Surgeon to the Kotah and Jhalawar States. Major J. Bamfield has been reverted from civil to military employment. Major T. E. Watson has been granted leave from India until Dec. 2nd, 1911. Major C. E Williams, Sanitary Commissioner of Burma, has been granted 15 months privilege leave combined with furlough from India. Major W. M. Anderson has arrived home on leave from India. Captain G. C L. Kerans has been appointed a specialist in Ophthalmology to the 8th (Lucknow) Division. Captain T. H. Gloster has been granted an extension of his furlough for six months. Captain E. J. C MacDonald, district plague medical officer at Sialkot, has been granted three months' privilege leave. Captain G. M. Millar has had his leave extended by six months on medical certificate. Captain J. Christopher has been selected for appointment as Assistant to the Director of the Central Research Institute of India (Colonel D. Semple, R.A.M.C.) Captain H. W. Pierpont has joined the Central Provinces and has been appointed Civil Surgeon of Chanda. The services of Captain D. C. V. Fitzgerald have been placed by the Government of India at the disposal of the Commander-in-Chief. Captain Kanwar Shamsher Singh has been appointed District Plague Medical Officer of Karnal District, vice Captain A. L. Lauddie.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned Lieutenants are confirmed in that rank:—Alexander C. McKillop, John Inkster, Gordon R Ward, Aston R. Dale, Mark Anthony, Ronald Mackinnon, Stephen Gordon, George E. Shand, Sidney J Stewart, George B. McCaul, George F. Randall, and Edward T. Holland.

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd London Sanitary Company: Captain Walter F. Corfield resigns his commission.

Attached to Units other than Medical Units.—Lieutenant Howard Henry to be Captain. Captain James Wilson to be Major.

For attachment to Units other than Medical Units.—Hugh Selwyn Gaskell to be Lieutenant. Percival Thomas Rutherford to be Lieutenant.

FLORENCE NIGHTINGALE.

The funeral of Miss Nightingale took place on August 20th at East Wellow, Hampshire. The coffin was conveyed from her London residence in South-street, Park-lane, to Waterloo Station, where it was received by a bearer party selected from the Grenadier, Coldstream, and Scots Guards. It was then taken by train to Romsey, where it was placed in a hearse and conveyed to East Wellow. A memorial service was held in St. Paul's Cathedral in presence of a large congregation. The King was represented by Major-General J. S. Ewart, the Queen by Lord Wenlock, Queen Alexandra by Colonel H. Streatfeild, the Duke of Connaught by Captain T. R. Bulkeley, and Princess Christian by Major J. E. B. Martin. Surgeon-General W. L. Gubbins, the Director-General of the Army Medical Service, was present. There was a large attendance of nurses. Regiments which served in the Crimea were represented, and a number of pensioners from the Royal Hospital, Chelsea, survivors of that war, also attended the service.

Inspector-General of Hospitals and Fleets James W. Fisher has been awarded a Greenwich Hospital pension of £100 per annum in succession to the late Deputy Inspector-General G. Jackson. Inspector-General Fisher entered the service in January, 1868, became inspector-general of hospitals and fleets in March, 1898, and retired in February, 1904. As surgeon of the *Decoy* he was attached to the naval brigade during the Ashanti War, 1873–74, and was specially mentioned and promoted for his services under fire at the battle of Amoaful. During the epidemic of yellow fever at Jamaica in 1897 he was in medical charge of the Royal Naval Hospital at Port Royal.

Correspondence.

"Audi alteram partem."

POOR-LAW REFORM FROM A GENERAL PRACTITIONER'S POINT OF VIEW.

To the Editor of THE LANCET.

SIR,—Quite recently the columns of THE LANCET have furnished the general practitioner food for reflection on the above subject. Most of us are conscious that great changes in the Poor-law system are imminent. All minds, lay and medical, are made up on this point. But the view we take of such changes is of necessity, but not selfishly, different when we look at it from the perspective of the British lay public and the general medical practitioner. Of those changes the most sweeping, drastic, and revolutionary are recommended in the Minority Report, and owing to our political system and the desire of both political parties to make capital out of this question this report is the one which seems to hold the field. I am not finding fault with this. Neither am I opposed to any alteration in the present Poor-laws; on the contrary, I hold strongly democratic views as to the imperative urgency of the reform of a system which is not remarkable for its humanising influence, outside its purely medical aspect, on the poor and destitute. What imperfect criticisms I make, or objections I put forward, are from the point of view of a general practitioner who has had 20 years' experience of working-class practices. The poor and the destitute have on this question powerful friends and advocates amongst the leaders of both the Conservative and Liberal parties.

Dr Major Greenwood has lately stated that the adoption of the medical proposals contained in either the Majority or Minority Reports would mean ruin to a very large number of medical men whose sole income and means of livelihood are derived from work in poor and working-class districts. I think this statement merits most serious attention, coming as it does from one who knows so much of such work, and who is certainly in a better position, in his dual capacity as a part-time Poor-law medical officer and general practitioner, to speak for the class of practitioners so affected than others who have lately written on the subject in THE LANCET. Indeed, I think Dr. Greenwood speaks with special authority and as one who seems almost alone in his militant advocacy of the claims of the general practitioners for just consideration of their case. What is more, many of us feel that his views will turn out to be truly prophetic.

Quite lately, in THE LANCET, we find Dr. J. C. McVail uttering weighty words which deserve consideration from general practitioners. His plea for the provident dispensary system is certainly logical, and if his suggestions were carried out in full, and a fair contributory basis insisted upon, a solution not exactly disastrous to us might be arrived at. But there

here a great difficulty. In London, at least, most of the ovident dispensaries seem in the hands of a coterie of edical men in each district, and are exclusively, and not a tle selfishly, worked. Dr. McVail should study the rking of the Battersea Provident Dispensary, the largest e in London, as an example of the present method of ministration of such institutions. This dispensary is in e hands of about a dozen medical men, and I do not think is saying too much to assert that this dispensary has proved astrous to other medical men practising in the district. order to make a provident dispensary at all acceptable to e general medical practitioner the contributions will have be materially increased above the present rate, and the or must be left open for the entry, in each locality, of any edical men who might be willing to join the staff. Such actitioners should be *bonâ fide* practising in the dispensary trict, and the contributions from the patients ought to be arranged that the income of every such practitioner ould not be below £300 per annum, which would be only r seeing that the greater number of his present paying tients would have been induced by him to join the dis-nsary.

The advocacy of the views expressed in the Minority port by Dr. H. Beckett-Overy and others in THE LANCET of ly 23rd may perhaps open the eyes of the general practi-ner as to what was in store for him. These special eaders earnestly desire the body of general practitioners acquiesce in the establishment of a medical sanitary rvice in whose ranks not one-tenth of the present general actitioners would enter, but under which almost certainly ne-tenths of their patients would ultimately be taken from em. If ever there was a good example of the "Come o my parlour, &c.," argument, this is one. This service, hich would be worked by a body of officers who may not iptly be called the Medical Sanitary Police, would, ongst other things, replace the present Poor-law Medical rvice and its officers. Many other services, such as the ool medical service, the isolation hospitals, workhouse irmaries, asylums, &c., are to be merged into this newly eated sanitary service. Eventually we reach school clinics d municipal hospitals. To start off with, there might be nething to commend this scheme if every general medical actitioner whom it is proposed to so injuriously affect re offered an appointment in the new sanitary medical lice. But this is just what Dr. Beckett-Overy and his lleagues know they cannot offer, so they go a long road prove that, having taken the greater number of our tients away from us, they will return them to us later on in better state of health! They say that under the recom-endations contained in the Minority Report the system of service and recovery" will be carried out. The machinery the "recovery" of fees from patients who should have id a private practitioner will apparently be the same as at in the new Midwives Bill lately before the House of rds—viz., the county court; of the inefficiency of this we working-class districts have already a lamentable perience. One word about this "recovery." Imagine a v examples of prosecution of apparently hard cases, and e the newspaper headings, "A poor man persecuted for a uple of bottles of physic," and think how long this safeguard" is going to withstand the outcry raised against ! And once this so-called safeguard is destroyed how ny of the working classes are going to pay for private edical attendance? The advocates of this service promise great things for the blind, the maimed, and the halt, so at with their restoration to health they will be better ying patients for the general practitioner in the future. It ould strike one, however, that such patients would be very willing to leave a gratuitous service, which would have ne so much for them, and to return and pay even a very all fee to a private doctor.

Most certainly the suggestions of such a thorough-going cialist as Mr. Bernard Shaw, already favourably alluded to THE LANCET, viz., making every medical man practising ongst the workers a State medical officer, would be much irer and better than the half socialistic, neither fish nor sh, schemes of those who signed the Minority Report. ie avowed Socialist would deal far better with us cause by his creed he promises employment to every-e willing to work. With the legislative adoption the Minority Report we should soon have relatively perie nces for many of the present general practitioners, hile there is really no proof, in the midst of all this, that such changes would be good for the community. It will, on the contrary, take a lot to convince some of us that new municipal hospitals manned by young practitioners, paid by a fixed salary, can ever rival the great voluntary hospitals. And in London at least there is a network of medical charities, vast enough to include every case, the thorough efficiency of which must prove that there is no necessity to establish a new charitable or semi-charitable centre. It is quite unnecessary for me to give details as to all the medical charities within reach of the truly afflicted. And if the Poor-law Medical Service has faults it results largely from the niggardly way boards of guardians have paid the highly honourable men who compose it. I would say, indeed, that a lot of the money proposed to be spent under the medical portion of this scheme would be far better and more profitably spent in the erection and support of municipal or State sanatoriums. By such means ten times more good could be done to the workers and the community at large. Before, however, we reach the Parliamentary discussion of this scheme another inroad on general practice will have been made by the new proposals for insurance against unemployment and invalidity. This scheme it is proposed to carry out with, or through the aid of, the friendly societies, the heads of which have up till now proved the master "sweaters" of the medical profession. Most of the insured will have to join those societies, and so another large slice will be taken off the income of the general practitioner.

At present the unfortunate feeling amongst most of us is that though we know these sweeping changes are sure to come we are hopeless and helpless in our endeavour to save ourselves, for after all we seem to have no proper fighting organisation. If we were trade unionists we could organise a strike, for a great strike would settle the matter effectually. But such an expedient might be considered inhuman and would possibly lead to the lynching of a few doctors. But we are still comforted by optimists, who tell us that all will be well if we acquiesce in this or that scheme. We heard those wise voices when the Midwives Bill was passed, and just lately, when the Medical Inspection of School Children Act came into force, we were told that many of the local medical men would be employed by the London Connty Council—more of the George Washington statements. Just a few weeks since a Bill was before Parliament, introdnced, I think, by a consultant, one clause of which compelled medical men to inspect the body and then fill in an elaborate death certificate (a truly state document) and forward the same to the registrar, and for this state service not a penny remuneration was to be paid! From which we must infer that we have wonderful champions for getting fair play for us in the House of Commons.

It is now, I think, sure that we shall suffer under any new schemes, and that in a few years we shall see many present practitioners brought to destitution. When this time arrives it will be too late to do anything for them. *Now* it should be possible for the British Medical Association, the Medical Sickness and Accident Society, and kindred insurance societies, to levy contributions from their members and raise a fund for the purpose of providing old age pensions for those who will so sadly need them. And what better objective could medical philanthropy have than in helping those comrades who owed their fall to conditions over which they had no control?

I am, Sir, yours faithfully,

Mile End, E., August 27th, 1910. M. S. HARFORD.

PHARMACOPŒIAL DOSES.

To the Editor of THE LANCET.

SIR,—In an annotation, entitled "Pharmacopœial Doses," and appearing in THE LANCET of August 20th (p 575), a favourable hearing is extended to the proposal to introduce into the Pharmacopœia "a maximum dose for 24 hours" for each of the official remedies used by internal administration, and we are told that were this done there would exist "an authoritative expression as to the limits of safety" within which such remedies should be prescribed. Presumably the writer of the annotation contemplates, at least mainly, the government and limitation of the pharmacist, but there is at least the possibility that his method of stating the position may convey to the minds of some the suggestion that there is need also for an "authoritative" control of the physician.

The "limits of safety," it may respectfully be urged, fall within the judgment of the prescriber, not within that of dispenser; and over the judgment of the prescriber most certainly the Pharmacopœia has neither warrant nor control. If, as may readily be argued, the publication of "official" doses in the Pharmacopœia promotes the public safety by enabling the dispenser to detect any accidental lapse on the part of the physician, by all means let such doses duly exist and appear. But they must not be translated as exercising any "authority" over the freedom of the practitioner. Alike in the interests of the individual patient and of the extension of exact therapeutic knowledge, there must be preserved for the physician a "liberty of prescribing"—a liberty to use, in reference both to quantity and quality, whatever he deems likely to promote the welfare of his patient.

The one risk, such as it is, of the new proposal is that by increasing the pharmacopœial apparatus dealing with dosage an undue importance may be attached to this part of the official volume. In short, it is within the possibilities that a definition of the "limits of safety" in dispensing may come to mean to some the "limits of safety" in prescribing. So long as adequate means are taken to avoid this result, and so long as the pharmacopœial doses are presented merely as doses which the pharmacist should not exceed without the special direction and authority of the physician, the profession need not much concern itself about the proposed new departure. It matters little whether the official doses are retained in their present form or whether they are modified or extended in the direction suggested in your annotation. What is of importance, however, is to be quite clear that such doses, whatever their form, have no controlling authority over the freedom and discretion of the prescriber. The "limits of safety" in the administration of any remedy in each individual case must be judged by the practitioner in charge of the patient, and on his own responsibility; they cannot be authorised or defined either by a national or any other form of pharmacopœia.

I am, Sir, yours faithfully,

Harley-street, W. C. O. HAWTHORNE.

GASTRIC ULCER.

To the Editor of THE LANCET.

SIR,—In your issue of August 20th you report Mr. E. Deanesly of Wolverhampton as having said, *re* excision of gastric ulcer:—"It was now known that unless there was distinct pyloric obstruction food did not pass through the new opening, and even after the operation had been done an ulcer might perforate or a new peptic ulcer might form. There was great liability to recurrence both of the pain and other symptoms. Excision should be the operation of choice in all centrally situated ulcers not involving the pylorus or the duodenum." You make no note of this statement having been questioned. Was this really the feeling of the meeting on this important point?

May I quote one case as positive evidence in the other direction in the hope that other surgeons may give us their opinion of the utility of a simple gastro-jejunostomy for a chronic gastric ulcer not situated near the pylorus and not causing pyloric obstruction.

The patient, aged 23, asylum nurse, was sent to me last year to be operated on for a chronic gastric ulcer. The history was typical and extended over four years. She had had several attacks of hæmatemesis and had been unable to take solids for four years. Rest in bed on sparing fluid diet gave but slight relief from the pain.

June 20th, 1909: At the operation the condition found was a large chronic ulcer in the cardiac portion of the stomach, near the lesser curvature. The pylorus was normal. A large posterior vertical junction was made.

Sept. 7th, 1909: The patient has had no pain or sickness since the operation and returned to full duty as an asylum nurse.

April 12th, 1910: The patient has been working constantly, has put on weight, and has had no return of symptoms. On this date she was examined by the fluorescent screen, standing up, whilst slowly swallowing one ounce of bism. carb. mixed with bread and milk. The mixture could be seen passing from the stomach into the jejunum well to the left of the middle line. Meanwhile, the pyloric portion of the stomach gradually filled with the mixture, but none passed through the pylorus, a well-defined convex margin with convexity towards the patient's right hand delimiting t pyloric portion of the stomach. Immediately after the scre examination a plate was taken, and the print clearly sho the condition described above.

July, 1910: The patient continues in normal health.

Bolton has shown by experiments on rabbits that t actual necrosis and ulceration of the stomach are produced the gastric juice acting upon a cell which is functional damaged, and that the hyperacidity of the gastric jui increases the tendency to such ulceration, whilst the int duction of a weak alkaline solution into the stomach of control animal prevents necrosis and ulceration of the gast mucous membrane of control animal.

Is it not, therefore, possible that the factor determini the cure of a gastric ulcer after a gastro-jejunostomy is t fact that a large graft of jejunal mucous membrane secreti an alkaline fluid has become an integral part of the stoma wall, and that the success of the operation depends not on on making a vertical junction for mechanical reasons but making a large junction both for mechanical and phys logical reasons, and that whether the ulcer be excised or n matters little? I am, Sir, yours faithfully,

Hastings, August 25th, 1910. DAVID LIGAT.

CARDIAC STRAIN.

To the Editor of THE LANCET.

SIR,—Amongst varieties of strain Sir Lauder Brunto in his recent lecture published in THE LANCET, co ments upon the effect of excessive exercise upon t heart, and lends the weight of his valuable opinion to thc who consider that the heart may suffer injury. Since t days when I was a medical student I have to some degr been interested in this subject, and although the fa gleaned have been few the impressions based upon them m not be without interest. The effects of exertion upon t heart have to be considered under the headings of immedi and remote effects. Occasionally, no doubt, the pow of will is greater than the physical powers of the body carry out the purposes of the will, and alarming symptoms distress, possibly even death, may result. Yet when t alarming symptoms stop short of death the probability that in a few days the heart and vaso-motor system will be capable as ever of adapting themselves to strenuous activiti Tried severely again and again they may present signs weakness, but even after having given evidence of su weakness it seems to be doubtful whether if wisely treat they are permanently injured.

Sir Thomas Clifford Allbutt has expressed the opinion th the presence of an early stage of an infectious disease, possibly only of a feverish cold, may predispose to the i mediate harmful effects upon the heart of exertion. I on met with an interesting example of this. A school girl, ag 14 years, rode upon a bicycle for 16 miles against a stro head wind. The following day the rash of measles appeare Loud systolic murmurs were then audible over the heart, b at the apex and the base, which disappeared during con lescence. The bicycle ride during the earlier stage of t attack of measles had obviously produced dilatation of t heart and the appearance of murmurs. It may be remark in passing that the appearance of murmurs appears to me be a far better test of dilatation of the heart in children th increase of præcordial dulness. It is interesting to note th the girl was able to ride 16 miles against the wind the d before the rash appeared. If a girl in an early stage measles will indulge in active exercise, many a boy, no dou will not allow slight feelings of illness to interfere with l desire to take part in competitions involving physical stra and before we blame physical strain alone such an importa factor as concomitant illness requires to be eliminated.

In the healthy heart, however, apparently repeated str may produce symptoms of disordered function. Perhap may be allowed to give some personal experience. In t days of my boyhood and youth my heart used frequently to subjected to considerable strain without any definite trainir For example, I once won a three mile race without havi run a mile for about two years. After the age of 30 engaged somewhat energetically in cycling; riding hi which were considered to be unridable being a weakness which I indulged. At the end of about two years some cardi pain was experienced associated with occasional intermissi of the pulse. These symptoms were taken as an indicati for the more judicious use of the bicycle, and after abc

two years they entirely disappeared. It is to be feared that foolish acts are still sometimes committed without, however, ill-effects being noticed. Twice within the past five years I have run three miles. This is not an act to be commended for anyone in middle-age, but it is mentioned to show that in spite of the presence at one time of cardiac pain and intermission of the pulse my heart retains a power for continued exertion.

One sometimes hears of the hypertrophied heart of athletes. That it often exists seems to me to require proof. Hypertrophy of the heart is, it is needless to say, occasionally met with in the post-mortem room, which is apparently the result of over-exertion, but possibly it is not excessive work merely but excessive work in the presence of heat that may lead to hypertrophy of the heart. In other words, it may be that the hypertrophy of the heart in a gas-stoker or in a blacksmith is probably largely toxic. Owing to most of the fluid drunk being passed off by the skin rather than by the kidneys toxic products of metabolism are retained in the body and poison the heart. However true this explanation of the hypertrophy may be, it is very difficult to find any kind of arduous occupation which requires to be carried on in the open air that occasions hypertrophy of the heart. If we allow for the normal variations in the size of the heart and of the situation of the impulse in different individuals it is doubtful whether we should find the heart of the athlete to be often hypertrophied.

This letter, one regrets, is discursive. Briefly it is intended to urge that although few, if any, will deny that excessive exercise may temporarily derange the heart it is very doubtful whether exercise alone, apart from some contributing factor, causes permanent injury.

I am, Sir, yours faithfully,

August 19th, 1910. THEODORE FISHER.

BLIND MASSEURS FOR BERI-BERI PATIENTS.

To the Editor of THE LANCET.

SIR,—While I understand the letter published in THE LANCET of August 20th with the above title is a "disclaimer," yet on reading it am I to understand that as well as disclaiming Dr Cantlie belittles the idea of massage in beri-beri? If so, I can assure him that I have seen the best of results from massage as performed by a real Swedish masseur, but he was not blind. From what I do remember of the treatment I would suggest to those who have not tried it to give it a trial. I am, Sir, yours faithfully,

August 25th, 1910. T. L. ASHFORTH, L.R.C.P. Edin.

"SUBJECTS OF SURGICAL INTEREST."

To the Editor of THE LANCET.

SIR,—My attention has been called to a letter in your issue of August 20th on the above subject by Dr. Wm. Bennett of Manchester. In the course of his remarks he states that 'general practitioners will thank Mr. Waterhouse for simplifying the disinfecting of operation surfaces." So far as I am aware, I was the first surgeon to advocate the use of tincture of iodine for this purpose. If Dr. Bennett will refer to the *British Medical Journal* of August 4th, 1909, he will find my original paper, which was published several months before Mr. Waterhouse's.

I am, Sir, yours faithfully,

J. LIONEL STRETTON,
Senior Surgeon to the Kidderminster Infirmary and Children's Hospital.

Kidderminster, August 29th, 1910.

DR. C. E. HARRIS FUND.

To the Editor of THE LANCET.

SIR,—We beg to forward you the audited accounts of the above fund. After deducting certain necessary expenses on behalf of Mrs. Harris and her children, during the past year, we have invested the balance—viz., £173 5*s.*—in the purchase of an annuity of £20 for a period of ten years, to be paid to the widow by quarterly instalments. Provision for the six children has been made as follows: (1) The two eldest boys have been admitted to the Fortescue House School, Twickenham (National Refuges); (2) the third boy was successful at his first application for admission to the Royal Asylum of St. Anne's Society, Redhill; (3) the two eldest girls have been admitted to the Girls' Home, Royston (National Refuges); and (4) the youngest girl has been admitted to the Kingsdown Orphanage, Hornsey, for which a friend is paying £3 3*s.* annually.

We wish to express our most sincere thanks to all donors for their ready response to our appeal, and to all those who have so generously helped us in many other ways; to the Editors of THE LANCET and the *Medical Officer* for giving publicity to our appeal, and to Mr. E. W. Drew for his kindness in auditing the accounts.

We are, Sir, yours faithfully,

N. H. TURNER, } Honorary Secretaries
CARL PRAUSNITZ, } and Treasurers.

35, Highbury-grove, London, N., August 15th, 1910.

*** The donations amounted, together with a small sum as interest and as commission from the Commercial Union Assurance Company, from whom the annuity was purchased, to £205 4*s.* 1*d.*—ED. L.

THE SUPPRESSION OF QUACKERY.

To the Editor of THE LANCET.

SIR,—A sense of humour is an advantage always and everywhere. Mr. Pickin possesses it evidently. I should be sorry to think myself devoid of it, but, as I have no doubt he will agree, it ought not to blind us to the serious facts of the quackery question. Credulity among great sections of the ignorant masses and "educated" classes is as gross at the present day as it was in the days when belief in witchcraft was universal, but this does not lessen the obligation of Government to protect weak and simple citizens against the army of cynical rascaldom that now, thanks to the weakness of the law, is able with impunity to exploit them. There is much that is funny and farcical to be found in quackery, as, for example, in the practices of "beauty doctors" and obesity curers. In these directions it is often simply fraudulent, but in most other directions, even where it appears harmless, it is not only fraudulent, it is cruel and deadly. If Mr. Pickin is a practitioner, he may easily ascertain these facts for himself by systematic observation and diplomatic inquiry among his patients. The first case that attracted my attention to the subject many years ago was that of a woman who had allowed a cancer of her breast to go on to a hopeless phase whilst relying upon a heal-all ointment composed of coloured lard. It is easy to illustrate this subject by reference to every class of quack medicines. The victims are perhaps easiest to discover among hospital patients. Teething and baby-quieting medicines form the direct causes of death in a vast number of cases. They turn away attention from the real cause of the baby's outcries, in most cases intestinal pain, and keep it quiet on the way to death or survival as a degenerate wastrel. The mischief arising from quack nostrums of all sorts is well exemplified by the class of indigestion cures. Indigestion is merely a symptom, not a distinct disease. It often indicates a simple functional disturbance, but even then the proper treatment is not continuous dosing with aloes, or other cheap purgative, which is invariably the only potent ingredient of secret remedies for this complaint. On the other hand, "indigestion" may be a sign of organic or malignant disease anywhere within or in the neighbourhood of the alimentary canal. Cases of the more serious kinds are always to be found in hospitals, and inquiry usually discloses the fact that they have been dosing themselves with quack medicines until their malady having assumed a serious or mortal phase they have been compelled to seek relief in the wards. In late years I have given up systematically inquiring for such cases, but some time ago I casually came across a series whilst acting as visiting member of the committee of our small local hospital. These were women suffering from ulcer of the stomach. Nearly all of them had been taking for prolonged periods one or other of the most advertised indigestion cures, the sole active ingredient of which is aloes. One case ended fatally; it might perhaps have been saved by early diagnosis and treatment. Between £3,000,000 and £4,000,000 are now being spent annually upon quack remedies and bogus apparatus, and if it be admitted that the majority of dupes of these forms of coarse quackery receive no permanent injury it will still be evident that the large percentage of victims that are badly or fatally hurt represents a terrible mass of preventable human suffering and misery. The traffic in secret

remedies does not include the whole of quackery. The traffic is used as a cloak by numbers of fraudulent pretenders, and many more palm themselves off as doctors by advertisements, with free use of bogus titles. The cruelty of the hardened quack is unspeakable, and of this I will give an illustration out of my own recent experience. The wife of a poor labourer is dying in the village from a deep-seated cancer pronounced by the best opinion as beyond the reach of surgery. She has already spent money on advertised cures, and towards the end is found by her visitors to be in correspondence with a "cancer doctor" who offers to cure her for 3 guineas. She has been literally starving herself to scrape together this sum, and is deterred from sending it only when she is made to know that a number of letters addressed to the "grateful patients" whose testimonials are published in the quack's pamphlet have all been returned through the Dead Letter Office. To those who have studied and mastered the facts of latter-day quackery the present state of things must seem almost intolerable. I hold that it is the duty of the profession for the sake of humanity, and in spite of misrepresentation or calumny, to force the question to the front, to prove their case, and to leave upon statesmenand the legislature the responsibility for the continuance of the evils and abuses laid bare. I am, Sir, yours faithfully,

Redhill, August 20th, 1910. HENRY SEWILL.

THE BLOOD PRESSURE IN SHOCK.

To the Editor of THE LANCET.

SIR,—In your report of my remarks on shock in the Anæsthetics Section of the British Medical Association on July 28th [1] I am said to have maintained that there was "no proof that shock was accompanied by a low blood pressure." What I said was that the low blood pressure which arises in shock "does not offer any proof that the blood-vessels are dilated or paralysed." I should be glad if you would publish this correction.—I am, Sir, yours faithfully,

Portman-street, W., August 20th, 1910. JOHN D. MALCOLM.

THE MAIN QUESTIONS IN EUGENICS.

To the Editor of THE LANCET.

SIR,—The medical inspection of school children is but part of a larger eugenic survey of the nation whose other components, the sociological and anthropological inspections, must soon engage the attention of legislators. Medical and sociological data have been now for several years collated at the Galton Laboratory, and many doubtful points respecting environment and inheritance have in consequence been made clear, but more accurate results should be got from a national survey. As far as researches in the Galton Laboratory have gone they tend to show that environment as a factor will not upset improvements effected in breeding good stock, but the breeding of bad stock will lay low all schemes for improving environment; and the remarkable conclusions reached by Professor Karl Pearson and his co-workers during their study of the influence of parental alcoholism on the physique and ability of the offspring have already attracted the attention of social reformers. They found no marked relation between intelligence, physique, disease, or mental defect of the offspring on the one hand, and alcoholism in the parent on the other hand. The conclusion that an acquired habit of the parent has no *perceptible* effect on the *immediate* offspring, is confirmation of the principle of the non-transmissibility of acquired characters, but it would not be right to conclude that centuries of alcoholic excess on the part of successive generations would be without effect upon a nation. The subject is too controversial at present to warrant anyone in accepting and utilising one view to the exclusion of the other in an endeavour to draw a sympathetic attention to the undoubted necessity that exists for completing the medical inspection of school children by adding to it the tasks of sociological and anthropometrical investigations. For a beginning these data may be collected in schools by teachers and medical inspectors, as under the recent Act the collection of such data is rendered permissive; the Act expressly states that any educational authority may cause such investigations to be made.

Eugenists are in the main convinced that by safeguarding in every way the good stock and by encouraging the production of larger families among the fitter portion of the popul tion we shall effect the object which all right-thinkin persons have in view—namely, an increased fitness, phys cally, mentally, and morally, among the general population and although this method has not yet the sanction of publi opinion, a survey such as is suggested might be the mean of causing the leaders, and ultimately the body of th public, to acquiesce in such a view.

How to promote a selective birth-rate is a problem i national economics which should not differ in its essenc from everyday problems of political economy, but it i questionable how far we are justified on purely humanitaria grounds and in opposition to the proved interests o posterity in suspending the operations of a selective death rate by such means as the provision of sanatoria for the re habilitation, during their procreative years, of individuals o a type that it is not desirable to perpetuate.

I am, Sir, yours faithfully,

August 29th, 1910. MEDICUS

[1] THE LANCET, August 20th, p. 556.

THE SECOND INTERNATIONAL CONGRESS OF ANATOMY.

(FROM A SPECIAL CORRESPONDENT.)

THOUGH scarcely so successful in some ways as the initia meeting in Geneva five years ago, the Second Congress o the Federated Anatomical Societies of the world held i Brussels from August 7th to 12th has set a seal upon th progressive movement which has aimed at bringing all wh are interested in anatomy and its allied sciences into close touch both in methods, work, and personal acquaintance.

The noble city of Brussels surely merited an early plac as the "moving tent" of the Federated Congress—Brussels the birth-place of Vesalius, the greatest anatomist tha ever was, and the seat of a great "Free" University The added attractions of a great exhibition would, it wa hoped, swell the number of congressists from abroad, bu unfortunately the effect on these was all the other way, a there is no doubt many were deterred by the common report of the overcrowding of the city by cosmopolitan sightseers Another factor which reduced the number of those attending the Congress was its unfortunate clashing with the Congres of Anthropology at Cologne the previous week. Lastly the Unione Zoologica Italiana, for some unexplained reason, sent only a few representatives, and no communications though providing in Professor G. Romiti (of Pisa) one of the most active and picturesque members of the Congress. Neither was the Anatomische Gesellschaft so well repre sented as in Geneva, though in the forefront of all the meetings were Professor Waldeyer (of Berlin) and Professor K. v. Bardeleben (of Jena), the "permanent" president and secretary respectively of the Federation. The Association des Anatomistes, on the other hand, were there in large force and furnished the largest proportion of papers and demonstrations. To Professor Brachet of Brussels, its secretary, fell the lion's share in all the local arrangements, and to his great activity, unfailing courtesy, and attention, the great success of the Congress is in large measure due. The American Association of Anatomists, which contributed little to the first congress in Geneva, made up fully for that by sending a very representative and active cohort to Brussels, with Professor Minot of Boston, Mass., as president, and Professor Carl Huber of Philadelphia as secretary. The presence of so many Americans, and the stimulating effect of coming in close contact with their splendid work, demonstrations, and personalities, was a particular source of pleasure and satisfaction to their British *confrères*. The Anatomical Society of Great Britain and Ireland, though a smaller band than at Geneva in 1905, was well represented by Professor A. M. Paterson (Liverpool), President, and Professor A. Macphail (London), secretary, Professor A. Thomson and Dr. S. E. Whitnall (Oxford), Professor A. Francis Dixon (Dublin), Professor I. P. Hill, Professor W. Wright (London), and Professor Waterston (London), Professor R. J. A. Berry (Melbourne), Professor E. J. Evatt (Winnipeg), Dr. Alex. Low (Aberdeen), and Mr. F. P. Sandes (Sydney).

The first event of the Congress, after a preliminary meeting of the presidents and secretaries to arrange the daily

programmes, was a "*raout*" given by the Conseil Communal de Bruxelles in the Hôtel de Ville on the evening of Sunday, August 7th. This grand old building, one of the finest of its kind in the world, is peculiarly fitted for an evening show. The Federative Congress of Anatomists shared the honours on this occasion with several other congresses then meeting in Brussels, and the only drawback was a slight overcrowding which made it difficult to see to fullest advantage the precious art treasures—tapestry and pictures—which adorn the many *salles* of the hotel.

The serious business of the Congress began on Monday, August 8th, at 9 A.M. in the *grande auditoire* of the University in the Rue de Sols. After a preliminary welcome, extended to the Congress by the University authorities, Professor Waldeyer presided over the first *séance de communications*. At these meetings, held from 9 A.M. to 1 P.M. each day from August 8th to 12th, the various presidents afterwards took the chair in turn, and the communication of papers, and discussions thereon, took place. Authors were called to the rostrum in regular rotation from each of the federated societies, and so there was a rich striation of tongues throughout each morning's work. The short 10 minutes allowed to each speaker was a stimulus to great rapidity of elocution, and had it not been for the continuous use of a good epidiascope, showing slides, drawings, &c., these meetings would have been of little interest to any but a professed philologist. They presented, however, a sustained interest in the study of personalities, and were not without humorous, and sometimes dramatic, interludes. The ancient rites of scientific discussion were only occasionally aroused. At one point a brilliant Belgian lady anatomist confronted with eloquent zest the conclusions of a stolid German veteran; at another two of the Anatomische Gesellschaft shrugged scathing scorn at each other's views; but over all the President's bell kept the "rounds" strictly within the three minutes to which "discussion" speeches were allowed to extend. Of humorous incidents two may be recorded, one in which a vigorous young German, dissatisfied with the manipulation of his slides by the epidiascopist, rushed from the rostrum to the instrument, brushed aside the timorous operator, and, putting in his own slides the while, gave the rest of his oration, with lightning rapidity, from under its heavy black curtains; the second was furnished by the enthusiasm of a soft but very persistent tongued lecturer from a remote German school, who had evidently accumulated there a vast series of observations on artificial monstrosities. He came at the end of a forenoon séance, when the "House" was thinning at any rate, but at the moment when his ten minutes were gone, and everybody prepared to rise and go, he launched out at a great rate on another tack, to the discomfiture of the President, who rang the bell again ostentatiously in his face, and of the secretary who breathed soft dissuasion into his ear, all to no effect. Flourishing many pages yet to come, he bent his head again to the task, and was actually still at it, all alone in the large auditorium, after the President, secretaries, and the whole Congress had slid out on their way to lunch!

These morning sittings were often uncomfortably noisy through scattered conversations being carried on throughout the hall, with little consideration shown to the speakers on the rostrum, and on the whole were much less satisfactory than the afternoon meetings. One good issue from them, however, was the appointment of a special commission (international) to revise and systematise the whole question of embryological nomenclature. The suggestion came from the American Society through Professor Minot as spokesman, and it was cordially taken up, the chief posts in the commission being rightly given to American representatives, the presidency to Professor Franklin P. Mall, and the secretaryship to Professor Minot.

The afternoon meetings, it was agreed by all, were the most stimulating and useful part of the Congress. These were held in Professor Brachet's Institute of Anatomy in the Parc Leopold. This Parc—an extensive and delightfully wooded oasis on the eastern outskirts of the city—was formerly a zoological garden, and is now the home of the medical buildings of the University. These lie scattered throughout it, overlooking a picturesque lake, as a series of fine instituts, in which the various departments are housed. The Anatomy Institute is a large, roomy, well-lighted building supplying ample accommodation for the afternoon meetings, which took the form of "go-as-you-please" demonstrations of dissections, reconstruction models, and microscopic and experimental work. The specimens lectured on in the mornings were mostly on view here in the afternoons, and there were in addition many extra demonstrations. The moving crowd gathered here and there in little knots to tackle, at close range, the various points made, and the discussions here were really useful, with the subject matter close at hand within the view of all. It was here, too, that personal acquaintances were most readily made and friendships struck likely to be of lasting advantage.

A most interesting lecture was given one afternoon in the Natural History Museum, closely adjoining the Parc Leopold, by Professor Dollo, in which he demonstrated the unique and colossal specimens of the Iguanodon bernissartensis, of which Brussels is the proud possessor.

A most pleasant social function of the Congress was a banquet held in the Taverne Royale on the evening of Wednesday, August 10th. Professor Waldeyer presided over a large assemblage of ladies and gentlemen, and ably gave the usual loyal and patriotic toasts. Several speakers paid high tribute to the hospitality of the city of Brussels and its university, and to these Professor Brachet cordially replied. Professor Henneguy, for France; Professor Minot, for America; Professor Romiti, for Italy; Professor Schäffer, for Austria; and Professor Macphail, for Great Britain, all added their appreciation of the energy of those who had charge of the local arrangements which had ensured the success of the Congress. Professor Renant and Professor Bardeleben also spoke, the toast of "The Ladies" being ably expounded by the latter.

The results of the Congress as a whole throw a strong sidelight on the present position of British and colonial anatomy. Both America and the continent afford striking contrasts to the British school in the matter of embryology and histology; the communications of the members of the two former were particularly rich in microscopic anatomy, with Great Britain, comparatively speaking, nowhere. The relegation of the teaching of histology to the physiologists in this country is a phenomenon which our colleagues in America and the continent profess to be quite unable to understand and to them it seems a quite unnatural combination. Certainly the contributions from members of the Anatomical Society—the naked-eye dissections of the eye and orbit, by Professor Thomson and Dr. Whitnall; the embryological sections and models by Professor Hill, Professor Evatt, and Professor Cameron; the anthropological results by Professor Berry and his colleagues in Melbourne—amply show that our workers can hold a brief in these subjects as ably as any of our "federated" brethren, but the general conclusion forced upon us by the work shown at the Congress is that the almost complete relegation of the teaching of histology to the hands of the physiologists has been a distinct blow to the prestige of British anatomy.

The successful result of the meeting in Brussels amply justifies the belief that the Federative Congress may in the future be looked forward to as a useful, stimulating, and enjoyable event by anatomists the world over, and a cherished means of forging the bonds of brotherhood between all workers in anatomical science.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Bristol General Hospital.

Mrs. Proctor Baker has given £10,000 to provide a maternity ward for the Bristol General Hospital. The ward is to be dedicated to the memory of her late husband, Mr. W. Proctor Baker, who was for several years president of the institution.

Water-supply of Minehead.

The inauguration of the supplementary water-supply of Minehead was carried out on August 13th, when the supply was turned on by Mr. A. F. Luttrell of Dunster Castle, in the presence of a large gathering. At present Minehead has four sources from which the water is derived—namely, Broadwood, Periton, Woodcombe, and Longcombe. The new works derive their supply from an area of about 400 acres, with a collecting chamber of 5000 gallons, the water

being connected with the town by about six miles of four-inch pipes. The enlargement will now allow for a supply of 200,000 gallons daily, which practically doubles the former amount. The Local Government Board about 12 months ago sanctioned a loan of £3850 for the undertaking.

Longevity.

Mr. Richard Peter, J.P., who is stated to have been the oldest solicitor and magistrate in England, died recently at Launceston. He was born at Bodmin on Oct. 9th, 1809, and was baptised in the parish church of that town on Dec. 3rd of the same year.—Miss Maria Leman celebrated the hundredth anniversary of her birthday on August 19th, and received a congratulatory telegram from the King. Miss Leman was born in Clifton, Bristol, and has resided for 52 years in Ilfracombe.—At a recent meeting of the Dorchester board of guardians it was stated that a man named Job Green who had been admitted to the workhouse was born at Joller Porcorum, West Dorset, in June, 1809, and was consequently in his 102nd year.

The British Red Cross Society.

A very sncccssful meeting was recently held at Barnstaple in connexion with the British Red Cross Society, when it was decided to form a voluntary aid detachment for men in the town, with Dr. George Stephen Ware as medical officer.

Presentation.

At a meeting of members of the Axe Vale Golf Club, held at Seaton (Devon) on August 20th, Mr. Henry Albert Pattinson, medical officer of health of Seaton urban district, was presented with an illuminated address and a cheque for 55 guineas in appreciation for his services as honorary secretary to the club.

August 29th.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Housing Conditions in Newport.

IN his annual report for 1909 the medical officer of health of Newport, Dr. J. Howard-Jones, gives some interesting information relating to the housing of the working classes in that town. The population of the borough is estimated at 78,336, and during the past 20 years over 8000 new houses have been erected, but there is still a scarcity of cottages at a low rental, which leads to the occupation of houses by more than one family. During the past five years more than 1000 insanitary or dilapidated houses have been dealt with by a special subcommittee of the council, who have required 48 houses to be closed. It is rather disquieting to be told that even when the older cottage properties have been put into a proper condition the subcommittee will still find work ready to its hand in connexion with houses erected within recent years, which, it is said, are fast degenerating into a dilapidated state. Dr. Howard-Jones attributes this unsatisfactory position not only to the extremely speculative quality of work in the buildings, but also to dilapidations produced by unsatisfactory tenants. As a remedy for the latter he suggests that the owners of cottage properties in the town should combine and make a "black-list" of those tenants who habitually neglect and ill-treat their dwellings. It would then be possible to exercise discretion in the selection of tenants, and if those who were found to be undesirable experienced difficulty in obtaining a house they would be compelled to treat the landlord's property with greater respect. The health committee has given some assistance to property owners by serving a notice upon the occupiers of those houses which have been recently repaired, renovated, or cleansed, pointing out that it is the duty of the tenant or occupier to keep the house and premises generally in a thoroughly sanitary condition, and that the occupier will be prosecuted if he fails to keep the house in a clean and sanitary state, or if he allows a sub-tenant to neglect his rooms so that they get into a dirty state. The notice is printed on a card so that it can be hung up. Water-carriage is universally adopted in Newport, though it is to be regretted that a considerable number of cottage houses are not provided with a flushing cistern. This is due to what appears to be misdirected economy on the part of the corporation whose water department makes a charge for this very necessary appliance. A dividend-earning water company might be forgiven for thus taxing cleanliness, but such a course is unpardonable in a sanitary authority.

Pauperism in West Wales.

At a recent meeting of the Haverfordwest board of guardians Mr. Hugh Williams, a Poor-law inspector of the Local Government Board, commented favourably upon the decrease which had taken place in the amount of pauperism in the union, and, referring to the probable effect of the Old Age Pensions Act, he said that he had been greatly impressed when investigating cases of appeal under the Act by the very narrow margin which existed between the economic position of the small farmers in the hill countries of Wales and the actual paupers. The latter were relieved of all responsibility for the future, while the farmers did not know what might happen to them any week, and were often on the verge of pauperism.

The Brecon Education Authority and School Accommodation.

It is to be hoped that the views of the Brecon education authority as to the accommodation and furnishing of the public elementary schools under their charge are not held by any other similar authorities. The Board of Education has insisted that certain schools in the county which require to be equipped with new desks should be provided with those of the dual type. A clerical member of the education committee protested against this form of desk apparently for the sole reason that the schools could not then be used for other purposes than those of a school. The majority of the committee appeared to agree with their colleagne that a school building was not intended to be used primarily as a place in which a school should be held but for parish meetings and similar public gatherings, and three members of the committee were appointed as a deputation to interview the Board on the matter.

August 23rd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Report on the Dublin Hospitals.

THE Board of Superintendence of the Dublin hospitals which is a body charged with the inspection of the Dublin hospitals in receipt of Government grants, has recently issued its annual report. The institutions under supervision are: three general hospitals—Dr. Steevens', the Meath, and the House of Industry; two maternities—the Rotunda and the Coombe; the Westmorland Lock, the Cork Street Fever, the Royal Victoria Eye and Ear, and the Royal Hospital for Incurables. The grants were not given on any regular system, and most, if not all, of them date from the time of the Irish Parliament. The smallest grant is that received by the Royal Victoria Eye and Ear, £100; and the largest by the House of Industry, £7600. The latter hospital, like the Westmorland Lock Hospital, is practically maintained by the Government. The board comments favourably on the low cost per bed of the Dublin hospitals, which seems to be less than half that in comparable institutions in London, but as it is impossible to separate the expenses of out-patient departments, the comparison is hardly exact. The board records no fault in the general management of the hospitals superintended, but notes the willingness of the individual hospital authorities to accept suggestions on matters of detail where improvement appears possible. The work done in the out-patient departments is stated not to be as thorough in character as that in the wards. The board quotes the work done by "lady almoners" at St. Thomas's and other hospitals, and suggests the employment of similar officers in connexion with the Dublin hospitals. The references of the report to the out-patient question have roused a good deal of newspaper comment and correspondence in the daily papers. Much criticism has been directed at the hospitals for not solving a problem—that of sickness in the slums—which hardly comes into their field. Doubtless good could be done by linking hospital work with the activities of other charitable agencies, such as those for home nursing.

Infant Mortality in Ireland.

A conference on infant mortality was held last week by the Women's National Health Association. In her openi

atement Lady Aberdeen, the President, mentioned that the ıte of infant mortality for Ireland as a whole, 92 per 1000, ɔmpared favourably with that for England, 126, and for ɔotland, 116. Nevertheless, the rate in the larger Irish ɔwns was very high—in Dublin 141 per 1000, in Belfast 139, ıd in Cork 126. The Women's National Health Association as now working at the subject, and had established a ıbies' club in Dublin where instruction was given to mothers ı the best ways of feeding and caring for their children. The ɔociation also managed the pasteurised milk depôt estab- ɔhed by Mr. Straus. Lady Plunket gave an interest- g account of her campaign against infant mortality in ew Zealand organised by Dr. Truby King, and of the ork of the "Plunket Nurses," who give help where required the tending and nursing of babies.

A New Hospital for Consumptives in Dublin.

Some time ago Mr. Allan Ryan offered to the Women's ational Health Association a sum of £1000 a year for five ɔars to be applied as that body thought best in the campaign ɡainst tuberculosis. After due consideration it was decided invite the Dublin corporation to lend its isolation ɔspital on the Pigeon House Wall for use as a hospital for lvanced cases of consumption. To this the corporation ɡreed, and the hospital was opened last week by His xcellency the Lord Lieutenant. There is accommodation r 25 patients. The medical staff are: Sir John Moore onsulting physician), Dr. M. F. Cox (consulting physician), r John Lentaigne (consulting surgeon), Dr. Frank Dunne isiting physician), and Dr. Alfred Boyd (visiting physician). ith the additional accommodation soon to be provided at e Royal Hospital for Incurables, this new hospital should ɔ much to isolate cases in their most infective stage.

Typhus in Connemara.

A serious outbreak of typhus fever has occurred in ɛttermullen and Gorumna, two islands off the coast of ɔnnemara. Some seven or eight deaths have occurred in e past few weeks, and about 30 cases in all have been dis- ɔvered. There was great difficulty in nursing the cases, as e affected district was some 30 miles from the workhouse ɔspital. It was next to impossible to find accommodation r the nurses who were brought from Dublin. After some ne, however, a national school was placed at the disposal the authorities as a temporary hospital. Mr. G. A. ɾancis, the medical officer of the district, is assisted by the ficer of the neighbouring district, Dr. J. F. Byrne, and by e Local Government Board inspector, Sir J. Acheson acCullagh.

A Medical Deputy-Lieutenant.

Sir John William Moore, visiting physician to the Meath ospital, and past president of the Royal College of ıysicians of Ireland, has been appointed a Deputy Lieutenant r the county of the city of Dublin.

The Belfast Hotel Fire.

The jury, in returning a verdict in reference to the recent fire the Kelvin Hotel, Belfast, as a result of which six people ed and others were seriously injured, have recommended that e Belfast corporation be strongly urged to seek immediate ɔwers from Parliament, giving them authority, firstly to make ɣ-laws to demand that all alterations to existing properties ıould be carried out to their requirement, and secondly inspect the hotels in the city and to see that proper ɾovision is made for the safety of persons residing therein. ıey also recommend that notices be placed in prominent aces showing means of exit, and that additional fire-alarms e erected throughout the city.

Memorial to King Edward VII. in Belfast.

A number of representative citizens of Belfast, on the vitation of the Lord Mayor, met recently in the City all, Belfast, to take into consideration the question of ecting a memorial in honour of his late Majesty King dward VII. After very full consideration of the matter it as decided to call a public meeting in the City Hall on ept. 13th, at which it would be recommended, as the most itable tribute to the character and sympathies of his late ajesty, that an additional block for administrative and her purposes at the Royal Victoria Hospital (which is im- eratively necessary for the further development of the work the institution) should be erected and called by his name. his was a unanimous decision.

County Antrim Infirmary, Lisburn.

It has been suggested that the county of Antrim should give to the infirmary in Lisburn £200 as an annual increase. The representative of Ballymoney said, at a weekly meeting of the guardians of that town on August 25th, as far as they in Ballymoney were concerned, the Lisburn Infirmary was a dead letter. They, no doubt, paid £84 3*s.* 11¾*d.*, which was their proportion of the union contribution of £600 to the Lisburn Infirmary, while on the recommendation of their various medical officers they had paid for patients sent to other hospitals £56 13*s.* 1*d.* They paid that as well as the contribution to Lisburn County Infirmary, from which they derived no benefit at all. They might, he explained, either continue their present plan, or in the future they might send all patients to the Lisburn Infirmary. To test the matter, he moved the following resolution, which was unanimously passed:—

That the medical officers of this union be requested to inform the board of guardians if, in their opinion, it would be advisable in the interests of their patients requiring special treatment to send them to the county infirmary or to the special hospitals in Belfast as heretofore.

Primary Education in Ireland.

The annual report of the Commissioners of National Education in Ireland for the year 1909 is sorry reading. Owing to want of funds they have had to suspend the awarding of grants for the building and improving of national school houses, many of which are in a deplorably insanitary condition. Only four small grants have been awarded in the 12 months, and the Commissioners add that it is "impossible to say how much longer this serious crisis will continue." Recently the Commissioners told the Treasury that £100,000 per annum would be required for five years. The Treasury would not promise more than £40.000 for three years, this sum to be supplemented by £70,000 from the Irish development grant, but it was discovered there was no available money to be got from the development grant, and so we have to put up with school honses that are in too many cases a disgrace to the country and a menace to public health.

Severe Weather in Ulster.

The present summer will long be remembered in Ulster as specially characterised by rain, storm, and absence of sunshine; indeed, there have only been about three weeks of anything like normal weather since June. However, last week was by far the worst, and as a result thousands of acres were laid under water, crops were terribly injured, and an immense deal of damage was done to property. On the night of August 26th several parts of Belfast were flooded.

August 29th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

New Apparatus for the Treatment of Fractures.

AT a recent meeting of the Surgical Society M. Broca presented a report on a new apparatus submitted to the society by M. Lambret. It was intended for the reduction of fractures through the diaphyses and was provided with two pegs, which were fixed in the bone, one above and the other below the seat of fracture; at a distance from the fracture there were other pegs connected to a rod which could be lengthened at will by means of a rack and pinion. He said that the apparatus seemed to be ingenious and would probably be useful in cases of great displacement. It, moreover, permitted massage of muscles and joints and was not likely to cause discomfort to the patient. The appliance is an ingenious combination of methods which have been recommended by various other surgeons.

Treatment of the Morphine Habit.

In the treatment of cases of the morphine habit M. Morel-Lavallée recommends that at the outset the morphine should be replaced by some allied narcotic which should be administered not subcutaneously but by the mouth. At a meeting of the Société Médicale des Hôpitaux he said that there were three narcotics of which trials had been made—namely, héroine, which had the disadvantage of being more toxic than morphine; dionine, which could only be administered hypodermically and was, moreover, very expensive; and pantopon, which was a preparation of opium

discovered by M. Sahli of Berne. Pantopon was of constant composition and possessed all the properties of opium, including its sedative, antitoxic, and psychical effects. From comparative trials of opium and pantopon made in the wards of which M Morel-Lavallée had charge it would seem to be a very useful drug, capable of rendering great services in everyday practice.

Congress of the French Pædiatric Association.

The Congress of the French Pædiatric Association was held recently in the small amphitheatre of the Faculty of Medicine. Professor Hutinel, who presided, delivered an address in which he spoke of the absolute necessity of French specialists in children's diseases attending such a meeting every year. Professor Weill of Lyons and Professor Moussous of Bordeaux were then appointed provincial delegates on the council, after which the reading of papers and their discussion were immediately proceeded with. The thymus body was the first subject on the official programme. After M. Marfan and Professor Weill had made some remarks on its pathology, M. Victor Veau, in reviewing the surgical questions connected with it, said that the principal operation was partial subcapsular thymectomy; this was not a severe operation and gave very good results in sudden attacks of suffocation and in permanent dyspnœa. In spasm of the glottis it was not indicated unless physical signs of hypertrophy of the thymus body coexisted with the spasm. The effects of this operation in cases of thymic stridor have not been encouraging, and it was therefore not necessary to remove the thymus body when only stridor was complained of. Other speakers on the same subject were M. Crnchet, M. Tixier, M. Frœlich, M. d'Oelsnitz, M. Nobécourt, M. Roux, M. Boissonnas, and M. Barbier. The second subject on the official programme was the bacteriology and epidemiology of cerebro-spinal meningitis, introduced by M. Richardière and M. Lemaire. M. Moussous and M. Rocaz described the symptoms and diagnosis of the disease. M. Netter, in discussing the treatment, mentioned lumbar puncture, which was so useful in diagnosis, hot baths, and the most efficacious method of all—namely, antimeningococcic serum, preceded by collargol either applied externally or injected intravenously. Pain might be combatted by salicylate of sodium, or still better by external application of analgesics, by salicylate of methyl, by guaiacol, by spirosal, by salol, and in exceptional cases by injections of morphine. Anorexia might be relieved by hydrochloric acid and pepsine. The antimeningococcic serum ought to be injected into the spinal canal. A quantity of cerebro-spinal fluid greater than the serum to be injected was first withdrawn by lumbar puncture, and the injection was then made slowly so as to avoid sudden compression. The amonnt of serum injected varied according to circumstances. M. Netter usually gave 30 cubic centimetres, bnt in urgent or intractable cases he might give as much as 45 or 60 cnbic centimetres. He gave injections systematically for three or four successive days, after which they were stopped or continued according to the indications given by the patient's condition. Usually they were continued until the cerebro-spinal fluid contained no more microbes. The use of the serum had occasionally been followed by serious and even fatal effects. In the subsequent discussion M. Montagnon said that in cases of cerebro-spinal meningitis lumbar puncture might cause a rise of temperature amounting to 1° or 1·5° C. The next meeting of the association will take place in Paris dnring the first half of the month of October, 1911.

August 29th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Cholera in Southern Italy.

"IF the King is not at the seat of danger, you may be snre that the cholera is not spreading." So said to me an Italian consultant to-day, and the saying is full of significance. Informed every few hours of the movement, upwards or downwards, of the epidemic, his Majesty knows exactly whether or no his departure for the said "seat of danger" is called for, and his informants, official and non-official, know equally well that to exaggerate or to minimise the truth would entail on them the severest penalty. Confidence is thus inspired throughout the kingdom as to the success of the measures taken to circumscribe the disease, and while n effort is spared, even in the provinces farthest removed fro the cholera-visited region, to guard against the enemy, th confidence is in nowise excessive. Another fact, hardly le reassuring in the hygienic situation, is the publish opinion of Dr. Guido Baccelli as to the efficacy of the oper tions set on foot by the Direzione Generale della Sanit whose working head, Dr. Santoliquido, is, in Baccelli estimate, "a man of great ability and of not less modest controlling a staff of assistants of equally approv intelligence and energy." What is required in such visit tions, continued the dean of Italian medicine, is t coöperation of the public with the Government. When t two work in sympathy the results are as immediate tbey are satisfactory. In 1894, for instance, Ron was the scene of an explosion of cholera, but aft numbering some 14 victims it was practically stamp out by the sanitary officials, seconded by the stea observance of regulations on the part of the citizens. similar result was obtained during an outbreak of *pes bubonico* at Naples—the Government officers profiting the loyal coöperation of the people. Asked categorical whether the present outbreak in Apulia was really one "cholera morbus" or "Asiatic cholera," Dr. Bacce replied: "Undoubtedly, when Professor Gosio, the high accomplished bacteriologist of the Ufficio della Sani Generale, has pronounced it to be so by every test at h command, there can be no question as to the nature of t disease. All things considered," said Dr. Baccelli in co clusion, "I do not apprehend a diffusion of the disea Sporadic cases may occur, but the epidemic will practical remain circumscribed till it disappears." It was not t August 19th that Italy fully realised that cholera had effect a landing on the Apulian littoral. Possibly introduced by band of gipsies from Batoum, or, more likely, by crews vessels hailing from the Russian shores of the Bla Sea, it declared itself a few days before that da Trani, on the 18th, having numbered 26 cases and 15 deat and other towns in the province of Bari registering simil returns, though, on the whole, death did not follow rapidly on the first symptoms as at the former seaport. T interval, indeed, between seizure and collapse was br enough to justify the epithet "fulminante" applied to t cases, a fact which undoubtedly induced something li panic, followed by a stampede of such of the population possessed the means of travelling. As invariably occurs such visitations, it was the patients of least "resisti power," or whose physical condition, impaired by alcoholi or depraved habits, made them "candidates" that we "picked off" at the beginning—the less predisposed bei affected later and with less virulent symptoms, yielding lower percentage of mortality. In the day now passing t returns are still more reassuring, though the precautions tak by the authorities on the mainland and in the islands are in respect relaxed. Dr. Santoliquido has drawn up and issu for general distribution an admirable little summary of t nature, the origin, the mode of propagation, and the tre ment of cholera, with the main rules to be observed, p sonal and public, in presence of the visitation. The gre body of the citizens seem already responding to the app thus made to their intelligence and moral conrage; at lea we have fewer instances of recourse to "faith-healing" from other developments of "Christian Science," whi take the form of processions to the shrine of this that local saint whose intervention is invoked by rit observances and votive offering. This coöperation of Gove ment and people, hitherto so rare but now penetrati to the more superstitious of the rnral population, is good augury, not only in the immediate future, but also prospect of the hard winter too surely in store for Ita As Signor Antonio De Tullio, president of the Chamber Commerce at Bari, has just indicated to the public a the profession, the outlook for the close of the y and the commencement of the next is gloomy inde Vineyards destroyed by cyclones and "nubifragi," gr crops poor in quality and still poorer in quantity, t increased cost of victuals, the rise in house rent— of the conditions at present pre-occupying commune a town council alike—have found a terrible ally in the o break of cholera. The "last straw" in the collapse of t public welfare would be such a "scare" as would keep t foreign visitor aloof and deprive Italy of a resource whi brings in nearly half her yearly revenue. Fortunately th

"scare" finds less and less encouragement day by day—thanks to the energy and the tactics of the Board of Health, reinforced by the calm and the fortitude of the mass of the population.

August 26th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Cholera Epidemic.

THE recent outbreak of cholera in Russia and Italy, two countries conterminous with Austria, has caused considerable anxiety among our population, and the most stringent measures have been adopted by the Board of Health to prevent any extension of the disease across our frontier. The danger, however, is great, for intimate relations exist between the Austrian population in the border districts and their Russian or Italian neighbours. Austria being inhabited by eight different nations, the frontier is, for the most part, a political rather than a national line of separation, and it will therefore be easily understood that the commercial and social interconrse between the residents on both sides of it is certain to increase the danger of an extension of the disease. Ever since cholera has been reported from the East quarantine has been imposed on all travellers arriving from that qnarter, but now there is a very strict supervision not only of all travellers, but also of their luggage and of merchandise entering this country. Linen and second-hand clothes, in which an extensive trade is carried on, are subjected to snch an ordeal that this class of bnsiness is nearly stopped. The danger is much increased by the hostility which the bulk of the population in Russia is manifesting towards the sanitary procedures of their respective governments as appears from the rioting which has followed attempts at disinfection. In Austria, however, the population is well aware of the necessity of prophylactic measures, and submits to the unavoidable inconvenience in a spirit of resignation. Leaflets explaining the nature of the epidemic, its danger, and the means of combating it have been freely distributed, and by this means the supervision of many possible sources of contamination and importation has been undoubtedly facilitated.

Death of Professor Oser.

Professor Leopold Oser, chief of the Rothschild Hospital and of the medical department of the Vienna Poliklinik, died recently, after a prolonged illness, in his seventy-first year. Professor Oser had a high reputation as a specialist for diseases of the stomach and alimentary canal. He contributed numerous articles on these qnestions to the medical journals, and his treatise on "Diseases of the Pancreas" is a standard work on the subject. He was the first to point out the importance of the mechanical forces involved in stenosis of the pylorus. The significance of pain in the diagnosis of duodenal ulcers and peptic ulcers in the stomach was also one of his early discoveries. As an author he was so painstaking in his work that his rate of literary production was rather slow. A twelvemonth ago he reached his seventieth year, which is the age limit for a professor in an Austrian university, but in consideration of his services he was granted the prolongation of the so-called honorary year (*Ehrenjahr*). During this period he died, and his loss is felt keenly by his nnmerous friends, pupils, and patients. His position as Chief President of the Board of Health with the title of an Imperial Councillor placed him on practically the highest level of distinction attainable by a medical man in this country.

Infectious Diseases in Austria.

A recently issued official report gives some interesting statistics relative to the prevalence of infectious diseases in this conntry during the spring months of 1910. A case of small-pox which was imported from Russia and terminated fatally was the means of communicating the disease to a man employed in the cemetery; this man in his turn infected his medical attendant, whose brother and sister also became ill. All were vaccinated and recovered. Another series of 6 cases occurred in Galicia, on the Russian frontier. Scarlet fever was prevalent in the rural northern districts; in Vienna only 2100 cases were recorded, a proportion of 1 case per 1000 inhabitants; in the southern mountainous regions and in the coast districts only sporadic cases occurred The mortality was 7·5 per cent. on an average, death being due to heart failure in 60 per cent. of the cases. Under the heading of diphtheria there were 2733 cases with a mortality of 11·8 per cent.; the majority of these patients were treated with antitoxic serum, except in Galicia and Carinthia, where less than 50 per cent. of the patients received serum treatment; the virulence of the disease was said to have been gradually diminishing for several years. Typhoid fever occurred in 3024 cases, of which number more than 60 per cent. happened in Galicia on the Russian frontier; the cause seemed to be polluted water in nearly all the cases there; the mortality was 7·7 per cent.—about the same as for diphtheria. A few sporadic cases of blackwater fever occurred in Bohemia, with a mortality of 11 per cent. Only 9 cases of dysentery were reported, with 3 deaths. Cerebro-spinal meningitis was notified in 50 cases, with 11 deaths; there were 6 cases in Vienna; the small epidemics in various countries of the Empire have had an average mortality of 29 per cent. Under the heading of poliomyelitis anterior 59 cases were reported, with 5 deaths and 25 recoveries; the whole of these cases were sporadic and were distributed all over the Empire. Under the heading of pertnssis 7316 cases were notified dnring the spring, but it mnst be added that many cases are not reported; 2·5 per cent. of the patients succumbed to the disease. Erysipelas occurred in 558 cases, with a mortality of 5 per cent. There were over 10,000 cases of trachoma, mostly in Galicia, but this number includes many cases long under observation, only 232 new cases having been reported. Under the heading of anthrax 11 cases were reported, with 2 deaths; all these patients had been engaged in the leather and hair trade, and the cases were sporadic.

August 29th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Cholera in Russia; Feeling in Turkey.

MOST serious accounts of the spread of cholera in Rnssia have come to hand. The following official statistics are published in the Russian papers. Of 57,720 persons attacked, 25,554 have died; that is to say, as many fatal cases have already occurred as in 1908 and 1909 taken together. The epidemic has been most severe in the districts of Don, Ekaterinoslav, Kherson, and Kuban. Professor Rein considers the cholera epidemic of this year as being a national calamity and one affecting the whole fabric of the Russian Government. He was appointed by the Government to execute all the necessary measures of prevention. The greatest danger seems to consist in the fact that the cholera has infected such territories and out-of-the-way districts of the empire where no medical help exists at all. In many villages the peasants shut up their houses and fly in mad despair in all directions, thus carrying with them the germs of the scourge and infecting large tracts of land. In the province of Kyazan four cities and 49 villages are infected, and hundreds of persons are dying weekly, and a similar state of things exists in the districts of Yelisawatgrad, Bakhmut, Novotcherkask, Kostroma, and Poltava. In the city of Ekaterinoslav alone 2044 persons were infected and many hundreds died. In Petersburg there were 1268 cases, of which 370 died. Even in Tzarskoye Seloe, the residence of aristocracy, where there is excellent drinking water, two cholera cases occurred. What makes the epidemic so specially serious and increases the death-rate is the superstitions trend of mind of the Russian lower classes of population. People have been mutilated, tortured, or killed because they are suspected of having poisoned the wells and other water-snpplies. The police seem to be helpless in dealing with a low, ignorant rabble. In many places the sanitary commissioners and medical officers meet with enormous difficulties in attempting to take the necessary measures of prevention and cure. A good number snstain heavy injuries; some even lose their lives in their attempts at alleviating the distress. In Constantinople itself alarm is spreading. Great precautions are being taken to prevent the Russian epidemic spreading to Turkey. Milk depôts, water-sources, markets, and the like are being visited by sanitary agents of the municipality and snbmitted to strict examinations. I learn that ice-cream vendors are forbidden to traffic in the streets. As if the

cholera were not misfortune enough for Russia, bubonic plague is reported from Odessa, where it made its appearance on May 22nd. The authorities, however, kept the fact secret in order not to cause public alarm. The first two deaths from plague occurred in a baker's shop. From here the epidemic spread. The exact number of deaths is not given, as the authorities continue to hide the full extent of the epidemic. Isolated cases of bubonic plague still occur. In addition, a cyclone recently devastated the northern part of the Crimea, and was accompanied by a brief earthquake shock that was felt over the extent of 200 kilometres to the north of the Crimea. All these manifestations excite the superstitious feelings of the Russian population, and the feelings of apprehension are spreading to this country.

August 15th.

CHARTHAM ASYLUM, CANTERBURY.—The life-saving apparatus at the East Kent Lunatic Asylum, Chartham, has just been augmented by a new specially designed fire escape of Merryweathers' "self-supporting" pattern. It has three telescopic ladders extending to a height of 40 feet, and its properties are such that when fully extended it can stand entirely self-supported, with a man at the head of the ladders, without resting against a building and without the aid of poles or props. It can thus be used as a water tower for directing a jet into the upper floors of burning premises. It is claimed to be the lightest and handiest self-supporting escape extant.

THE ABERDEEN PARISH COUNCIL AND THE POST OF VISITING MEDICAL OFFICER TO OLDMILL POORHOUSE.—At the present time considerable interest is being taken in medical circles in Aberdeen over the appointment of a visiting medical officer to Oldmill Poorhouse. Prior to the year 1908 there were two poorhouses (East and West), both situated in the city, and each with a visiting medical officer. In 1908 a new poorhouse was opened at Oldmill, a distance of three miles from the city, to take the place of the two that were in town. The medical staff at Oldmill was to consist of a visiting medical officer and a resident medical officer. The late Dr. J. J. Y. Dalgarno, from the East Poorhouse, was appointed visiting medical officer at a salary of £70 per annum, with £5 additional under the Lunacy Acts. This salary has always been considered totally inadequate for the work to be performed, keeping in view the facts that the poorhouse is three miles from the town, that there are always over 200 patients in the infirmary alone, and that the duties and responsibilities, as laid down by the parish council, are by no means light. Amongst other things, the visiting medical officer has to visit the poorhouse every alternate day and at any other time should emergency arise, write quarterly and annual reports to the council and Local Government Board, and generally supervise the dietary, sanitation, and ventilation of the poorhouse. As the poorhouse is situated over three miles from the centre of the city and at a considerable distance from a tramway terminus the travelling expenses make a serious inroad on the salary given; in fact, calculating moderately, more than half the salary would be absorbed by driving expenses at ordinary Aberdeen rates. Owing to the lamented death of Dr. Dalgarno in May last the post of visiting medical officer became vacant, and the Local Government Board took this opportunity to bring pressure to bear on the parish council to improve the medical administration of the poorhouse and to considerably increase the salary. In spite of this the post has been advertised by the parish council under the old conditions and at the same salary. So strongly did the medical profession feel in the matter that a meeting of the local branch of the British Medical Association was held. After a full and lengthy discussion of all the circumstances and conditions, the following resolutions were unanimously agreed to:—(1) That the salary at present offered by the parish council is grossly inadequate; (2) that no medical practitioner should apply for the post under the present conditions; and (3) that the minimum salary should be £150 per annum. It was further resolved that a circular embodying these resolutions should be sent to all medical practitioners in and around Aberdeen, and that the parish council and the Local Government Board for Scotland should be informed of the action taken by the local branch of the British Medical Association.

Obituary.

SIR CONSTANTINE HOLMAN, M.D. ST. AND., M.R.C.S. ENG., L.S.A.

EVERY member of the medical profession will share our profound regret at the announcement of the death of Sir Constantine Holman, which occurred at Ramsgate on August 18th, in his 81st year. His death was unexpected, for although during the last 18 months or so the burden of his years had begun to weigh on him, and arterio-sclerosis was telling its tale, he was apparently in his usual health when he left London for Ramsgate to spend an accustomed holiday. Until comparatively recently he had enjoyed robust health for so old a man, and it is difficult to associate the idea of death with his fine presence, erect port, well-maintained mental energy, and unfailing interest in the numerous and important affairs in which he had played a leader's part. But after he had been at Ramsgate a week he suffered from a severe epistaxis, and from this time forward he sank, painlessly and quietly, it being impossible to imagine a more peaceful ending to a strenuous career.

Sir Constantine Holman was the son of Dr. Henry Holman, a medical practitioner at Hurstpierpoint, Sussex. He was born on Oct. 23rd, 1829, and received his early education at Brighton College, whence he proceeded under the old system of professional training to Reigate, where he was apprenticed in 1847 to Messrs. Thomas and Peter Martin, his connexions by marriage, who had a large practice in that district, and enjoyed a professional position which made training under them valuable. From the beginning of his career Holman was plunged into medical politics and the organisation of medical benevolence, for Mr. Thomas Martin, his immediate chief, was a vigorous worker in these fields. In 1848 Holman acted as assistant to Mr. Thomas Martin in the secretarial duties connected with a movement for the reform of the medical position under the Poor-law, thus getting an early insight into one of the most interesting medico-political problems of the day. He also acted with Mr. Martin as secretary to the Surrey Medical Benevolent Society, which for over 30 years had been active in the county to meet certain wants of the medical profession. Young Holman, therefore, when he went to Guy's Hospital in 1849, had received already a liberal preliminary training, having watched the conduct of a large country practice for two years, and being also singularly well acquainted with the difficulties of professional life as a whole. At Guy's Hospital he won the Pupils' Proficiency Prize of the Hospital Physical Society, and secured excellent testimonials from Aston Key, Hughes, and Cock. In 1851 he proceeded to Edinburgh to complete his studies, taking in the same year the M.D. degree of St. Andrews University, and the Membership of the Royal College of Surgeons of England. Then followed the sojourn in Paris, which in those days the ambitious young medical man made if he was so fortunate as to have the chance, and in 1852 he returned to Reigate, and joined his brother-in-law, Mr. Peter Martin, in the work of practice. Here he married shortly afterwards Marion, daughter of William Street of Norwood, and here he remained until 1892 a partner, and for a long time the senior partner, in a famous firm of general practitioners. The valuable work that he did in the district was well known, not only to those who directly benefited by it, but to many London consultants who at different times had been summoned by him into the country; and we may repeat here the regret that we have registered on previous occasions that the experiences of those who conduct these great practices can seldom be put on record. The lessons in therapeutics of a general sort which they could impart do not lend themselves to literary shape, while the contents of their case-books cannot for obvious reasons be used with the freedom of hospital reports. But the conduct for 40 years of a great general practice, in the scope of whose working persons of all classes suffering from innumerable ills were included, must have given Holman a knowledge not only of pathology and therapeutics but of men and manners, the fruits of which knowledge we would gladly have shared.

In 1892 he left Reigate, literally tearing himself away from his beautiful home, and settled in London, in Gloucester-place, Portman-square, where for some years he continued to practise in a somewhat desultory manner, seeing certain of his old patients as a consultant, and being called

SIR CONSTANTINE HOLMAN.

n counsel by many friends. He still kept up, however, an interest in Reigate institutions, for at the time of his death he was an active member of the council of the Reigate Grammar School and of the governing bodies of St. Anne's, Redhill, and of the Idiot Asylum at Earlswood.

In turning now to Sir Constantine Holman's public career we may well begin with a quotation from our own columns: "For the last 50 years the name of Constantine Holman has been prominent in all the public work of the profession as treasurer and Vice-President of the British Medical Association, Vice-President of the British Medical Benevolent Fund, President of the Surrey Medical Benevolent Society, treasurer and Vice-President of Epsom College (for which he has collected over £7000 by his personal efforts), and member of the committee of the Royal Asylum of St. Anne's, he has rendered signal services to his profession and the cause of charity. So great have been these services that it is thought desirable by his friends and colleagues that some record of their appreciation should be established." These were the words of a proposal made in April, 1904, to establish a testimonial to Dr. Holman, which was to take the form of an art and reading-room at Epsom College, to be called the "Holman Art and Reading Room," and whoever knows the whole story of Holman's connexion with Epsom College will allow that they are moderate words.

About 1847 Mr. John Propert, a London medical man, in the course of reconstructing the Medical Protection Office, in which he displayed the highest personal generosity, determined to combine with it the more ambitious as well as nobler scheme of a "Medical Benevolent College and Fund for the distressed members of the medical profession or their widows." About the same time, 1848, Mr. Thomas Martin was secretary at a meeting of medical men held in the Hanover-square rooms in favour of Poor-law medical reform, and at this meeting young Holman assisted him, and from an account of the meeting published in THE LANCET of that date it will be seen that Mr. Propert was also present. It is easy to understand how through identity of interests Propert and Martin, both established practitioners of high philanthropic aims, were drawn together, and Holman acquired an interest in their schemes. He has recorded that he first met Propert at a meeting of the members of the Surrey Medical Benevolent Society when the latter had come down to negotiate the purchase of four scholarships by the society. The Epsom College scheme was by this time started and Holman became a supporter of it when quite a young man. But his active association with the College began in 1887 when he accepted the office of treasurer, which he held from that date until 1906, during which period there was a gratifying and continuous progress in regard to the College itself and to the Royal Medical Foundation attached to it. This general improvement was due in a great measure to the carefully thought-out and broad-minded policy of its treasurer, aided, as he was ever ready to acknowledge, by the loyal support of a representative council. In the early days of his treasurership the institution fortunately received some generous benefactions, amongst which was the munificent bequest from the late Dr. Bowen of Melbourne. This money enabled the council to carry out a scheme that had long been contemplated—namely, the increase of all pensions from 20 guineas to £30 a year, in order that the aged annuitants might be enabled to spend their declining years amongst their friends and relatives, instead of having to leave all other associations to reside at Epsom. For a long time it had been increasingly difficult to find pensioners who were willing to accept the furnished residences at the College, comfortable though they were; so much so, that some of the suites of rooms were let for school purposes, the rents being divided amongst the senior pensioners in order to raise their annuities to £30. Holman saw that, alike for the good of the school and that of the annuitants, the time had come when the residential system must be done away with, and undoubtedly the College gained in prestige by the alteration in method. One of the first important steps taken by the new treasurer was to introduce an entirely new system of keeping the accounts of the institution under the direction of a chartered accountant, and to provide detailed average sheets in order to enable the council to note increases or decreases in the various branches of the income and expenditure account. On the resignation of Mr. Robert Freeman, the secretary, in 1890, the council decided that all the clerical work in connexion with the school itself should be transacted at Epsom by a bursar, and that the work appertaining to the foundation should be carried out by the secretary at the London office. This proper division of labour was supported heartily by Holman, and the system, which is still in operation, has been found to work excellently. In 1890 the rifle corps, which is now in a flourishing condition, was inaugurated, and the cricket pavilion was built; two years later the fire brigade was instituted, a new service for the prevention of fire being provided shortly afterwards. For all these improvements the treasurer had to find the money, and he was wont at this time to style himself an ingrained and inveterate beggar. In 1894 an amending Act of Parliament was obtained, so as to settle definitely, amongst other questions, the power of the council to admit to the College the sons of those other than members of the medical profession. Power was taken in this Act to alter the name of the College whenever the governors should deem it expedient to make the change, and under this power the present title of Epsom College was adopted at a special meeting of the governors. Holman was deeply interested in this reform, for he perceived that the future of Epsom College as a public school largely depended upon a proper admixture of the class of boys admitted. A medical foundation it would always remain, with special benefits for the sons of medical men, but both the country at large and the medical profession would benefit by the erection of the College into a large and general public school. In 1895 the foundation stone of the lower school was laid by His late Majesty King Edward VII., who was then Prince of Wales, and in this year the laundry was built and fully equipped for doing the whole of the washing for boys, masters, and servants. In the following year the chancel to the College chapel was built and the College well was deepened, thus providing an efficient water-supply. In 1901 the chemical laboratory and lecture theatre were extended, the swimming-bath being enlarged two years later at a cost of over £1000. Somehow, however, the money was found and the necessary credit obtained, and in 1903 a most successful festival dinner in aid of the foundation was held. His Majesty the King, who presided, graciously paid a visit of inspection to the College beforehand. Soon after this event the honour of knighthood was conferred upon Dr. Holman in recognition of the services which he had rendered to the medical profession. Beginning with the year 1904, the financial resources of the College were severely taxed by the cost, which ultimately amounted to £8000, of relaying the whole of the College drainage. Again the treasurer, with his energetic and capable council, faced the position. To meet the necessary expenses almost all the investments belonging to the general purposes fund had to be realised, but Holman and his colleagues were firm that the sanitation of the buildings must be above reproach, and hopeful that so good a work would not be left to suffer—a hope that was speedily realised by some handsome additions to the funds. Sir Constantine Holman's services to the College received public recognition in 1905 by the erection of the "Holman" building, to which reference has already been made; the contributions to defray the cost of this building were collected by the late Dr. John H. Galton, who was then chairman of the works committee.

In 1906 Sir Constantine Holman felt, and frankly stated, that advancing years made it incumbent upon him to resign the office of treasurer with its numerous anxieties. In relinquishing the work he loved so much he had the gratification of knowing that he left the College in a flourishing condition and with a first-class reputation; with 254 boys, as against 192 when he accepted the office; with an addition of 27 acres of freehold land which were acquired during his treasurership; and with all the constitutional and structural improvements which we have enumerated. In accepting his resignation the governors elected him a member of the council, thus enabling his valued experience to be placed at the service of that body until within a few weeks of his death. He worked unremittingly till the end in collecting contributions for the foundation, and had the satisfaction only two months ago of completing the collection of £10,000!

Sir Constantine Holman was a prominent member of, and worker for, the British Medical Association. In 1853 he assisted Messrs. Thomas and Peter Martin in the secretaryship of the South-Eastern branch. In 1863 he became secretary and was President of the branch on the occasion of its twenty-fifth annual meeting. He was almost continuously a

member of the old Committee of Council, and in 1887 he was elected treasurer of the Association. During his long connexion with the affairs of the Association he took a leading part in procuring the removal of the central offices of the Association to London and in bringing about a direct representation of the branches on the Council. His lifelong and successful labours for the improvement of the financial conditions of medical charities—he was secretary for 15 years and president for double that time of the Surrey Medical Benevolent Society—no less than his varied and valuable services to the Association, determined the Council of the British Medical Association on Oct. 19th, 1904, to confer upon him the Gold Medal for Distinguished Merit—the chief honour in its gift, and no honour was ever more richly deserved or aptly bestowed.

We have said enough to show that in Sir Constantine Holman we have lost not only a prominent member of the medical profession but a great man of affairs. In private life a sportsman and a most hospitable man, his friendships outside the medical profession were very numerous, and this fact gave to his views both breadth and generosity. Moreover, his advice, very straight and not always palatable advice, was ever at the service of those who sought it, and its uncompromising nature lost nothing from his physique, his stately presence and dignified manner fitting well with his ideals of conduct. The sympathies of all the medical profession will be extended to Lady Holman and her family in their bereavement.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: Dr. Adolf Steinhausen, surgeon-general in the Prussian Army and author of various literary works. His death occurred suddenly at Metz from heart disease. He was 51 years of age.—Dr. Jobert, formerly professor of zoology and animal physiology in the Faculty of Sciences, Dijon.—Dr. Karl Hermann Landgraf of Bayreuth, who was medical attendant of Richard Wagner for many years. His age was 89.—Dr. Marc Dufour, professor of ophthalmology in the University of Lausanne.—Dr. Catrin, surgeon to the Valenciennes Hospital and corresponding member of the Paris Academy of Medicine.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held in August the following candidates passed in the subjects indicated:—

Surgery.—F. H. W. Brewer (Section II.), St. Bartholomew's Hospital; A. Cordon (Section II.), Birmingham; W. J. G. Gayton (Section II.), London Hospital; M. S. Jevons (Section II.), Royal Free Hospital; J. C. Johnson (Section II.), Middlesex Hospital; J. A. Laughton (Section II.), Charing Cross Hospital; G. Meyer (Section I.), Graz; J. G. Reidy (Sections I. and II.), London Hospital; and H. Stanger (Sections I. and II.), Leeds.

Medicine.—H. R. L. Allott (Sections I. and II.), Sheffield; W. J. Gibson (Sections I. and II.), London Hospital; J. M. Moll (Sections I. and II.), Utrecht and St. Bartholomew's Hospital; J. G. Reidy (Section II.), London Hospital; and A. D. Vernon Taylor (Sections I. and II.), Guy's Hospital.

Forensic Medicine.—E. M. E. Hall Royal Free Hospital; C. B. Hawthorne, Cambridge and Birmingham; J. B. Holmes, Manchester; J. C. Johnson, Middlesex Hospital; A. D Vernon Taylor, Guy's Hospital; and C. B. Welsby, London Hospital.

Midwifery.—D. E. S. Davies, King's College Hospital; E. M. E. Hall, Royal Free Hospital; O. Marshall, University College Hospital; J. M. Moll, Utrecht and St. Bartholomew's Hospital; J. G. Reidy, London Hospital; and A. D. Vernon Taylor, Guy's Hospital.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: F. H. W. Brewer, W. J. G. Gayton, M. S. Jevons, J. A. Laughton, J. G. Reidy, and H. Stanger.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin*: Two well-known and popular professors who are retiring have just given their final lectures with the formalities and complimentary farewells usual on such occasions—Dr. Robert von Olshausen, Professor of Midwifery, and Dr. Hermann, Senator Professor of Medicine. Professor von Leyden has been obliged by the state of his health to resign the post of Principal of the Cancer Research Institute. Dr. Franz, Professor of Gynæcology at Kiel, has been appointed to succeed Dr. Bumm as Director of the Midwifery and Gynæcological Clinic of the Charité. Dr. Julius Heller, *privat-docent* of Dermatology, has been promoted to a Professorship. Sheikh Hamed Waly, who has for some years been reader in Arabic in the Berlin Oriental Seminary has studied medicine to such good purpose that on taking his degree he was awarded it *summâ cum laude*. His dissertation dealt with the history of Arabic medicine. He is 39 years of age, and has been appointed by the Egyptian Government to an important post in the Medical Service.—*Bonn*: Dr. Friedrich Froelich, *privat-docent* of Physiology, has been granted the title of Professor.—*Breslau*: Dr. R. Fuchs, Extraordinary Professor in the University of Erlangen, has been appointed Ordinary Professor of Physiology. Dr. Karl Göbel, *privat-docent* of Surgery, has been granted the title of Professor.—*Halle*: Dr. Schwarzte, Professor of Otology, is retiring.—*Innsbruck*: Dr. G. Bayer has been recognised as *privat docent* of General and Experimental Pathology.—*Jena*: Dr. Riedel is retiring from the chair of Surgery on account of illness.—*Munich*: Dr. Edens has been recognised as *privat docent* of Medicine, and Dr. Schmincke of Würzburg as *privat-docent* of Pathological Anatomy, and Dr. W. Gilbert as *privat-docent* of Ophthalmology.—*Philadelphia* (*College of Physicians and Surgeons*): The Alvarenga Prize has been awarded to Dr. M. Katzenstein for his researches on the collateral circulation of the kidneys.—*Prague* (*German University*): Dr. Hans Rotky, Assistant in the Medical Clinic, has been recognised as *privat-docent* of Medicine.—*Rostock*: Dr. Winterstein, Assistant in the Physiological Institute and titular professor, has been appointed to act for Professor Nagel, who is in bad health during the coming winter session. Dr. Meinertz, *privat-docent* of Medicine, *Oberarzt* of the Medical Policlinic, has been granted the title of Professor.—*Tübingen*: Dr. E. Reis has been recognised as *privat-docent* of Psychiatry and Neurology.—*Vienna*: Dr. Arthur Foges has been recognised as *privat docent* of Midwifery and Gynæcology.—*Zürich*: The names proposed as successor to Dr. Krönlein, who is resigning the chair of Surgery, are Dr. Konrad Brunner of Munsterlingen and Professor Payr of Greifswald. In case neither of these gentlemen are willing to accept the post it will be offered to Professor Perthes of Leipsic.

THE ASSOCIATION OF FELLOWS OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following resolution was passed by the Council of the Association of Fellows of the Royal College of Surgeons, Ireland, at a meeting held on August 16th:—

The attention of the Association of Fellows of the Royal College of Surgeons, Ireland, having been drawn to an advertisement of the Manchester Royal Infirmary and Dispensary for an Hon. Assistant Surgeon, where it is stipulated that candidates must be Fellows of the Royal College of Surgeons, England,

This Association hereby protests against such invidious distinctions being drawn between the Irish and English Colleges, inasmuch as the Fellowship of the Irish College is in every way equal to that of the English College, and also that some of the most eminent surgeons in England at the present time are Fellows of the Royal College of Surgeons in Ireland.

WATER-SUPPLY OF CAMELFORD.—The Local Government Board has sanctioned the application of the Camelford (Cornwall) rural district council for permission to borrow £2556 for purposes of a water-supply for the parish of Lantiglos-with-Camelford.

INDIAN HOSPITAL MEMORIALS TO KING EDWARD VII.—The first subscription list to the Bombay Presidency King Edward Memorial, which is to take the form of a hospital in the northern part of the Island of Bombay, with, if possible, a sanatorium for consumptives in some suitable place, and a convalescent home, has just been published, and amounts to 89,114 rupees. At a great meeting held in the town hall, Lahore, Sir Louis Dane, Governor General, outlined the scheme for the Punjab Memorial to the late Majesty. It was proposed, he said, to improve the Punjab Medical College and Hospital, and along with it the Lady Aitchison Hospital for purdah ladies, and the Lady Lyall Home for female medical students, which could, and should, be expanded into a female and purdah medical school and college. To carry out the scheme it would be necessary to take up the site of the present Veterinary College. This institution it was proposed to transfer to more commodious quarters in Lahore, which would enable them to raise its status. Subscriptions totalling over six lakhs of rupees were announced. The public of Bassein have decided to perpetuate the memory of the late King by erecting a hospital, calculated to cost half a lakh of rupees, to be called the King Edward VII. Hospital for Women and Children.

WEST DERBY BOARD OF GUARDIANS: DETENTION OF THE FEEBLE-MINDED.—In reference to the overlapping of charities in Liverpool, the Toxteth guardians have approved of a scheme of voluntary aid. It was reported at the meeting of the West Derby board of guardians on August 16th that 256 unions throughout the country agreed with the suggestion of the West Derby union with reference to the detention of feeble-minded females, and that a great many Members of Parliament were entirely in sympathy with that object. The only difficulty in the way, it was pointed out by the clerk, was to obtain the help of the President of the Local Government Board in bringing this about by legislation, because Mr. John Burns had stated that it would be difficult to get Parliament to interfere with the liberties of the British subject. At the same meeting it was agreed to contribute £300 per annum for three years to the funds of the Liverpool council for voluntary aid as the contribution of the West Derby guardians towards the maintenance of a general register for recording the cases of all persons in receipt of Poor-law relief, and relief from all sources of charity. The object of the register, it was pointed out, is to make the efforts of the charitable public of Liverpool as intelligent as possible. The charitable public were quite open-handed, but it was very undesirable that the different charitable organisations should be ignorant of the work which each of them did. By means of the register complete information would be supplied at an early stage, which would be used to prevent overlapping. It was also pointed out that much voluntary charity tended to encourage pauperism and deception for want of proper inquiries and organisation. On the other hand, a regular organised charity by its hard-and-fast lines tended to work in a cruel way in individual cases, but where combination could be effected the one could supplement what the other lacked. The Toxteth guardians at their meeting on August 25th also decided to subscribe £100 to the Liverpool council of voluntary aid towards the cost of keeping a general register. Mr. Chaloner Dowdall, the ex-Lord Mayor of Liverpool, the acting chairman of the council, together with the secretary of the Central Relief Society, attended the meeting of the guardians, and explained the new scheme of the council. Mr. Dowdall said that an enormous amount of money was being spent in Liverpool yearly in relieving distress, and it was a matter of importance that that money should be expended to the best public advantage. By means of a general register useful information would be available with regard to cases of distress, and it would also prevent overlapping in the distribution of relief. One result of the scheme would be to discover impostures, but the great object of the council was to get at really deserving cases.

Mr. Francis Vacher, late medical officer of health of Cheshire, has been appointed by the Lord Chancellor to the commission of the peace of Cheshire. Originally medical officer of health of Birkenhead, Mr. Vacher transferred his services in 1891 to the county, and filled the position of medical officer of health until 18 months ago, when he resigned after a career of great usefulness and distinction.

LITERARY INTELLIGENCE.—The following works will be published by the Oxford Medical Publications in the autumn: "History of Medicine," by Professor Max von Neuburger of Berlin, translated by Dr. E Playfair, and with introduction by Professor Osler. This is a large work dealing with the history of medicine from the earliest times. It is in two volumes, the first of which will appear early in October, and which deals with medicine up to the Middle Ages. "System of Syphilis," edited by Mr. D'Arcy Power and Dr. J. Keogh Murphy. Volumes V. and VI. The fifth volume treats of syphilis of the skin, eye, ear, nose, and throat, and the sixth of syphilis with regard to the public services. "Handbook of the Surgery of Children." This is a translation by Dr. Murphy of Professor Kermisson's well-known work. "Treatment of Fractures." This is a large work by Mr. J. Hogarth Pringle. "Clinical Pathology." This book has been written by Mr. T. J. Horder. "A Text-book of Massage." Miss L. Despard is the author of this book, which, in addition to treating of the theory and work of massage, also considers anatomy and physiology in relation thereto. "Puerperal Infection." This is a book by Mr. A. W. W. Lea. "Practical Organic Chemistry." The author of this book is Mr. A. M. Kellas.—A new volume by Professor F. W. Mott, F.R.S., is about to be added to Harper's Library of Living Thought, "The Brain and the Voice in Speech and Song." It is a study of voice production as one of the distinctive attributes of the human race, and also contains much to interest the singer and the speaker.—Messrs. Baillière, Tindall, and Cox announce the near appearance of a short book on Medical Education by Dr. Squire Sprigge.

THE WELSH DINNER.—The annual dinner for 1910 will be held on Friday, Sept 30th, at the Criterion Restaurant, Piccadilly, London, W. Mr. Robert Jones of Liverpool will preside. Tickets for the dinner may be obtained on application to Mr. J. Howell Evans, 25, Berkeley-square, London, W.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.

A Practical Treatise on Diseases of the Skin. For the Use of Students and Practitioners. By James Nevins Hyde, A.M., M.D. Eighth and revised edition. Price 25s. net.

BLAKISTON'S (P) SON AND CO., Philadelphia.

Medical Service in Campaign. A Handbook for Medical Officers in the Field. By Major Paul Frederick Straub, Medical Corps (General Staff), United States Army. Prepared under the Direction of the Surgeon-General, United States Army, and published by Authority of the War Department. Price $1.50 net.

DULAU AND CO., LIMITED, London.

Department of Applied Mathematics, University College, University of London. Drapers' Company Research Memoirs. Studies in National Deterioration. VI. A Third Study of the Statistics of Pulmonary Tuberculosis. The Mortality of the Tuberculous and Sanatorium Treatment. By W. Palin Elderton, F.I.A., and S. J. Perry, A.I.A. Price 3s.

EDUCATIONAL BOOK COMPANY, LIMITED, 210, Temple-chambers, London, E.C.

The Meat Industry and Meat Inspection. A Comprehensive Account of the Principal Animals and Fish, including Cattle, Sheep, Pigs, Poultry and Game, supplied to the British Meat Market, together with a Description of the Various Industrial Processes connected therewith and the Scientific Inspection of Meat. By Gerald R. Leighton, M.D., C.M., F.R.S.E., Professor of Pathology, Bacteriology, and Meat Inspection at the Royal (Dick) Veterinary College, Edinburgh; and Loudon M. Douglas, Lecturer on the Meat Industry, Edinburgh; Editor of Douglas's Encyclopædia for the Meat, Bacon, and Food Trades 35 coloured plates. 1000 illustrations. Five Volumes. Price £4 17s. 6d.

ESSEX FIELD CLUB, Essex Museum of Natural History, Romford-road, Stratford, Essex. SIMPKIN, MARSHALL, AND CO., LIMITED, London.

Essex Field Club Special Memoirs. Vol. IV. A History of the Mineral Waters and Medicinal Springs of the County of Essex. By Miller Christy, F.L.S., and Miss May Thresh. With a Critical Note by W. H. Dalton, F.G.S. Price not stated.

FUNK AND WAGNALLS COMPANY, London and New York.

Dogs, Their Breeds and Characteristics. A Popular Illustrated Review. Supervised by A. Knighton. Including Dissectible Model of Newfoundland Dog. Price 7s. 6d.

The Story of the Locomotive. Compiled from Authoritative Sources. Including a Coloured Dissectible Model of a Passenger Express Locomotive. Price 5s.

GREEN, WILLIAM, AND SONS, Edinburgh and London.

Hay Fever and Paroxysmal Sneezing. (Vasomotor Rhinitis.) By Eugene S. Yonge, M.D. Edin. Price not stated.

HÄRING, O., VERLAG VON, Gneisenaustrasse, 15, Berlin.

Gedanken zu einer Universalpathologie. Von Dr. med. vet. et phil. Friedrich Freytag. Price Pf.80.

H. A. W. OFFICES, 7, Brazennose-street, Manchester.

The Death-dealing Insects and their Story. By C. Conyers Morrell. Price 1s. net.

KELLY, CHARLES H., 25-35, City-road, and 26, Paternoster-row, London, E.C.

National Health Manuals. Childhood. Edited by T. N. Kelynack, M.D. Price 1s. net.

KNIGHT, CHARLES, AND CO., LIMITED, 227-239, Tooley-street, London, S.E.

The Housing, Town Planning, &c., Act, 1909. (9 Edw. VII. Ch. 44), with Introduction, Full Explanatory Notes, and Index. By Wm. A. Casson (of the South-Eastern Circuit), and Athelstan Ridgway, LL.B. (Lond.), Barristers-at-Law. Second edition. Price 3s. 6d.

LAURIE, T. WERNER London.

The Old Testament Story. Told to the Young. By Gladys Davidson. Price 6s. net.

Popular Drugs, Their Use and Abuse. By Sydney Hillier, M.D Price 3s. 6d net.

The Happy Moralist. By Hubert Bland. Price 1s. net.

LEHMANN, J. F., VERLAG, München.

Differential-diagnostische Tabellen der inneren Krankheiten. Von J. Cemach, in Wien. Price M.3.

LIPPINCOTT (J. B.) COMPANY, Philadelphia and London.

Lippincott's New Medical Series. Edited by Francis R. Packard, M.D. Rontgen Rays and Electro-Therapeutics. With Chapters on Radium and Phototherapy. By Mihran Krikor Kassabian, M.D. Second edition. Price 15s. net.

Manual of Human Embryology. Written by Charles R. Bardeen, Herbert M. Evans, Walter Felix, Otto Grosser, Franz Keibel, Frederic T. Lewis, Warren H. Lewis, J. Playfair McMurrich, Franklin P. Mall, Charles S. Minot, Felix Pinkus, Florence R. Sabin, George L. Streeter, Julius Tandler, and Emil Zuckerkandl. Edited by Franz Keibel and Franklin P. Mall. In Two Volumes. Vol. I. Price 30s. net per volume.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, Sixty-Sixth Street and Avenue A., New York, U.S.A.

Studies from the Rockefeller Institute for Medical Research. Reprints. Vol. X. 1910. Price not stated.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.

Dyspepsia, its Varieties and Treatment. By W. Soltau Fenwick, M.D. Lond. Price 13s. net.

Nursing in Diseases of the Eye, Ear, Nose, and Throat. By the Committee on Nurses of the Manhattan Eye, Ear, and Throat Hospital: J. Edward Giles, M.D., Arthur B. Duel, M.D., Harmon Smith, M.D., assisted by John R. Shannon, M.D., and John R. Page, M.D. With Chapters by Herbert B. Wilcox, M.D., and Eugenia D. Ayers, Superintendent of Nurses. Price 6s. 6d. net.

Dislocations and Joint-Fractures. By Frederic J. Cotton, A.M., M.D. Price, cloth, 25s. net.

STEINHEIL, G., Paris.

Précis du Traitement des Fractures par le Massage et la Mobilisation. Par le Dr. Just Lucas-Championnière. Price Fr.3.50.

L'Aérophagie. Par le Dr. H. Mauban. Préface de M. le Dr. Albert Mathieu. Price Fr. 2.50.

L'Aphasie dans ses Rapports avec la Démence et les Vésanies (Étude Historique, Clinique et Diagnostique; Considérations Médico-légales). Par le Docteur Maurice Brissot. Price Fr. 8.

La Greffe Ovarienne. Historique, Résultats Cliniques et Thérapeutiques. Par le Docteur Ivan Scheurer. Price Fr. 4.50.

De l'Emploi Thérapeutique de Chlorure de Magnésium administré à Faibles Doses (En particulier dans la Constipation et quelques Affections qui lui sont consécutives). Par le Docteur Maurice Chibret. Price Fr.3.50.

SUPERINTENDENT, GOVERNMENT PRINTING, INDIA, Calcutta.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. New Series. No. 37. Investigations on Bengal Jail Dietaries. By Captain D. McCay, M.B., B.Ch., B.A.O., I.M.S. Price, Rs. 2-6-0, or 4s. 3d.

SWAN SONNENSCHEIN AND CO., LIMITED, London.

Spiritism and Insanity. By Dr. Marcel Viollet, Physician to the Lunatic Asylum, Paris. (This book forms part of the Library of Experimental Psychology and Metapsychism, published under the direction of Dr. Raymond Meunier of Paris.) Price 2s. 6d. net.

TREWENDT'S (EDUARD) NACHFOLGER, VERLAG VON, Berlin, W. 50.

Ein neues Gerät und neue Übungen der Schwedischen Heilgymnastik zur Behandlung von Rückgrats-Verkrümmungen. Von Geh. Hofrat J. Oldevig, Dresden. Mit einer Einleitung von Dr. med. Axel Tagesson-Möller. Price M.1.80.

URBAN UND SCHWARZENBERG, Berlin and Vienna.

Lehrbuch der Ohrenheilkunde. Von Dr. Victor Urbantschitsch. Fünfte, vollständig neubearbeitete Auflage. Price, paper, M.18; bound, M.20.

Fortschritte der Naturwissenschaftlichen Forschung. Herausgegeben von Professor Dr. E. Abderhalden, Berlin. Erster Band. Price, paper, M.10; bound, M.12.

Enzyklopädie der Mikroskopischen Technik. Herausgegeben von Professor Dr. Paul Ehrlich, Dr. Rudolf Krause, Professor Dr. Max Mosse, Professor Dr. Heinrich Rosin und weil. Professor Dr. Karl Weigert. Zweite, vermehrte und verbesserte Auflage. I. Band: A–K. II. Band: L–Z. Preis des kompletten Werkes in 2 Bänden broschiert, M.50; in 2 Originalhalbfrauzbänden gebunden, M.55.

Lehrbuch der Kinderheilkunde. Für Aerzte und Studierende. Von Professor Dr. med. Bernhard Bendix. Sechste, durchgesehene und verbesserte Auflage. Price, paper, M.15; bound, M.17.

Lebrbuch der Urologie. Mit Einschluss der männlichen Sexualerkrankungen. Von Dr. Leopold Casper. Zweite, neubearbeitete und vermehrte Auflage. Price paper, M.15; bound, M.17.

UNIVERSITY TUTORIAL PRESS, LIMITED Burlington House, Cambridge, and 32, Red Lion-square, Holborn, London, W C.

Matriculation Directory. No. 55. June, 1910. With Articles on Text-books. Price 1s. net.

UNIVERSITY TUTORIAL PRESS, LIMITED (W. B. CLIVE), Drury-lane, London, W C.

The University Tutorial Series. Science German Course. By C. W. Paget Moffatt, M.A. Lond., M.B., B.C. Camb. Second edition, enlarged. Price 3s. 6d.

WHITAKER, J., AND SONS, LIMITED, London.

The Green Book of London Society. Edited by Douglas Sladen and W. Wigmore. June, 1910. Price 5s. net.

WILEY, JOHN, AND SONS, New York. CHAPMAN AND HALL, LIMITED, London.

Œdema. A Study of the Physiology and the Pathology of Water Absorption by the Living Organism. By Martin H. Fischer, Professor of Pathology in the Oakland School of Medicine, Oakland, California. The 1909 Nathan Lewis Hatfield Prize Essay of the College of Physicians of Philadelphia. Price $2 net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

COPPOCK, HAROLD, M.B., Ch.B. Vict., has been appointed Assistant Medical Officer to the National Sanatorium, Benenden, Kent.

CUNLIFFE, E. N., M.D., Ch.B. Vict., M.B., B.S. Lond., M.R.C.P. Lond., has been appointed Honorary Assistant Physician to the Manchester Hospital for Consumption and Diseases of the Throat.

DIGGLE, F. H., M.B., Ch.B. Vict., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed a Junior House Surgeon to the Manchester Royal Infirmary.

ELMSLIE, A. H., M.B., Ch.B. Edin., has been appointed House Physician to the Manchester Royal Infirmary.

FLETCHER, DUNCAN, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed School Medical Officer for the Island Section of Inverness-shire.

FRENCH, G. J., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed a Senior House Surgeon to the Manchester Royal Infirmary.

HORSBURGH, E. L., M.B., B.S. Lond., has been appointed a Junior House Surgeon to the Manchester Royal Infirmary.

JELLICOE, STANLEY COLEMAN, L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Medical Officer of Health by the Totnes (Devon) Rural District.

LANG, GORDON A., M.B., C.M. Aberd., has been appointed School Medical Officer for the Mainland Section of Inverness-shire.

NICHOLLS, G. E. E., M.B., Ch.B. Vict., has been appointed a Senior House Surgeon to the Manchester Royal Infirmary.

PARR THOMAS, M.B., B.Ch. Dubl., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Drogheda District of the County of Louth.

RANDOLPH, CHARLES, M.R.C.S. Eng., L.R.C.P. Edin., has been appointed District Medical Officer by the Dulverton (Somerset) Board of Guardians.

SHEPHERD, T. S., M.B., Ch.B., F.R.C.S. Edin., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed District Medical Officer by the Ross Board of Guardians.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Junior Resident Officer. Salary £90 per annum, with rooms and attendance.

CAMBRIDGE, CAMBRIDGESHIRE, &c., LUNATIC ASYLUM, Fulbourn, near Cambridge.—Second Assistant Medical Officer, unmarried. Salary £120 per annum, with board, lodging, and attendance.

CHELTENHAM GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £75 per annum, with board and lodging.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physician. Salary £60 per annum, with board, apartments, and laundry.

CITY OF LONDON LYING-IN HOSPITAL, City-road, E.C.—Resident Medical Officer for six months. Salary at rate of £50 per annum, with board, washing, and lodging.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing &c.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £100 per annum, with board, residence, washing, &c.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Surgeon Salary at rate of £75 per annum, with board, residence, and laundry.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and washing.

FRENCH HOSPITAL, 172, Shaftesbury-avenue, W.C.—Resident Medical Officer, unmarried. Salary £100 per annum, with board and laundry.

HARROGATE INFIRMARY.—House Surgeon. Salary £75 per annum, with board, residence, and laundry.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with rooms, board, and washing.

JERSEY INFIRMARY AND DISPENSARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and attendance.

LEICESTER INFIRMARY.—House Physician. Salary at rate of £100 per annum, with board, lodging, and washing.

LIVERPOOL CITY INFECTIOUS DISEASES HOSPITAL.—Assistant Resident Medical Officer, unmarried. Salary £120 per annum, with board, washing, and lodging.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum with board and residence.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, near Manchester.—Resident Medical Officer, unmarried. Salary first six months £40, and second £50.

MANCHESTER WORKHOUSE, Crumpsall.—Junior Resident Assistant Medical Officer, unmarried. Salary £110 per annum, with apartments, fire, light, washing, and attendance.

METROPOLITAN HOSPITAL Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon, all for six months. Salary for House Physician and House Surgeon at rate of £40 per annum; Assistant House Physician and Assistant House Surgeon at rate of

£20 per annum, with residence and board. Also Resident Anæsthetist. Salary at rate of £60 per annum, with residence and board.

ODDESBROUGH, NORTH RIDING INFIRMARY.—Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

WPORT AND MONMOUTHSHIRE HOSPITAL.—House Surgeon. Salary £60 per annum, with board, residence, and laundry.

RWICH, NORFOLK AND NORWICH HOSPITAL.—House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing. Also Assistant House Surgeon for six months. Salary £20, with board, lodging, and washing.

ITSMOUTH WORKHOUSE INFIRMARY, WORKHOUSE, AND CHILDREN'S HOME.—First Assistant Resident Medical Officer and Second Assistant Resident Medical Officer, both unmarried. Salary in each case £120 per annum, with apartments, rations, &c.

STON ROYAL INFIRMARY.—Resident Medical and Surgical Officer, unmarried, for six months. Salary £130, with board, residence, and washing.

STWICH COUNTY ASYLUM, Manchester.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.

DHILL, EARLSWOOD ASYLUM.—Assistant Medical Officer, unmarried. Salary £130, rising to £150 per annum, with board, lodging, washing, &c.

'AL DENTAL HOSPITAL OF LONDON, Leicester-square.—Joint Morning House Anæsthetist. Salary £25 per annum.

'AL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

AL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon. Salary at rate of £100 per annum, with board and residence.

'AL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

'AL PIMLICO DISPENSARY, 104, Buckingham Palace-road.—Three Visiting Medical Officers and a Dispenser.

MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, all found.

PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

FORD ROYAL HOSPITAL.—House Surgeon. Salary at rate of £60 per annum. Also Junior House Surgeon. Salary at rate of £50 per annum. Each for six months, with board and residence.

FORD UNION INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments, attendance, and rations.

FFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

EWSBURY, SALOP INFIRMARY (COUNTY HOSPITAL). — House Physician. Salary at rate of £70 per annum, with board and apartments.

THPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried, for six months. Salary £70 per annum, with residence, board, and washing.

INMOUTH HOSPITAL, S. Devon.—House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

TNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer, unmarried, for six months. Salary £100 per annum, with board, lodging, &c.

T HARTLEPOOL, CAMERON HOSPITAL.—House Surgeon. Salary £100 per annum, with board, rooms, and washing.

T LONDON HOSPITAL, Hammersmith-road, W. — Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.

Births, Marriages, and Deaths.

BIRTHS.

PBELL.—On August 24th, at Larbert, Stirlingshire, the wife of Robert B. Campbell, M.B., M.R.C.P., of a son.

FERY.—On August 22nd, at Herne Bay, the wife of Mr. Louis Jeffery, L.D.S. Eng., of a son.

—On August 28th, at Bradfield, Berks, the wife of Norman H. Joy, M.R.C.S., of a son.

MARRIAGES.

LING—ALLAN.—On August 25th, at St. Edmund's Church, Southwold, by the Rev. Maxwell F. Webb, Rector of Attleborough, George Sydney Keeling, M.D., second son of the Rev. W. H. Keeling of Bradford to Florence Amy, widow of the late Richard Allan, M.B., of Attleborough, Norfolk, youngest daughter of the late John Clarkson Maynard, J.P., of Erith, Kent.

TAKER—ZIMMER.—On August 25th, at Holy Trinity Church, Upper Tooting, Alfred Gurth Whitaker, M.R.C.S., L.R.C.P., to Margaret Madeline May, daughter of George F. Zimmer.

DEATHS.

LE.—On August 22nd, at Eastleigh, Beresford Nathaniel Earle, M.D., D.P.H. Cantab., of Winchester, aged 66 years.

OR.—On August 23rd, at Cardiff, Henry Collen Ensor, M.R.C.S., L.S.A., aged 51 years.

EON.—On August 30th, Hubert McKeon, L.R.C.P., L.R.C.S., of St. Kevin's, Preston Drove, Brighton, aged 63 years.

L.—On August 25th, at Torquay, John Liston Paul, Deputy Surgeon-General (retd.), aged 83 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE REMUNERATION OF A POOR-LAW MEDICAL OFFICER.

AT the last meeting of the Launceston (Cornwall) Board of Guardians Dr. C. G. Gibson, district medical officer, applied for an increase in his salary; he stated that at present he received £19 per annum as medical officer to the workhouse. Dr. Gibson estimated that his expenses, including supply of medicines, amounted to £12, and in addition he made 141 professional visits; he asked that his remuneration might be £30 per annum. This request certainly seems a modest one, but the guardians unanimously decided that the application be deferred for six months, one of the members remarking that if the medical officer was not satisfied with his salary he could resign. Every remark of this nature from a guardian renders it more likely that the guardians will be deprived of their present position in respect of medical relief.

BOOTS FOR SOLDIERS.

To the Editor of THE LANCET.

SIR,—Last year you published a letter from a correspondent drawing attention to the condition of the footwear in the Territorial Force. He pointed out that the majority of the boots were very poor in quality and quite unfitted for marching and that the condition of the men's feet after a march was lamentable. Having been out during the manœuvres both last year and this I can fully confirm his remarks. A large number of the men wear their thin boots, which are absolutely unfitted for rough wear and admit the water freely. It is quite certain that were the force embodied for a month a large proportion of the men would be barefoot before the end of that time. If the force is to be of any real use steps should be taken immediately to provide the men with strong waterproof boots. Great stress should be laid on the latter quality in this country. After a very little rain the camps become quite sodden, and at present a large number of men spend most of the time with damp feet. I must plead the importance of the subject for troubling you with this letter.

I am, Sir, yours faithfully,

August 21st, 1910. CAPTAIN, R.A.M.C.T.

DOAN'S BACKACHE PILLS.

THE marvellous and speedy effect of taking *Doan's* Backache Pills has, according to our breezy contemporary *John Bull*, received a curious testimonial recently in the *Somerset Standard*. In the same issue of that paper in which a testimonial appears from a gentleman speaking to the claims of this remedy there is also printed a notice of the death of the giver of the testimonial at the early age of 36 years. The testimonialist states that upon his decision to try *Doan's* Backache Bills "they immediately began to take effect." We are not in a position to refute this statement, having no information of the period that elapsed between the writing of the testimonial and the death of the swallower.

THE POLLUTION OF SWIMMING-BATH WATER.

To the Editor of THE LANCET.

SIR,—I was much interested in your article in THE LANCET on the Pollution of Swimming-bath Water. When I was a student at Edinburgh I was a member of the Warrender Park baths. At these baths there were provided two ante-rooms, each supplied with a warm water spray. It was the unwritten law that no one should enter the swimming bath without first standing under the spray and well soaping one's person thoroughly.

Could not such spray rooms be made to all new swimming-baths, and a rule rigidly enforced that every bather must first enter the spray room and well wash himself before entering the bath? I am sure that this method would go a long way to mitigate the existing evil.

I am, Sir, yours faithfully,

JAMES R. ATKINSON, M.D., D.P.H., F.R.C.S.Edin.

Earle-street, Crewe, August 21st, 1910.

GUARDIANS AND UNQUALIFIED DENTISTRY.

A CORRESPONDENT calls our attention to a report in the *Sheffield Daily Telegraph* of August 23rd, 1910, of a meeting of the Louth Board of Guardians. The medical officer had recommended that a girl in the workhouse should have her teeth stopped by a dentist. It was proposed and seconded that the child should be sent to "Mr. Manning," and an amendment to send her to "a registered dentist" was defeated by 14 votes to eight, and the original resolution was carried. The inference from the report is that "Mr. Manning" is an unregistered person, nor do we find the name, as of Lincolnshire, in the Dentists Register for 1910. We agree with our correspondent in hoping that the auditor of the Local Government Board may surcharge the Louth guardians for indulging their personal predilections at the expense of the ratepayers.

STONE-BLIND.

To the Editor of THE LANCET.

SIR,—Mr. Wm. Ettles may, or may not, be satisfied with Mr. J. Y. W. MacAlister's explanation in your issue of August 20th of this expression. If he is not, and will look at *The Merchant of Venice*, Act II., Scene 2, he will find at least a suggestion of a better, where Launcelot speaks of his "true-begotten father, who, being more than sand-blind, high gravel-blind, &c."

The explanation surely is that sand-blind, gravel-blind, and stone-blind are three degrees of comparison, according to the inability of the individual to distinguish, presumably at the height of his eyes from the ground, the constituent elements of the road upon which he walks.

This has always seemed to me a logical interpretation; possibly some other of your readers can supply an earlier quotation.

I am, Sir, yours faithfully,

Highgate, N., August 30th, 1910. H. L. GREGORY.

AN OBSTINATE CASE OF PRURITUS.

To the Editor of THE LANCET.

SIR,—In reply to "P" (p. 523) *re* case of pruritus, I would suggest a trial of calcium lactate or chloride, say, gr. x. thrice daily. High-frequency currents might be useful.

I am, Sir, yours faithfully,

August 17th, 1910. W. H. H.

NEW WORDS.

WE have received from Messrs. Funk and Wagnalls of London and New York a supplement of four pages to their Standard Dictionary of the English language issued some years ago. The supplement consists of new words which have been introduced into the language, of old words in a new sense, and of words omitted. We note the addition of some well-known medical terms as follows: adrenalin, aspirin, dhobee-itch, opsonin, occlusion, and septic tank. "Belly-whopping" looks at first sight of medical interest; it turns out to be "in coasting the act of lying upon the stomach on a sled," and may have a secondary surgical interest. Terms relating to the newer kinds of locomotion naturally take up a large share of the supplement; illustrations of the Wright biplane and of the Blériot monoplane remind us in what century we are living, and the word "Televue" suggests to unimaginative folk a very future century, for it is "a device designed to show the outline of the features of a person telephoning to the person receiving the message." A "joy ride" sounds alluring to the ear, but it is a "ride in a motor-car, usually at night, sometimes taken without the permission of the owner, and driven at excessive speed," truly an expressive and "portmanteau" word, conveying more than Lord Burleigh's famous nod. Such rides have ended before now in an accident, police-court proceedings, and heavy fines—joy may endure for a night, but heaviness cometh in the morning. The Standard Dictionary is a great work, and its supplement shows the resolute intent of the editors to keep up to date.

BUILDINGS FOR RINKING.

To the Editor of THE LANCET.

SIR,—I do not know whether your attention has been drawn to the subject of the unhealthy conditions under which roller-rinking in buildings is indulged in. The air in such buildings is most impure, and recreation in such conditions is dangerous and should be rigorously prohibited. It is mostly young people who frequent these places, and their parents or guardians should be warned of the very real and serious risk they run.

I trust that you will see your way to draw the attention of the public to the danger. I am, Sir, yours faithfully,

Southsea, August 24th, 1910. F. H. SOMERS-GARDNER.

*** We have had no previous complaint on this score; it is obvious that all the buildings used for rinking are not similar.—ED. L.

WANTED, A HOME.

A REGULAR subscriber desires to hear from anyone who can recommend him a home for a mentally defective child whose parents could pay about 2 guineas weekly. He begs that only a really reliable home may be recommended to him and that the recommendation may come from personal knowledge.

THE TREATMENT OF THREADWORMS.

To the Editor of THE LANCET.

SIR,—I have a patient, a boy, suffering from threadworms; quassia, santonin, iron, and mag. sulph. have been tried and the case has been most intelligently treated by the mother, but there is always a specimen to be found. Can anyone help with a suggestion?

I am, Sir, yours faithfully,

August 27th, 1910. A. T.

C. F. F.—Inoculation of small-pox was introduced into this country by Lady Mary Wortley Montagu in 1721, and we believe that this is the first recorded instance of the practice in these islands.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

CONGRESSES are now getting so numerous that we have though a diary like the one printed below might be of service to our re With that idea we shall repeat it occasionally, with any nec alterations or subtractions. The following Congresses, Confer and Exhibitions are announced for 1910:—

Sept. 1st–6th (Brussels).—International Congress of Pharma
,, 5th–10th (Brighton).—Congress of the Royal Sa Institute.
,, 10th–14th (Brussels).—Second International Congre Occupational Diseases.
,, 13th–15th (Brussels).—International Congress on Rad and Electricity.
,, 17th–25th (Antwerp).—Fourteenth Flemish Congre Natural and Medical Sciences and Interna Scientific Exhibition.
,, 18th–24th (Königsberg).—Eighty-second Congress of G Scientists and Medical Men.
,, 22nd–27th (Toulouse).—Sixth French Congress of cology, Obstetrics, and Pædiatrics.
,, 22nd–28th (St. Petersburg).—Fifth International Cong Obstetrics and Gynæcology.
,, 27th–30th (Vienna).—Eighth International Physiol Congress.
Oct. 1st–5th (Paris).—Second International Conference f Study of Cancer.
,, 3rd–7th (London).—Sixth London Medical Exhibitio
,, 3rd–7th (Berlin).—International Congress on the Care Insane.
,, 4th–8th (Brussels).—Second International Congress o mentary Hygiene.
,, 5th–8th (Brussels).—Ninth International Tuberculosis ference.
,, 10th–15th (London).—Town Planning Conference.
,, 13th–15th (Paris).—Eleventh French Congress of Medic
,, 16th–22nd (Barcelona).—First International Spanish Co of Tuberculosis.
Nov. 7th–12th (Cape Town).—Twelfth South African M Congress (1910).

In 1911:—
May–October (Dresden).—International Hygiene Exhibition.
June and July (Romford).—Town Planning and Modern Hou Cottage Exhibition.
July (Birmingham).—British Medical Association.
August or September (Berlin).—Third International Lar Rhinological Congress.
September (Brussels).—Exhibition of Fractures.
Sept. 24th–30th (Rome).—International Congress on Tubercul
October (Cologne).—International Congress of Criminal An pology.

In 1912:—
September (Washington, D.C.).—Fifteenth International Co of Hygiene and Demography.

In 1913 the only fixture so far is in London, where the Sevent Internationual Congress of Medicine will take place.

Medical Diary for the ensuing W

LECTURES, ADDRESSES, DEMONSTRATIONS

POST-GRADUATE COLLEGE, West London Hospital, Hammers road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Opers 2.30 P.M., Mr. Dunn: Diseases of the Eye.

TUESDAY.—10 A.M., Gynæcological Operations. 2 P.M., Medic Surgical Clinics. X Rays. Operations. Dr. Davis: Disea the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Di of the Skin.

WEDNESDAY.—10 A.M., Diseases of Children. Operations Throat, Nose, and Ear. 2 P.M., Medical and Surgical C X Rays. Operations. Mr. B. Harman: Diseases of the 2.30 P.M., Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. tions. Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Gynæcological Operations. 2 P.M., Medica Surgical Clinics. X Rays. Operations. Diseases of the T Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the S

SATURDAY.—10 A.M., Diseases of Children. Operations of the T Nose, and Ear. Mr. B Harman: Diseases of the Eye. 2 Medical and Surgical Clinics. X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LO Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—Dr Wall will take a party to Frimley Sanatorium. train will leave Waterloo (South Station) at 1.10 P.M. Vo for cheap tickets may be obtained in the Warden's Office.

TUESDAY.—2 P.M., Clinical Demonstration: Dr. Grünbaum: Di of the Kidneys.

WEDNESDAY.—2 P.M., Clinical Demonstration: Dr. Hutchison eases of the Digestive System and Children's Diseases.

THURSDAY.—2 P.M., Clinical Demonstration: Dr. T. Thom Diseases of the Nervous System.

FRIDAY.—2 P.M., Clinical Demonstration: Dr. L. Smith: Di of the Heart and Vessels.

OPERATIONS.

METROPOLITAN HOSPITALS.

ONDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

ESDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

EDNESDAY (7th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

HURSDAY (8th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

RIDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

ATURDAY (10th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (9 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

VOLUMES AND CASES.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 31st, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 25	29·94	W.	...	97	69	55	58	61	Cloudy
,, 26	29·62	S.W.	0·39	99	69	61	63	64	Overcast
,, 27	29·83	W.	0·04	108	67	55	53	59	Cloudy
,, 28	29·77	S.	...	99	65	53	54	58	Cloudy
,, 29	29·62	S.W.	0·06	123	66	53	56	60	Fine
,, 30	29·84	S.W.	0·11	109	66	56	57	60	Cloudy
,, 31	30·24	W.	0·03	95	64	54	54	57	Cloudy

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A Lecture
ON
THE DUTY OF THE GENERAL PRACTITIONER TO THE DEAF CHILD.

Delivered at the Medical Graduates' College and Polyclinic

BY MACLEOD YEARSLEY, F.R.C.S. ENG.,
SENIOR SURGEON TO THE ROYAL EAR HOSPITAL; MEDICAL INSPECTOR, LONDON COUNTY COUNCIL DEAF SCHOOLS; LECTURER TO THE COLLEGES FOR TRAINING TEACHERS OF THE DEAF, ETC.

GENTLEMEN,—The subject which I have chosen for my lecture to you this afternoon may come possibly as a surprise. The majority of you will probably think that there can be no doubt whatever as to what your duty to the deaf child can be, and this I am prepared fully to admit. But from an experience of ear and nose work which began 20 years ago I have been forced to the conclusion that, although this duty may be very clear, it is one which, like many other duties, has been, and I fear still is, terribly neglected. Were it otherwise, I venture to affirm that there would be fewer deaf adults in the world, and, what perhaps may not have occurred to you, there would be fewer deaf-mutes. The question of deaf-mutism is very largely one for the practitioner of general medicine and surgery as much as, or even more than, for the otologist. I speak here more particularly of acquired deaf-mutism, although the general practitioner also has it in his power to do good work in the prevention of the congenital variety. But of that I shall speak later. Too frequently the acquired deaf-mute comes into the hands of the specialist too late for him to render any real service. The otologist occupies an intermediate position in this matter between the general practitioner and the educationist, and is too often helpless. It is the general practitioner who might have earlier saved the patient from his trouble, and when the deaf-mute comes to the otologist the latter can only pass him on to the teacher of the deaf. The only method of treating acquired deaf-mutism is by prevention. I am, therefore, not going to talk this afternoon about mastoid and labyrinthine suppuration, nystagmus and Bárány's tests, vertigo and tinnitus, or the vast strides of otology and the improvements in modern aural operations, but to enter into the early conditions, many of them eminently preventable, that are the forerunners of those ear diseases which make these modern aural operations necessary, and which, if left to themselves, are sure and certain in their evil consequences.

PROPHYLAXIS.

Great as have been the improvements in aural operative surgery, the real progress of otology has been along the line of prophylaxis. True advancement is not so much towards the treatment of what may be termed end-results as in the probing and elucidation of causes and their prevention. The importance of preserving the hearing becomes more patent to us when we realise that (as has been shown) approximately only one person in ten has normal auditory acuity. Our normal perception of sound is such that it is beyond the requirements of daily civilised life, and there may be moderate deafness in one ear without the knowledge of the individual. Further, functional changes of the conducting apparatus take place in chronic catarrhal deafness usually without pain. These two facts may serve to account for the neglect of so important an organ at the time when its restoration would be an easy task, but they must not be considered as excuses. I need not point out the disabilities to which a person whose hearing is defective is subjected as regards his career, or how it may bar him from the public services, or how his field of usefulness as a self-supporting citizen is narrowed thereby. With a large number of such persons the commencement of disability goes back to early school life, at a time when its causes are easily remedied, and this fact alone should rouse us to a sense of our grave duties towards the deaf child. School medical inspection is beginning to do good work in this regard, and parents are commencing to realise that the ear and nose require as much supervision as do the eyes and teeth. An American physician has remarked recently with a bold outspokenness which does him credit, "That the children of our private schools and so-called better class are neglected must be largely the fault of the advice and inefficient treatment of the family physician, who is not alive to the possibilities of the early treatment of the middle ear." That sentence was applied to the United States, bnt I fear that its applicability is by no means confined to that country.

THE NOSE AND NASO-PHARYNX IN RELATION TO EAR DISEASE.

Were I to be asked what is the greatest advance which has marked otology during the past 10 or 15 years, I should unhesitatingly reply that it is the recognition of the fact that the greatest cause of ear disease lies in the nose and naso-pharynx. We know now that the respiratory tract commences not at the larynx and trachea as the older textbooks suggested, but at the anterior nares, and that the middle ear, which is a diverticulum of that tract, shares with the nose in its functional and pathological variations from the normal. It will be useful to my purpose to consider for a moment the anatomy and physiology of the Eustachian tnbe. The outer or tympanic end of each tube is inclosed for about half an inch in hard bone; it is a mere slit for about an inch and a half imbedded in the soft tissues, its inner end being about three inches from the outside at the tip of the nose. Its lumen is lined with ciliated epithelium, the motion of whose cilia is towards the naso-pharynx and working to drive out infective agents; its true dilator is the tensor palati muscle, which pulls it open; its floor is pushed upwards by the swelling of the rounded belly of the levator palati, and its posterior or cartilaginous lip is pushed backward by this same contraction and pulled backward by the retractor. By these movements its mouth is open and the relaxation of these muscles, especially the levator palati, causes, with them, a pumping or sucking motion which clears the tube, and, assisted by the elasticity of the tympanic membrane, even sucks air and fluids from the tympanum itself. If, however, the region of its mouth is covered in or pressed upon by fibroid or adenoid tumours or by swollen mucous membranes these motions are lost or diminished and the important protection afforded by normal ventilation and drainage is in abeyance, so that secretions cannot get out and infections gain an entrance. That this protection is effective is to be concluded from the rarity of ear troubles when the sides of the naso-pharynx are unaffected by growths or swellings and by their frequency when the reverse is the case. The real orifice of the Eustachian tube, therefore, lies at the outer nostril, and nasal obstruction is equivalent to Eustachian obstruction, for unless the nostril is free, air cannot obtain access to replace that sucked out of the tympanum, and the normal Eustachian movements during respiration cannot take place. The mucous and serous glands of the nasal mucous membrane are functionally disturbed by faulty nasal development, by which their activity is increased, or from the result of acute infections. In the better classes of adults nasal hyperæmia is increased by under-exercise, over-heating, and intestinal toxæmia set up by over-feeding, so that, speaking generally, catarrhal deafness is as common in the richer as in the poorer classes, despite the greater exposure of the latter to acute diseases. Such conditions as acute middle-ear suppuration and mastoid empyema, although compelling attention and nrgent of treatment, do not work so much havoc upon the hearing as does a neglected chronic catarrh. The great majority of cases of deafness is directly resultant from acnte or chronic inflammations, and it is, therefore, to these that I direct your special attention rather than to the rarer forms of defective hearing, although I shall refer later to some of these.

If we take a large number of chronic deaf adult cases we shall find that in the majority the condition began in the first years of life. At that time treatment is certain, and it is the period at which the general practitioner is in close touch with the child and has it in his power to do a very great deal to teach parents the early symptoms of middle-ear complications and their results if neglected. He should use his best endeavours to instruct the public that earache, even when the attacks are transient, is not dne to such causes as teething, neuralgia, and worms, as has long been a popular superstition, but that it is a middle-ear congestion, due to conditions in the upper respiratory tract and, as such, calling for careful and immediate attention. It cannot fail to strike anyone who

possesses a large experience of deaf work that it is a very common fact amongst adult patients with chronic catarrhal deafness that they suffered from recurrent attacks of earache in early years. These attacks disappear as time goes on, but the ear which is thus affected later develops permanent changes in its mucous lining, or, may be, is invaded by a suppurative process connected with some more active infection. Such an ear seldom or never regains completely its function unless the post-nasal space is restored to normal, and the balance of atmospheric pressure is reconstituted in the tympanum through the Eustachian tube. These premonitory symptoms, manifested in the majority of cases, are too frequently disregarded, not only by parents, but by the profession.

HYPERTROPHIC TONSILS AND ADENOIDS.

This brings us to the consideration of what condition is found in the naso-pharynx of children who suffer in the way I have described. The shape and relative size of the nose and naso-pharynx change very much between the period of their development in the fœtus and the form which they assnme permanently in later life. These changes have a very important influence upon the pathological conditions which may develop in this region and make any form of obstruction therein a much more serious matter in young children than in adults. The function of the nose, primarily the seat of the special organ of smell, is in man chiefly respiratory. That part of the mucous membrane which is concerned with olfaction is confined to a patch of epithelium of about the size of a threepenny-piece and of a yellowish colour, situated high up, just above the middle and in front of tbe superior turbinate body. The whole of the remaining mucous membrane, with its many folds and reduplications, its complicated and elaborate blood, lymphatic, and glandular arrangements, is wholly respiratory in function. The width of each nasal chamber is relatively less in the infant than in the adult; hence nasal obstruction is more serious, not merely because of its relatively greater interference with respiration, but also because the obstruction causes a decided interference with sucking. The septum nasi is relatively thicker in the infant, the naso-pharynx at birth is relatively long and shallow, and the Eustachian tubes are more patent and have less prominent cushions. The great cause of nasal obstruction in children is due to hypertrophy of the pharyngeal tonsil—*adenoids*—and the first step in the prevention of otitis media in infants and young children is the consideration of the problems connected with lymphoid development.

Hypertrophied adenoid tissue may be congenital. In children six months old, if there is much adenoid hypertrophy, it may obstruct the larynx, for the naso-pharynx is then relatively low and the larynx relatively high. It may also, from its relatively low position, make deglutition difficult. It has been recently pointed out that a frequent symptom of adenoids in children is the existence of gastric derangements due to the swallowing and nocturnal trickling into the stomach of the thick and acrid mucus secreted by the adenoid mass. A case of my own will serve forcibly to demonstrate this fact. A little girl, aged seven years, suffered, among other adenoid symptoms, from frequent attacks of dyspepsia, with morning nausea and vomiting. Since the removal of a large mass of adenoids, some five or six years ago, these attacks, which had been considered to be quite unconnected with the growths and had been treated unsuccessfully by divers methods, have entirely ceased.

Now, lymphoid tissue in the naso-pharynx is a normal condition in every child, but when the child is predisposed to hypertrophy of that tissue (and the condition often runs in families) the general practitioner has a grave responsibility on his shoulders. He should give careful consideration to and should be prepared to advise parents on the subjects of dress, exercise, ventilation, food, the care of the teeth, the various irritations of the mucous membrane of the mouth, upon general hygiene and metabolism. He should warn them of the effect upon the naso-pharynx and its lymphoid tissue of the infectious diseases of children as well as the results upon the faucial and pharyngeal tonsils of simple acute infections. If this advice is conscientiously and firmly given, it will do much towards the prevention of hypertrophy and the evils which follow in its train.

When adenoid tissue is associated with recurrent attacks of earache or with otorrhœa, with follicular pharyngitis and nasal obstruction, there is no need of posterior rhinoscopy c palpation to know that the condition has become patho logical. Another popular superstition that is dying, hu dying hard, is that enlarged cervical glands are due t "scrofula." Until recently I thought that the very wor "scrofula" was a thing of the past with the profession; a any rate, although in the lay mind it is a mysterious entity that has some vague connexion with tubercle, n one has ever been able to give me a satisfactory definition o what "scrofula" really is. But lately I have heard it used quite confidently as describing a condition that is apparentl inevitable in childhood by various medical men who, in thes days of cheap text-books, post-graduate courses, and voluminous literature, certainly ought to know better. Here again, when the practitioner meets with this condition o so-called "scrofulous" glands, he can do much by pointing out that they are due in reality to the absorption of toxin from inflammation of the faucial and pharyngeal tonsils Here I would point out that adenoids and tonsils being similar structures the former are just as liable as the latter t infection of their crypts and to become septic. I look upon this tendency to septicity as one of the gravest features o tonsils and adenoids and their influence. Except in very young children, where they cause obstruction by their size hypertrophic tonsils and adenoids are not of such grave importance merely on account of their hypertrophy as when they become septic. De Ponthière insisted upon this in a valuable paper read in 1909 to the French Otological Society In that paper he pointed out that, in some cases of chorea the condition was kept up and probably initiated by chronic septic tonsils and adenoids. I might add that de Ponthière worked carefully at the subject for some 12 years before he published anything upon it, an example worthy of imitation by others.

As regards the effect of adenoids upon the middle ear, I would ask you to bear in mind that they act in two ways. By causing obstruction to nasal respiration by their mass and, when septic, by infecting the tympanum through the Eustachian tubes. Mere obstruction by mass is likely to have serious results upon the ear in younger children, whose post-nasal spaces are small and undeveloped. Obstruction by mass also interferes with the function of the palatine muscles, which normally open the Eustachian tubes and ventilate the middle ear. Important as this is, it is septicity which has the gravest results; the frequent catching of colds, during which the child becomes deaf from extension up the Eustachian tubes, is the common complication of adenoids.

OPERATION FOR ADENOIDS.

This leads me to speak of the adenoid operation. Long experience has brought me to the opinion that this procedure is one which is frequently the worst performed of all the simple manipulations of surgery. After the age of four years, true adenoid hypertrophy does not recur if properly removed, yet one frequently sees cases in which symptoms have persisted after operation and, on investigation, it is found that the growths have never been efficiently taken away. To the looker on, the removal of adenoids and tonsils is a very simple and easy affair, but this is one of the instances where the looker-on does not always see most of the game. The result of such imperfect surgery is disappointment for both operator and parent and unmerited discredit for the operation. In operating with forceps it requires a good deal of practice before the surgeon knows thoroughly well what he is doing in the post-nasal space. The cradled curette is a cleaner and more efficient instrument and the forceps are rightly falling into the limbo of the obsolete. There is, however, a wrong way as well as a right way of using the curette. Inexperienced operators do not appreciate the fact that, to be successful with this instrument, the front of the curette should be felt to touch the nasal septum and the fenestra pressed well against the pharyngeal roof, before sweeping it backwards. If the former is not done the most anterior portion of the growth is left, whilst if one fails to push the instrument well home the adenoids are merely shaved and not removed. No surgeon should consider himself efficient at removing adenoids until he can bring away the whole mass in one sweep. Moreover, the curette, to do its work properly, must be kept sharp, for, if allowed to become blunt, it leaves tags which must be removed later. But it is not merely the removal of the central mass that constitutes

the operation. The fossæ of Rosenmüller—those recesses behind the Eustachian cushion—must be cleared thoroughly as well. As far as the effect upon the middle ear is concerned, it is not necessary to have any obstruction to nasal breathing from adenoids. Small amounts of lymphoid tissue about the ostia of the tubes, and especially in Rosenmüller's fossæ, will keep up an otitis media. In adults the posterior rhinoscope will reveal their results in adhesions passing between the Eustachian orifice and the pharyngeal wall, distorting the tubal opening and keeping up irritation. Therefore a thorough clearance of Rosenmüller's fossæ is essential to success, and neglect of this measure is the secret of most of the failures met with after the adenoid operation. Equally important is the after-treatment by respiratory exercises.

Ear Disease associated with Adenoids without Nasal Obstruction.

I have just pointed out that there is no need to have any nasal obstruction from adenoids for them to affect the middle ear, and that small amounts of lymphoid tissue about the tubes are enough to cause and to keep up a serous otitis media in children; hence the cases of middle-ear involvement in which the real cause goes unsuspected. In the course of an investigation into a large number of school children with a view of ascertaining the occurrence of adenoids, which I published recently, 51 out of 1246 had ear complications. Every one of these children had adenoids. They were, however, by no means all of them mouth-breathers. It should never be forgotten that earache in children, especially before puberty, practically never occurs without the presence of adenoids in Rosenmüller's fossæ and that progressive catarrhal deafness in adults is always accompanied and caused by lessening of the normal movements of the Eustachian tubes, by swollen mucous membranes in the sides of the naso-pharynx, or by remains of adenoids, or adhesions resulting from them, which block the fossa of Rosenmüller. Adult catarrhal deafness is therefore due in the majority of cases to causes which have been in operation since infancy or childhood—neglected pathological legacies which are bound to show themselves in later life.

Middle-ear Inflammation in Children without Pain: Treatment of Acute Otitis.

Another fact to bear in mind is that in children under the age of 4 years an acute middle-ear inflammation may exist without any symptoms of pain. These cases must be familiar to every general practitioner. A child has a sudden rise of temperature, with restlessness and, possibly, symptoms of meningeal irritation, for which no physical cause can be discovered, but which improve after a discharge from the middle ear has become established. In such cases the practitioner should never fail to examine the ear before discharge has drawn his attention to it, when redness and bulging of the membrana tympani will reveal the true nature of the case and a clean incision, followed by the removal of the adenoids, will prevent the danger of a discharge which may become chronic as well as of possible permanent impairment of the hearing. Such cases without pain are common in bronchopneumonia, in influenza, and in enteric fever, and their neglect is another potent cause of deafness in after life.

In measles and scarlet fever there is a high percentage of middle-ear involvement, and prompt treatment is necessary to avert serious consequences and fatal impairment of hearing. I may point out here that in scarlet fever the condition is often one of true bone inflammation rather than of simple middle-ear suppuration, and this accounts for the number of chronic suppurations with mastoid involvement and great destruction of tissues seen after this infectious fever.

In dealing with the acute otites of children the general practitioner should rely mainly upon the careful inspection of the tympanic membrane. Merely to watch the case without due consideration of the stage of the disease is to court disaster and allow to pass the time for interference, the ultimate result being serious and often irremediable destruction of hearing. There is always a time for prevention, and if not promptly seized it passes for good and all. I will sketch out what is, to my mind, the best course to pursue in simple cases. If the patient is seen before discharge has appeared incision of the bulging membrane, followed by mopping and the insertion of a light drain of sterile gauze carried to the bottom of the meatus, will relieve the condition and prevent natural perforation. It is usually better not to irrigate after incision. Clearance of the nasal passages by warm alkaline spray and benzoin inhalations will keep the naso-pharynx clear and the Eustachian tube open until such time as it is advisable to remove the adenoids. If, however, perforation and discharge have already occurred, and pain is a prominent symptom, hot irrigations, with inhalations of benzoin or menthol, confinement to bed in a warm room, and a mild cathartic will suffice. During the congestive stage, but only then, large irrigations every two hours of hot normal sterile salt solution are useful, followed by careful mopping, and the introduction of a drain of ribbon gauze to the bottom of the meatus. The tympanic membrane should be inspected frequently, and if the perforation is small and the discharge profuse, incision should be practised. Should discharge persist for more than ten or 12 days its continuance is due to some complication, and further frequent and large irrigation is inadvisable as conducive to the formation of polypi, adhesions, and the possibility of mastoid or intracranial complications. As soon as acute symptoms have subsided the naso-pharynx should be cleared, for in these cases it is not so much a question of a steadily progressive disease as of constant reinfection through the Eustachian tube, and it is only by attacking the primary source of these infections that exacerbations can be prevented. A middle-ear discharge is always a serious matter, and treatment should never be allowed to relax so long as there is a drop of pus in the meatus. Too early cessation of treatment is the secret of many intermittent otorrhœas, and most of the chronic suppurations of adult life date back to childhood. Once discharge has ceased, and measures taken to prevent recurrence, other treatment can be undertaken with a view to endeavour to restore or improve the hearing.

I have now said enough on the subject of the prevention of chronic deafness in the adult by prompt attention to the ear conditions of childhood. It is pre-eminently in this department of aural surgery that the general practitioner and the otologist can be of mutual help. With our advances in etiology and pathology it behoves us to turn aside from what I have already called end-results in order that we may do the utmost that our knowledge allows us to prevent the occurrence and to stem the progress of the acute and chronic inflammatory conditions which were the original causes of serious impairment of hearing—causes which lead in some cases to complete deafness and consequent acquired deaf-mutism. In the words of an American otologist, the aurist must be a practical rhinologist.

Less Common Causes of Deafness in Children.

It is incumbent upon me to speak briefly of some of the less common conditions which may cause serious deafness in children. These affect the internal ear and are chiefly, leaving out the exanthemata, meningitis (simple, tuberculous, and epidemic), congenital syphilis, and mumps. Little can be said as to the first of these. Congenital syphilis attacks the ear generally between the ages of 6 and 14 years, usually after the eye manifestations. So far as my own observations go, the eye symptoms usually precede the aural condition closely, but there may be a considerable interval of time between them, and although the ocular disease may come after the deafness, it is much less common for it to do so. Thus, in 32 cases under my own observation, the eyes were attacked first in 14 (43·7 per cent.), at the same time as the ears in 6 (18·7 per cent.), and after the ears in only 4 (12·5 per cent.), the relation being doubtful in 8 (25·0 per cent.). The points upon which I would specially insist are two: first, that the ear seems especially prone to be attacked in those in whom the general disease has been allowed to escape treatment in infancy; secondly, that unless treatment be prompt, nothing can be done to improve the resulting deafness. Therefore every infant with signs of congenital syphilis should be submitted to a vigorous course of treatment, in order that the prevention of this complication may at least be attempted. The labyrinthine complications of congenital syphilis are highly resistant to specific treatment, and it is by no means uncommon to find them making their appearance during the time when the eye condition is under appropriate treatment, and progressing to more or less complete deafness in spite of it. The only measure which gives any hope is pilocarpine injection at the first onset of ear symptoms. The serious nature of this condition is exemplified when I tell you that out of 500 deaf-mutes examined by me in the London County Council Deaf Schools,

17 out of the 225 acquired cases were due to congenital syphilis, a percentage of 7·5; Kerr Love found, at the Glasgow Institution, 1·8 per cent.; and Castex, in describing his researches into the causation of deaf-mutism in the Paris institutions, has mentioned only 18 cases out of 719 (2·5 per cent.). My figures therefore appear to be unusually high and speak eloquently as to the want of care in the prevention of this terrible complication of the congenital disease.

Mumps may cause deafness by involvement of the middle ear or of the labyrinth. Cases due to this condition are decidedly rare. The labyrinthine involvement is due apparently to a metastasis, or to a primary localisation of the disease in the cochlea. Boot published, in the *Journal of the American Medical Association* of Dec. 5th, 1908, an analysis of 51 cases, including two from his own observation, and his paper well repays perusal. The time and mode of onset of acute labyrinthitis in mumps vary; the symptoms—rapid deafness, with or without vertigo and nausea—appear usually from the first to the third day of the primary disease, but they may be as late as the sixth or seventh and have been known to precede it. The general practitioner should never forget this serious complication of mumps, for everything depends upon prompt treatment, and pilocarpine and iodide of potassium have been found to give excellent results.

DEAF-MUTISM.

In conclusion, I must revert once more to the subject of deaf-mutism, which was touched upon at the beginning of this lecture. I cannot go into the causes of deaf-mutism here, but I would recommend to your attention an admirable paper by Mackay, published in the *Practitioner* for Octoher, 1908, in which it is remarked that: "Of all the practitioners of medicine and surgery, the general practitioner is the one who can do most to prevent it. It is his advice that the public acts upon, when it acts upon expert advice at all in things pertaining to health, and it is his aid that the afflicted public seeks first, when it awakens to a sense of its aural disabilities."

There are two great classes of deaf-mutes, the congenital and the acquired. As regards the latter, the general practitioner can diminish their number if he will but give practical attention to the treatment of ear conditions in children (the salient points of which I have endeavoured to lay down), and especially to those occurring in the course of the general diseases. But it is not alone in acquired deaf-mutism that his duty calls him to activity. When the history, and especially the family history, of the congenitally deaf is examined two facts come into prominence, heredity and consanguinity. Taking first heredity, it will he found that opinions differ widely, but there is no doubt that the view that heredity plays a prominent part is coming to be much more generally held. It is not sufficient to take into consideration the immediate effects of deaf-mute parentage, but one must look much further and include, not merely the direct ancestry, but the collateral branches. If this is done, it will be found that the abnormality of deaf-mutism appears repeatedly. Heredity is less frequent in the direct line (parents and grandparents), more frequent in collateral branches (great uncles and aunts, uncles and aunts, grandparents' cousins, parents' cousins, cousins and second cousins), and most frequent among the brothers and sisters of the deaf-mute.

The effect of consanguinity is also much disputed, but it is undoubted that it is a potent predisposing cause. I can only quote here a very limited number of facts to demonstrate this. In Denmark, according to Mygge, consanguineous marriages may be supposed to represent about 3 to 4 per cent. of all marriages, yet 6·75 per cent. of the deaf-mutes admitted to the Royal Deaf and Dumb Institution in Copenhagen were the result of such marriages. Deaf-mutism is more common amongst Jews than amongst Protestants and Roman Catholics, and more common amongst Protestants than among Roman Catholics. This follows the customs prevailing in these three sects in regard to marriage, for inter-marrying largely occurs amongst Jews, and Roman Catholics discourage cousin marriages, whilst Protestants permit them. It is, however, only right to say that there have been brought forward facts which tend to deductions of an opposite nature to those just quoted. Possibly, however, this anomaly may be explained when the investigations into the relationships of the parents are more exactly conducted, as suggested by Mackay in reference to the marriage customs of the Fijians. It may be fairly stated, nevertheless, that something like 50 per cent. of the cases of congenital deaf-mutism are the result of marriages either (1) amongst those who have cases, either direct or collateral, in their families; or (2) amongst those who are blood relations. Here, then, becomes apparent another obvious duty of the general practitioner, and one which he will not infrequently have an opportunity of hringing into action. He should, whenever the occasion occurs, do all he can to discourage such marriages. It may be that when we, as a nation, are more alive to the urgent necessity for race culture, when we more fully realise that national wealth is not gold but healthy, normal citizens, we shall discourage consanguineous marriages in tainted families by law. Until then it will remain the paramount duty of every medical man to do his utmost in this direction and to foster in his patients the feeling that we have a bigger duty towards future generations than we have to ourselves.

Lastly, there is a duty to congenital and acquired deaf children, whose defect, it must be remembered, lies, in the majority of cases, only in the absence of the sense of hearing. That duty is to impress upon their parents that to obtain the best results from education by the oral system (which is the only system which can give the deaf child anything approaching normal intercourse with his more fortunate brethren), such education must begin as early as possible, whilst brain and larynx are still plastic; that attendance at the deaf school must be as regular as possible; and that the oral training carried out by the trained teacher of the deaf must be continued, supplemented, and amplified at home by treating the child as a *speaker* and not a *signer*.

ON THE VALUE OF BLOOD-PRESSURE DETERMINATIONS IN THE TOXÆMIA OF PREGNANCY.

BY HUBERT J. STARLING, M.D. LOND., D.P.H. CAMB.

UNDER the term toxæmia have been included a number of morbid conditions which occur in pregnancy and which are apparently due to the circulation of toxic substances. As to the origin of these substances opinions are divided as to whether they are derived from the fœtus or the mother. Ewing and Wolf divide pregnancy into six different classes[1]: (1) normal pregnancy; (2) disturhed metabolism with or without clinical symptoms; (3) toxæmia with vomiting as its chief symptom; (4) the pre-eclamptic state; (5) eclampsia; and (6) toxæmia ending in acute yellow atrophy of the liver. They state that "we find reason to believe that all these morbid states arise from one fundamental disturbance, yet there is clinical and practical value in separating them into groups." They arrive at these conclusions from definite pathological changes found post mortem and from an extensive series of observations made on urinary analyses. They also define the relation of the changes in urinary nitrogen to the pathogenesis of the disease. Their work, however, is far too exacting and difficult to be carried out by the general practitioner, or even by the professing obstetrician, without much time and labour being spent in the laboratory. Two of their conclusions, however, are of great general interest: (1) that dangerous toxic states may exist with great metabolic disturbance without the presence of albumin in the urine; and (2) that since the hypobromite method for estimating urea also liberates the nitrogen from such precursors of urea as leucin, tyrosin, ammonia, &c., a normal or high percentage of urea as estimated by this method is of no value as a guide to the condition of the metabolism. In view of the danger hoth to the mother and child involved in the several grades of this toxæmia, it is of extreme importance that the practitioner should have some means at his disposal of judging of the severity of the condition, of its onset, and of the probable danger either to mother or child of allowing pregnancy to continue. Only by such knowledge is it possible to take measures either for the treatment of the condition or for the termination of pregnancy.

[1] Ewing and Wolf: American Journal of Obstetrics, March, 1907.

Ewing and Wolf have carried out a large number of very laborious estimations of the different constituents of the urine in a number of cases of toxæmia of pregnancy. In spite of the care exercised in these investigations their results do not seem to promise that any definite indication as to the course of the disease will be obtained from a study of the urine. The results of their analyses either fall within normal limits or, when divergent from normal, can be ascribed to the secondary incidents of the toxæmia—e.g., to the starvation caused by the persistent vomiting. To the practitioner the negative character of these results may almost be regarded as a source of satisfaction, since it would be impossible to carry out in general practice the laborious series of analyses conducted by these observers. In a paper by Underhill and Rand the following among other conclusions are arrived at:[2] "The composition of the urine in pernicious vomiting is strikingly similar to that which obtains in the urine eliminated during inanition. In both instances the characteristic perversions are changed relations in the excretion of urea and ammonia, and at times in the output of creatinin and creatin. The determination of nitrogen, ammonia, creatinin, and creatin in pernicious vomiting is believed to be of greater value than the more elaborate methods suggested by others. It is suggested that the changes in the urine in pernicious vomiting of pregnancy are induced by the accompanying inanition. Evidence tending to substantiate this view is furnished by the observation that the perverted urinary nitrogen relations rapidly resume the normal on administration of food without necessarily exerting any influence on the pathological state of the patient. In pernicious vomiting of pregnancy, where inanition is a significant factor, the administration of energy-yielding foodstuffs is of greater value than the giving of foods rich in nitrogen. Carbohydrate supply is apparently the factor determining the relative output of urea and ammonia, since in pernicious vomiting of pregnancy, as in inanition, the administration of this substance by mouth or by rectal enemata is followed by a distinct tendency towards a resumption of the normal elimination of these compounds."

All authorities are, however, agreed that, at any rate in its grosser forms, the toxæmia of pregnancy is accompanied by a high arterial blood pressure. I have taken advantage of half a dozen cases of toxæmia of pregnancy to find out how determinations of arterial blood pressure may be used as a means of prognosis and as a guide to treatment. In the following cases the total urine and the total output of urea in the 24 hours have also been estimated. Although in the absence of a proper determination of the nitrogenous intake these results cannot be regarded as of scientific value, or as giving accurate information as to the course of the nitrogenous metabolism, it will be seen that they are of considerable practical value in enabling us to judge of the course of the disease.

Blood pressure in normal pregnancy.—For the past five years I have made a rule of taking the blood pressure as often as possible of every pregnant woman under my care, especially in the last three months of pregnancy. It was quite impossible to secure identical conditions of observation in these cases, but the mere fact that most of the observations were taken, not on patients resting in bed, but in patients who either were working in their homes or else had walked to my consulting-room, would prove that these estimations of blood pressure were too high a reading rather than too low. In spite of the conclusions arrived at by Vogeler and other writers,[3] I am convinced that during the whole period of normal pregnancy the blood pressure is normal—that is, from 110 to 120 mm. Hg. Any rise of blood pressure above 125 mm. Hg. would make me suspect that the pregnancy was not quite normal and would put me on the look-out for some degree of toxæmia.

To demonstrate the value of estimating the blood pressure I might instance one case sent to me by Dr. Cleveland, a woman, aged 21 years, unmarried, primipara, eight months pregnant, with huge œdema of the legs extending to the top of the thighs. After walking one mile and then resting ten minutes her blood pressure was 118. Estimations of urine were taken and found to be normal; the woman kept at her work, the œdema remained the same, and her blood pressure was normal. After a week the patient was sent to bed and her very tight corsets removed, and in 24 hours the œdema had completely disappeared. Her blood pressure was normal 24 hours before labour.

Any rise of blood pressure at the commencement of, and during, normal labour is due entirely to the pain or muscular exertions consequent upon labour.

Nitrogenous output in pregnancy.—The nitrogenous output may be slightly increased in pregnancy, but there is always a positive balance corresponding to the growth of the fœtus and the maternal tissues. Sellheim states[4] that during the first eight days after birth the total urine is diminished about 20 per cent. below what it was just before birth. The output of urea is generally somewhat raised. It is small on the first and second days after birth, rises on the third to the fifth day, then gradually diminishes. The alterations, however, are not large. It will be seen that in all the cases which I have to record both the blood pressure and urinary secretion, as well as the output of urea, exhibited deviations from the normal, and varied with the course of the disorder. A study of these cases, however, shows that we can divide them at once into two groups.

Group 1.—Sthenic in type, characterised by increase of blood pressure, which may be detected as early as the third or fourth month of pregnancy, not necessarily preceded by persistent vomiting or marked symptoms common to the first three months of pregnancy—slow strong pulse, heart enlarging, apex beat travelling outwards, diminution in quantity of urine passed with gradual suppression of urine, percentage of urea only slightly decreased, specific gravity not necessarily low, large quantity of albumin in urine, increasing œdema of the tissues, ending in eclamptic convulsions and death of fœtus. (The death of fœtus probably due to mechanical causes—i.e., the convulsions of the mother.) Subsequent to labour tardy elimination of toxins, often accompanied by albuminuric retinitis and permanent damage to renal and other structures.

Group 2.—Asthenic in type, much more gradual and insidious in onset, general malaise and fatigue, increased output of urine, very low specific gravity, slight trace of or no albumin in urine, no œdema, no casts in urine. Blood pressure slightly raised (due probably to cyanosis owing to inefficient circulation) or not altered; rapid, feeble, or intermittent pulse; finally great prostration and symptoms of profound toxæmia, gradual death of fœtus from toxæmia. Temporary recovery if fœtus dies in utero, speedy and apparently complete recovery after delivery has taken place.

The following are notes on cases:—

CASE 1.—An unmarried woman, aged 28 years, eight months pregnant, primipara. She was admitted into the Norfolk and Norwich Hospital under the care of Dr. S. H. Long, by whose kind permission I am allowed to publish these notes. Her mother and sister suffered from eclampsia in their first pregnancies. The patient was a strong healthy girl; œdema of the legs began at the sixth month; the output of urine greatly decreased for three days before admission. On admission on Jan. 16th, 1906, there was universal œdema, the urine was almost solid on boiling, and she passed very little. Labour began at 8.30 P.M. and continued all night with much distress and screaming. On the 17th, at 9.30 A.M., she had a typical eclamptic fit lasting about three minutes; forceps were applied at 10.30 A.M., and a recently dead well-formed child delivered. Subsequently the patient suffered from severe headache, complete blindness, œdema of the conjunctivæ, and well-marked retinitis with multiple hæmorrhages into the deeper layers of the retina. The patient made a good recovery. Sight returned about Jan. 27th; the urine contained albumin until after her discharge from hospital on Feb. 20th, 1906; the patient did not return to work until July, 1906. She was seen again in February, 1908, and her eyes were examined by Dr. A. Greene of Norwich, who stated that "considering the large amount of degenerative disturbance at the macular region it is remarkable that the patient can get as good vision as she does; ..... a considerable portion of the improvement is due to the most peripheral portions of her fundus becoming educated to finer use." The patient consulted me on several occasions in 1910 for eczema, persistent headache, rapid pulse, and general weakness. I think that there is no doubt but that her kidneys would show granular degeneration.

CASE 2.—A married woman, aged 24 years, a primipara. There was no previous history of importance. In October, 1907, she was 8 months pregnant. There was great œdema of the legs and thighs, the eyelids were swollen, and there were headache and dyspnœa. The apex beat was in the fifth space in the nipple line; the first sound was long, and the second sound was very loud. The pulse was 74, blood pressure was 162 mm. Hg after resting for 10 minutes. The urine was of specific gravity 1016, and was almost solid with albumin on boiling. The patient was sent to bed and put on milk and carbohydrate diet, 4 pints of fluid daily, and bicarbonate of soda 1 drachm four times a day. During the next few days the condition improved and the œdema diminished. On Oct. 11th the patient was seen in consultation with Mr. Everett; the apex-beat was three-quarters of an inch external to the nipple line; the pulse was 90, hard, and persistent; blood pressure was

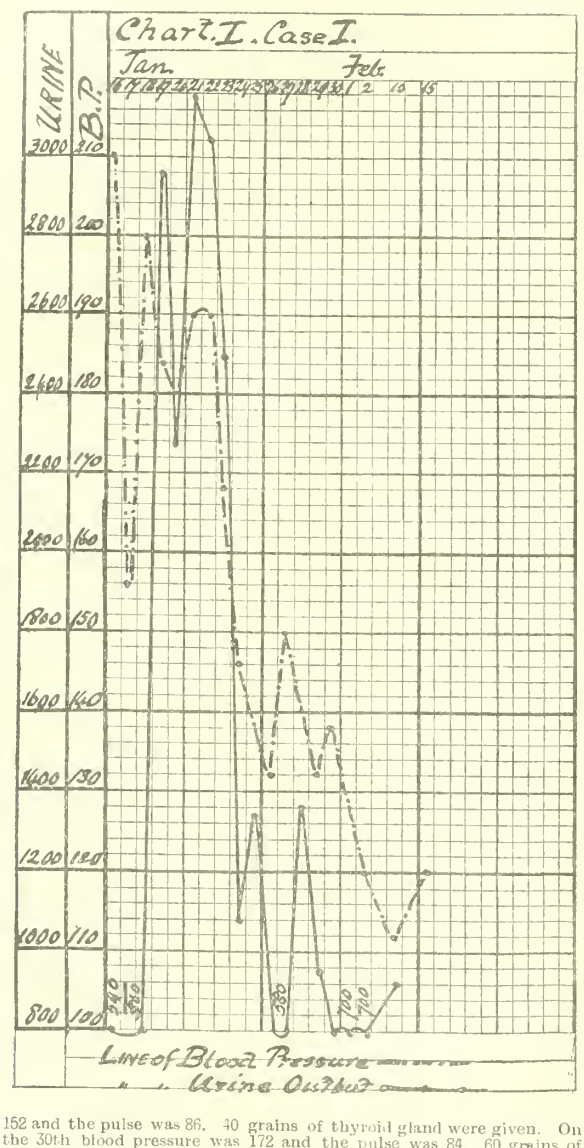
[2] Underhill and Rand: Archiv Int. Med., January, 1910.

[3] Vogeler: American Journal of Obstetrics, vol. lv., No. 4. Cf. Stengel and Stanton: University of Pennsylvania Medical Bulletin, vol. xvii., No. 7.

[4] Sellheim: Nagel's Handbuch der Physiologie.

198 mm. Hg, and headache was intermittent. There was slight sickness. Œdema of the vulvæ was so great as nearly to prevent vaginal examination. 1080 cubic centimetres of urine were passed in 24 hours; it was nearly solid on boiling and of specific gravity 1010; urea, 16·2 grammes in 24 hours. Immediate delivery was advised, but the patient would not consent to it. Pregnancy went on to full term and the patient was delivered normally on Nov. 19th. The child was in good condition. Six months later the patient was still in a very poor condition of health, anæmic and weakly. The urine contained 1½ parts per 1000 of albumin and was of specific gravity 1015; urea 14·5 grammes in 24 hours; amount 1200 cubic centimetres.

CASE 3.—A married woman, aged 24 years, primipara. On Jan. 28th, 1908 (within one week of expected confinement), the legs, thighs, and vulvæ were swollen enormously, each vulva being of the size of a full-term child's head. She had headache and backache. Urine dribbled away all day and contained admixed blood. A catheter specimen was almost solid with albumin. Blood pressure was 164, and the pulse was 80. The second heart sound was sharp and loud. The patient was ordered 40 grains of thyroid gland. On Jan. 29th blood pressure was



152 and the pulse was 86. 40 grains of thyroid gland were given. On the 30th blood pressure was 172 and the pulse was 84. 60 grains of thyroid gland were given. On the 31st blood pressure was 170 and the pulse was 88. 60 grains of thyroid gland were given. The œdema of the back and legs improved, but the vulvæ were enormous. There was no headache, but the skin was hot and dry. There were no signs of perspiration. On Feb. 1st labour took place quite normally; forceps was applied to bring the head through the vulvæ, and the perineum was torn nearly to the rectum. No thyroid was given on this date. On the 2nd blood pressure was 182. 30 grains of thyroid were given. The pulse was 92. The patient was very fit and seemed none the worse for the labour. On the 3rd blood pressure was 172 and the pulse was 96. There was some sweating during the past 12 hours. 20 grains of thyroid were given. On the 4th blood pressure was 168 and the pulse was 100. 20 grains of thyroid were given. The urine was quite free from blood; it contained 50 per cent. albumin on boiling. On the 5th blood pressure was 160 and the pulse was 96. 20 grains of thyroid were given. The œdema had quite disappeared. On the 6th blood pressure was 148. 10 grains of thyroid were given (last dose). On the 13th blood pressure was 100 and the pulse was 84. There was no œdema and the perineum was well healed. The specific gravity of the urine was 1010; there was no blood, only a trace of albumin; urea 0·015 per cent. On the 27th blood pressure was 10[illegible]. There was no albumin in the urine, the specific gravity of which was 1012. This patient was seen again in July, 1910; she was in perfect health and the urine was normal.

CASE 4.—A married woman, aged 24 years, a primipara. She had had one miscarriage at the sixth week. There was no history of eclampsia in the family. She had had acute rheumatism twice. No endocarditis was present. There was no history of previous renal trouble. The thyroid gland was always a little enlarged. During the first three months of pregnancy continual nausea, headache, fatigue, and constipation were present. Blood pressure averaged 135 mm. Hg. From the third to the seventh month of pregnancy the patient was very well. Blood pressure taken once a week averaged 115 mm. Hg. Constipation was troublesome. On Sept. 29th (the beginning of the twenty-eighth week) the following symptoms came on suddenly: Headache, nausea, sickness, sharp attack of diarrhœa, and great fatigue. Blood pressure was 150 mm. Hg, and the pulse was 110. The urine contained a faint trace of albumin; the specific gravity was 1004. The patient remarked that fœtal movements were greatly lessened towards the end of this day, and they continued to grow less and ceased on Oct. 7th. The clinical as well as the subjective symptoms improved after about four days, and the patient apparently recovered from the sudden attack. On the 10th labour began and was completed normally. The child was well formed but had been dead some days. After labour there was very little hæmorrhage; the pulse was unusually hard and rapid, and did not regain its normal tension for 24 hours, when the uterine flow was well established. The patient's face and general complexion were red and cyanosed. Owing to tension of the breasts a dry diet had to be ordered after labour.

CASE 5.—This is the same patient as Case 4. She became pregnant six months after the birth of the stillborn infant. During this time her excretory powers had greatly improved and approximated to normal. During the first four months no symptoms of any note occurred, and the diet was of an ordinary character save that about three to four pints of fluid were taken daily. The specific gravity of the urine was about 1012. On June 22nd the specific gravity of the urine was 1008, the amount of urine in 24 hours increased to 2842 cubic centimetres (100 ounces) and the total output of urea decreased. All animal proteid was omitted from diet for 48 hours, and the patient got better. On each occasion (August 13th and 30th, and Sept. 11th and 24th) when the amount of urine passed in 24 hours was increased over the already high average output, so the symptoms (fatigue, headache, and nausea) augmented, so that when on Oct. 9th the output measured 1987 cubic centimetres and continued to increase, with a very low percentage output of urea, I was in no doubt that a crisis was approaching. The bowels had been kept fairly free throughout (about two stools daily) but on Oct. 11th a sharp attack of diarrhœa occurred. The pulse was about 108. Fœtal movements had been strong, but from this date the normal movements ceased at times and were replaced by curious rhythmical mark-time movements. On the 12th diarrhœa was still present. The pulse was 116 to 120. Fœtal movements were less active, there were longer periods of no movement, and rhythmical movements predominated. The patient was very ill and tired. On the 13th the patient was feeling extremely ill. She had pains in the joints and back. The pulse was 130 to 136, running in character and intermittent. Her complexion was slightly cyanosed. The fœtal movements were much less, and then entirely rhythmical. On consultation with Mr. Everett a bougie was inserted into the uterus at 8 P.M. All fœtal movements had ceased and no fœtal heart sounds could be heard. The fœtus was thought to be dead. On the 14th the cervix was dilated digitally under chloroform and oxygen, and delivery took place at 10 A.M. The child was very cyanosed, flabby, and apparently lifeless, but after five to ten minutes respiration was started. The child's weight was 5 pounds 10 ounces. Both mother and child did extremely well.

Discussion of Results and Indications for Treatment.

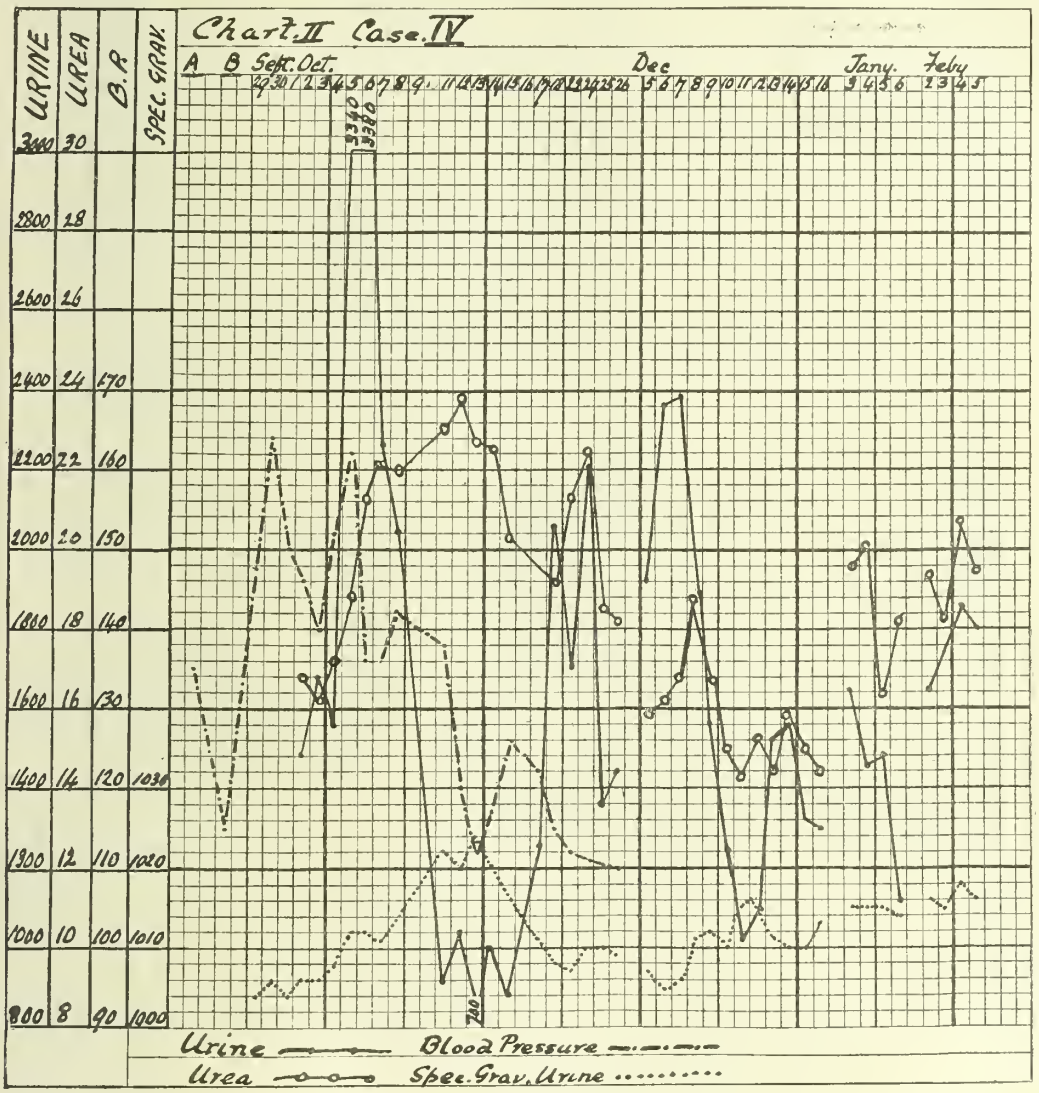
Group 1. Blood pressure.—It is apparent from the study of the first three cases with their charts that the most prominent symptom was a great rise of blood pressure. In each case no blood-pressure estimations were taken until the condition had existed for some considerable time. From other cases which I have had under my care, and from my observations on blood pressure in normal pregnancies, I have no doubt that if the blood pressure were estimated either as a routine method from time to time during the course of the pregnancy, or at least as soon as any abnormal symptoms (such as œdema) showed themselves, many of these cases by adequate treatment could be prevented from progressing to any serious degree. Any blood pressure above 125 mm. Hg in a pregnant woman at any time of her pregnancy should warn her medical attendant that the condition of his patient is abnormal.

In Case 2 considerable improvement took place, not only from the complete rest in bed, but also, in my opinion, from the change of diet. In these cases the whole circulatory system is responding to the strain put upon it by the circulating toxins, but it is obviously sound practice to lessen this strain wherever possible. This should be done: (*a*) By complete rest in bed, to give the heart as little extra work to perform as possible, so as to leave its energies free to cope with the unusual demands put upon it. (*b*) By giving a diet consisting chiefly of carbohydrates so as to leave the renal structures free to excrete the abnormal constituents that are circulating in the body. (*c*) By giving plenty of fluid, say 4 pints per diem, so as to dilute the circulating toxin and render it easier of excretion. As a point of

clinical experience, which is confirmed to some extent by experimental observations, large doses of bicarbonate of soda are beneficial in helping excretion, probably through preventing the tendency to acidosis, which exists in these and allied conditions of toxæmia. (*d*) The administration of thyroid extract should be tried, especially in the sthenic type of case. The dose should vary with the degree of toxæmia present, and its administration should be begun as early as possible. Dr. H. Oliphant Nicholson has recorded cases [5] in which the substance was of considerable value, not only in ameliorating the severity of the toxæmia, but also in aborting it in the early stages of the disease. To his writings I am indebted for the idea of using thyroid extract in this condition. In Case 3 enormous doses of thyroid extract were given, and not until five days after the commencement of its administration were any physiological effects observed, and even then its use was continued in smaller doses with benefit to the patient. The extraordinarily rapid recovery of this patient, and the early date after the confinement at which all trace of albumin had disappeared from the urine, I ascribe to the use of thyroid extract. Ewing in a recent paper [6] refers to the value of this treatment, and to other publications on this subject.

Finally, we come to the question of the termination of the pregnancy. Probably if these cases of eclampsia were seen and treated at an early period of their occurrence the majority of them could be either cured or at least so alleviated as to tide them over the confinement in safety. But in the cases that resist all treatment and are obviously getting worse an early termination is surely desirable. Cases 1 and 2 demonstrate the extensive effects of eclampsia, both with and without convulsions. Both patients are permanently damaged for life—debility, grave renal injuries, and damaged retina. If convulsions occur the mother runs considerable risk of a fatal ending, while the percentage death-rate of the child, in eclamptic convulsions, is also very high. In the case of a primipara I think it is of more importance to ensure the safe survival of the mother that she may undergo subsequent labours (when eclampsia is much less likely to occur) than to jeopardise her life and the life of the child in the first pregnancy in the hope of obtaining a full-term child.

Group 2.—In this group the estimation of the blood pressure is not so valuable as a diagnostic sign. But even in Case 4 it was the high blood pressure (150 mm. Hg) which with the other symptoms called my attention to the state of the patient. and in Case 5 it is seen that, coincidently with the rise of the urea and urine output, and with the increased severity of all the symptoms, so the blood pressure rose, but not to any marked extent. But in this group there were other symptoms present which gave important information as to the nature of the case. In Case 4 the patient was in a fit and active condition of health and on a normal diet until the beginning of the twenty-eighth week of pregnancy. Then symptoms of some acute



[5] Nicholson: Journal of Obstetrics and Gynæcology of the British Empire, July, 1902, January, 1904.

[6] Ewing: American Journal of Medical Sciences, June, 1910.

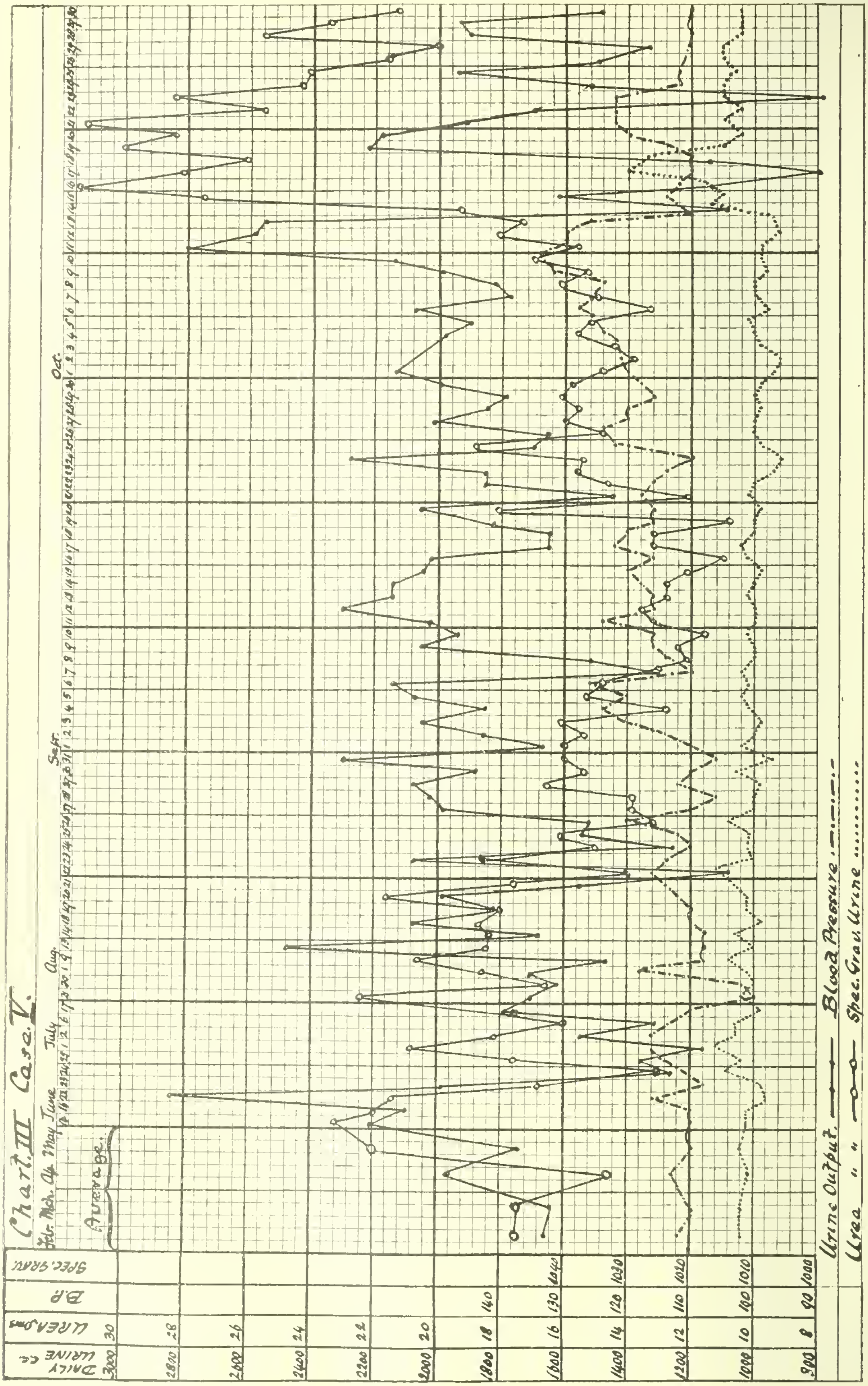


Chart. III Case. V.
Urine Output.
Blood Pressure
Urea " "
Spec. Grav. Urine
Average.
DAILY URINE cc.
UREA grms
B.P.
SPEC. GRAV.

intoxication developed—sudden diarrhœa, sickness, great fatigue, and rapid feeble pulse. Then it was found that the urine was of a very low specific gravity and contained a low percentage of urea with a faint trace of albumin. The patient was put on carbohydrate and milk diet (about four pints of fluid daily), with bicarbonate of soda 1 drachm four times a day. No change took place in the urea output for 48 hours, but then the amount greatly increased (in spite of the greatly reduced intake of proteid), and this increase lasted for 14 days. After the confinement, when the patient was taking a much higher nitrogenous diet, the output of urea was much lower than normal. The total output of molecules was also decreased, as shown by the valency value of the urea, determined from the specific gravity of the urine. These data point, on the one hand, to the storing up of urea or its precursors, and its subsequent liberation when the patient improved on the carbohydrate milk diet, and subsequently to some definite, though not extensive, damage to the renal function as the result of the toxæmia. The condition of the mother, therefore, improved under the treatment, but measures were not taken in time to save the child, which died within three to five days after the first onset of the toxæmic symptoms. It is quite possible that some part of the mother's improvement was due to the death of the fœtus.

One of the most marked features in this and the succeeding pregnancy was the alteration in the movements of the fœtus in the uterus. Nothing was more definite to the mother than the gradual onset of the mark-time rhythm which appeared at varying intervals at first instead of the normal fœtal movements, then entirely replacing them, and finally ending in the complete cessation of all fœtal movements. This case subsequently became pregnant again (Case 5), and a successful conclusion was brought about. But much the same symptoms were manifested—general debility, large output of urine, very low specific gravity, very low total output of urea, ending in a serious condition with exaggeration of these symptoms, suggestive of profound toxæmia, and with such an effect on the fœtus as to leave no doubt of its death had pregnancy been allowed to continue another 24 hours. During this patient's second pregnancy complete rest was ordered during the seventh and eighth months, and the diet was nearly entirely a carbohydrate diet except for two to three pints of milk daily. Bicarbonate of soda was given in large doses from time to time until the urine became alkaline, when it was discontinued for a time, and to these measures I ascribe the successful conclusion of the case. The chart of this case is very interesting, showing, as in Case 4, the apparent retention of urea or its precursors during the period of toxæmia with the enormous output immediately after delivery. Coincidently the specific gravity of the urine rose from about 1004 to 1030.

These two groups of cases present features of such great difference that one is tempted to suspect whether they can be classed at all in the same category. There may be one explanation of this question. In the first group the response of the circulatory system to the circulating toxins is magnificent but expensive. It is possihle that the second group of cases with the great difference in symptoms can be explained by the hypothesis that these symptoms are the result of the failure of the heart and circulation to respond to the demands made upon them. Whereas in the first group excretion of the toxins is forced upon the renal structures until they are so damaged that further function is completely inhibited, in the second group the breakdown occurs in the heart and circulation which do not respond, and the renal structures are permitted to have their own way and the toxins are not excreted to any extent. This hypothesis would account for the speedy recovery of the renal function in the second group of cases and the enormous output of urea immediately the condition (i.e., the pregnancy) was terminated.

That this is not the only explanation of the difference between these two classes of toxæmia is shown by the effect of thyroid extract on the sthenic type of case. Dr. Nicholson suggests that the condition is one of temporary athyroidism, and certainly the beneficial effects he has recorded as the result of thyroid administration prove that his suggestion is well founded. In Cases 4 and 5, the asthenic type, I administered small doses of thyroid (half a grain), but found that the symptoms were aggravated rather than improved. It is of interest to note that this patient has a slight simple enlargement of her thyroid gland. The blood pressure has been estimated throughout by means of Dr. C. J. Martin's modification of the Riva Rocci manometer. Except that I do not consider it necessary to divest the patient's arm of the clothing (except in very fat or muscular subjects) I have followed the same routine methods as set forth in my paper on arterial blood pressure in heart disease.[7] In one case I estimated the total ammonia in the urine by Sörensen's formaldehyde method, but the results are not sufficiently definite to promise that any light will be thrown on the course of the disorder by this means, at any rate without further investigation.

I am fully aware of the fragmentary and incomplete nature of these notes, but such as they are I hope they may be of some use to the general practitioner and perhaps throw some light on these obscure conditions. I do not put forth my conclusions as facts, but rather as factors which have proved of considerable use to me in the management of these cases, and I have approached the subject primarily from its clinical aspect. I feel very strongly that much can be done to alleviate these conditions and that treatment should be instituted at the earliest possible opportunity with a view to arresting their further progress. Pregnant women should therefore be encouraged to consult their medical attendants on the occurrence of the least sign of any abnormal symptoms, and the blood pressure should be estimated on every convenient occasion.

Norwich.

CÆSAREAN SECTION IN THE TREATMENT OF ECLAMPSIA GRAVIDARUM,

WITH NOTES OF A SUCCESSFUL CASE.[1]

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THE treatment of puerperal eclampsia is a subject of the highest importance to all those engaged in the practice of obstetrics, and is one where there is opportunity for considerable difference of opinion. This diversity of opinion, which has existed for many years, and still exists, is due mainly to the ever-changing views regarding the pathology of the disease. At present opinions as to treatment may be divided into two groups—(1) those favouring expectant treatment by drugs and other means; and (2) those favouring immediate and rapid delivery.

In the *Journal of Obstetrics and Gynæcology of the British Empire* for 1904, vol. v., p. 263, Comyns Berkeley has collected the opinions of a number of obstetricians as to how they would treat puerperal eclampsia. The extraordinary divergence in the methods recommended is the most striking feature in this essay. Certain of those who have replied to the questions asked recommend morphia, because it hinders metabolism, whilst others recommend thyroid extract, because it aids the metabolism of nitrogenous substances. Even in the use of purgatives there is absence of unanimity; some strongly advocate their use, others think they are harmful. There seems to be more agreement concerning abdominal and vaginal Cæsarean section, for both operations are regarded by the majority as being unjustifiable.

There are few who have had a sufficiently large experience of this disease to enable them to dogmatise over the methods of treatment. Indeed, the more cases of eclampsia one sees the more is one impressed with the great variability in the symptoms, course, and sequel of the disease. There is further considerable difficulty in appraising the true value of many of the methods of treatment, for from 75 to 80 per cent. of the patients recover, and our methods are as yet purely empirical, for we do not know the cause or causes of the disease. The toxic theory which now finds favour is nothing more than a return to the humoral pathology of our forefathers, and the treatment advocated in bygone days founded on that pathology compares favourably with the so-called modern methods. Unfortunately, under the term "puerperal eclampsia" more than one disease is included, for some writers seem to have grouped under this designation all those conditions in which fits occurred, and for this reason many statistical tables have to be disregarded.

[7] THE LANCET, Sept. 29th, 1906, p. 846.

[1] Delivered before the Section of Obstetrics and Gynæcology, Royal Society of Medicine.

I was led to consider anew the question of rapid delivery in this disease through having encountered in my private work a severe example of eclampsia gravidarum.

Notes of a successful case.—A lady, aged 26 years, a primipara, had been married for a year and had always enjoyed good health. She missed her first period in September, 1907, and was examined by her medical attendant when about six or eight weeks pregnant, and everything was reported to be normal. She went to the South of France and remained until February, 1908. On her return she was again seen by her doctor, when she expressed herself as feeling very well indeed, but unable to walk as far as she had been in the habit of walking. Early in April her father became seriously ill and ultimately died on April 30th. She was very much attached to her father and his illness came as a great shock to her and completely upset her nervous system. On April 19th her own doctor was sent for, and he found her complaining of indigestion, flatulence, and other signs of gastric disturbance. On April 20th she was not feeling very well all day, but was able to be up and about the house, although complaining of headache. Suddenly at about 8 P.M. without any warning she had two or three very bad fits. I was telephoned for and was told that in the last fit she had nearly died, and her condition was so bad that the case was hopeless. An injection of morphia was given. I reached the house about 10 P.M. and found the patient in a semi-comatose condition. Her face was livid and her eyelids swollen. A small quantity of urine was withdrawn by catheter and found to be solid with albumin. She had another fit in my presence. Her pulse was very rapid and her tongue had been badly bitten. I at once decided to empty the uterus and for this purpose she was put deeply under chloroform and an attempt made to dilate the cervix, first with metal dilators and subsequently with the gloved fingers. The cervix was elongated and extremely rigid; indeed, I had never encountered such a degree of rigidity. As little or no progress was being made with the dilatation, and as the fits were constantly recurring and of such severity that on more than one occasion she appeared to be dying, I decided that the best course to pursue was to empty the uterus by the Cæsarean operation. After having explained the situation to her husband and obtained his consent, a rapid Cæsarean section was done at 2.30 A.M. Whilst undergoing the operation the patient had one specially severe fit, and her own doctor, who administered chloroform, probably never had a more trying experience.

The operation presented no difficulty, but what was specially noticeable was the marked contraction and retraction of the uterus following on the removal of the fœtus and placenta. This not only facilitated the introduction of the sutures, but markedly diminished the amount of blood loss. The child, when extracted, was dead. The uterine wall was sutured with deep and superficial silkworm-gut sutures, and the abdominal wall closed by a continuous peritoneal suture of catgut, through-and-through silkworm-gut sutures not including the peritoneum, and a continuous catgut suture for the fascia. The through-and-through sutures were employed because the abdominal walls contained a considerable amount of fat. The instruments used were a scalpel, a pair of scissors, two pairs of artery forceps, a straight needle, and a curved needle. A smooth bedroom towel was cut into four pieces, which were then boiled and used as abdominal sponges. I wore rubber gloves.

After the operation the fits ceased, but the patient remained in a semi-comatose condition, the pulse being very rapid and feeble. At 8 A.M. she had a fit, for which a hypodermic injection of morphia was given. This was the only fit subsequent to the operation. The chloroform did not prevent the fits during its administration. She was inclined to be restless during the remainder of the day, but passed a "fair" quantity of urine. The pulse continued rapid and she had occasional vomiting. On April 22nd she passed a good quantity of urine; pulse rapid; was very restless, but did not complain of pain. On the 23rd she took some milk and water. Very restless. Urine 48 ounces; pulse very rapid. Complained of indigestion. Sleeping at intervals; perspired. On the 24th a good quantity of urine was passed; she was not so restless; pulse not so rapid. Complained of great pain in the chest. She took Benger's food well. On the 25th she was improving. The bowels acted well; good quantities of urine containing less albumin; pulse much slower and better. Slept fairly well.

The patient continued to make rapid progress. A few of the stitches in the abdominal wall were removed on April 30th and the remainder on May 2nd. The wound healed well. The tongue was badly bitten during the fits, producing two very deep lacerated wounds; these eventually healed under antiseptic mouth-washes, but were a cause of much pain and discomfort. The temperature on one or two occasions reached 100° F., but remained at the normal level at other times. During the convalescence she complained of indigestion and flatulence. A fish diet was given on April 30th. Her nurses left on May 26th. She sailed for Canada early in June and was reported to be quite well. The urine had been normal and free from albumin since April 30th.

I regret that it was not possible to record the case with greater detail, more especially the condition of the urine. Professor Osler kindly saw the patient on the second day after the operation. She has continued to enjoy good health, but has not again become pregnant.

Results of study of the literature.—I find that Van den Akker in 1875 is credited with being the first to perform with good result Cæsarean section in eclampsia, combined with contraction of the pelvis, although 100 years previously Lauverjat is alleged to have recommended the operation.

In 1889 Halbertsma advocated the adoption of the Cæsarean operation on the ground that it offered a good result to the mother and child and that it influenced so much the course of the disease. He recorded three cases, all primiparæ, aged respectively 26, 27, and 23 years. The first operation was fatal, the other two were successful. He concluded that if a woman in the last three months of pregnancy has eclampsia, medical treatment which endangers mother and child should not be prescribed, but operation should be done at once.

Kettlitz in 1897 gave a survey of the history of Cæsarean section for eclampsia up to and including the year 1896, and found in all 28 cases, giving a maternal mortality of 50 per cent.

Hillmann in 1899 described a case and gives the mortality in 40 cases as 52 5 per cent.

Streickeisen in 1903 made a further collection of cases and added 26 more, giving a maternal mortality in the 26 cases of 32 per cent.

Olshausen reported in 1900 that out of his last 250 cases of eclampsia he had performed Cæsarean section three times, two of the mothers surviving and all the children. In all three the fits ceased after the operation; the first, however, died six hours later from eclamptic coma. He advises the operation where the case is severe with a rapid succession of fits and where labour has not commenced. When the cervix is rigid and the os closed he prefers vaginal Cæsarean section.

The Transactions of the Edinburgh Obstetrical Society for 1903–1904, Vol. XXXIX., p. 194, contain records of two cases of eclampsia for which Cæsarean section was performed by Sir J. Halliday Croom. These cases appear to be the first and only examples recorded in this country.

The first case was a primipara, aged 20 years, who was between 8½ and 9 months pregnant. The operation, a Porro-Cæsarean section, was performed for the following reasons. 1. Her comatose condition and the rapid succession of convulsions. They continued to recur at intervals of less than five minutes. 2. The hypertrophy of the cervix. 3. The impossibility of dilating the cervix. 4. The contracted condition of the vagina as well as the pelvis generally. During the course of the operation there was no recurrence of the convulsions, the cyanosis was less marked, and the patient's condition generally improved. The patient died six hours later following a severe eclamptic seizure. The cervix is stated to have been absolutely undilatable either by fingers or instruments. Barnes's bags were quite useless, Hegar's dilators had no effect, and Bossi's instrument was not at the time known in this country.

The second case was a primipara, aged 46 years. Shortly before labour began she had an eclamptic seizure. The fits became worse with the onset of labour, the intervals shorter, and the coma profound. When seen by Sir Halliday Croom she had been unconscious for ten hours. The cervix was thickened and hypertrophied, projecting but slightly into the vagina, the fœtus was far above the brim, and the pelvis generally and uniformly contracted in the first degree. Dilatation was discussed and abandoned because there was no hope of dilating the cervix within reasonable time. It

was important to save the child for succession reasons. Cæsarean section was performed and a living child extracted. The mother soon regained consciousness, and remained conscious for two days, but on the third day she died from a low form of pneumonia, whether septic in origin or not remained doubtful.

These two cases with a fatal termination are the only instances recorded in this country where Cæsarean section has been tried in the treatment of puerperal eclampsia.

At the International Congress in Geneva in 1896 the opinion was expressed that "Cæsarean section as well as forceps delivery should not be regarded as ordinary operations, and are only justified when every kind of treatment has entirely failed." If this opinion is acted upon, then Cæsarean section would always have a high mortality, for the severe cases would alone be operated on, and then only after other methods of treatment had been tried and had failed.

Let us look, however, for a moment into the question of the maternal and fœtal mortality following this operation as compared with what happens after other methods of treatment. Streickeisen found in the 26 cases already referred to a maternal mortality of 32 per cent. Kettlitz calculated from his cases a mortality of 50 per cent. The mortality in eclampsia treated by other methods is given as about 20–25 per cent. The fœtal mortality in eclampsia generally is between 44 and 54 per cent. Streickeisen gives in his 28 cases of Cæsarean section a fœtal mortality of 30 per cent., and Kettlitz a fœtal mortality of 62 per cent. At present, therefore, Cæsarean section shows a high maternal mortality and a high fœtal mortality, and for this reason might be condemned. But was it not the same when this operation was first considered as an alternative to embryulcia in pelvic contraction, and when it was only adopted as a last resort when other methods of delivery had failed? The modern Cæsarean operation has been successful, not only from improvements in operative technique, but because the indications for the operation have been more clearly defined and acted upon without delay and before the patient has become infected through futile attempts to deliver. If this operation is to have a place in the treatment of eclampsia, we must be able to say, "This is a case for Cæsarean section," and have the courage to act promptly, for to delay until the patient is moribund and all treatment has been a failure is to court disaster.

Indications for operation.—What, then, are these? I would suggest the following: 1. When the fits are severe and recur in rapid succession. 2. When labour has not commenced. 3. When the cervix is difficult to dilate from elongation, hypertrophy, or excessive rigidity. 4. When the mother is moribund and the fœtus living and viable. 5. When labour has commenced and there is found considerable disproportion between the size of the child and that of the pelvis. 6. When the surroundings of the patient are suitable for a major surgical operation and when the services of an operator skilled in pelvic surgery can be obtained.

Eclampsia, as a rule, is not encountered before the second half of pregnancy, and becomes more frequent the nearer term is approached. Zweifel has, however, reported a case occurring in the third month. When it does occur in the latter half of pregnancy the disease is usually severe, a favourable termination occurring generally in the cases in which premature labour has rapidly supervened. In such cases, when the fits are severe and rapidly succeed one another, the indication is to empty the uterus at once, and this is best accomplished by the Cæsarean operation, in which the bleeding resulting therefrom is also beneficial.

Too much time should not be spent in such cases in attempting to dilate the cervix. Unless the cervical tissues rapidly yield to the methods of dilatation adopted, it is a matter of common experience that such manipulations tend to increase the fits, and unless the manipulations are carefully carried out there is the further risk of septic infection. The disease being so sudden in onset, often so severe in character and distressing to behold, it may even be the means of causing the medical attendant to be less careful in his aseptic technique, as preparations may have to be made in a hurry. Septic infection is a danger which must always be prominently borne in mind, for it would appear that eclamptic patients are even more susceptible, and septic infection has already claimed many victims in this disease. The wearing of sterile indiarubber gloves should be made compulsory for all those who engage in the practice of obstetrics, and special precautions should be taken in eclamptic cases to disinfect all instruments used.

Whatever views may be held with regard to the first three indications for this operation, I think all will agree that when the mother is moribund and the child alive an attempt should be made to save the child's life, and that this is best done by a rapid Cæsarean section.

Eclampsia which is associated with disproportion between the size of the child and that of the pelvis is a further indication for this operation, as in such cases it is undoubtedly the most rapid method of effecting delivery.

The surroundings of the patient and the surgical ability of those in attendance are important factors in deciding what course is best to pursue in the interests of the patient. If a patient can be removed to a well-ordered hospital or nursing home and can command the services of a competent operator, the chances of her recovery will be increased; or if her apartment is clean and skilled assistance at hand, the simple technique of the operation may be carried out in her own home. Should, however, the patient be in an insanitary dwelling, and no skilled surgical assistance available, her interests are best served by the adoption of expectant methods of treatment. The Cæsarean operation under modern conditions is practically free from risk and is in my opinion much to be preferred to the other methods of rapid delivery, including vaginal Cæsarean section. It offers in properly selected cases the best chance of saving the life of both mother and child, although it must be remembered that death of the fœtus in utero is not infrequent on account of severe convulsions.

The effect of the operation on the eclamptic fits remains for consideration. The figures collected by Streickeisen show that out of 28 cases in 14 the eclamptic fits absolutely stopped; in 3 they were diminished; in 2 they remained unchanged; in 6 no particulars were given; in 2 Cæsarean section was made post mortem. Absolute cessation of the fits was observed in half the cases. It has further been observed by Dührssen and others that eclampsia ceases more frequently after artificial than after spontaneous evacuation of the uterus. Now from what we know of the effect of labour and attempts at delivery on the frequency and intensity of the fits we would expect that that method of rapid delivery which involves the least amount of disturbance to the uterus would be the most beneficial. Cæsarean section is undoubtedly the one which causes least disturbance, and its effect is borne out by the figures already given. But if it is only tried after other methods have failed much of its value is lost, for prolonged attempts at delivery aggravate the disease, make the patient's general condition worse, and diminish her chances of recovery.

Results of treatment.—With our present expectant methods of treatment the mortality stands at 20 to 25 per cent. Let us see what is being done to reduce it. In Germany, Dührssen, Bumm, and others strongly favour rapid delivery, but the great difficulty in arriving at a decision as to whether active treatment should be adopted is one of prognosis. It is a difficulty which arises in the whole group of diseases associated with convulsive seizures. You cannot say for certain whether a slight fit will be succeeded by one of like severity or whether a severe fit with fatal termination may not be the sequel. If it were possible to foretell with greater accuracy the course of the disease, it would be easier to indicate what treatment should be adopted.

Dührssen evidently adopts the rule, "After the first fit empty the uterus," and this I submit is a perfectly logical position to assume, but we know there are slight cases which get well quickly, or, if you will, readily yield to treatment, and that 75 to 80 per cent. of all cases recover. But we cannot foretell; we are prepared to take the risk, and this I think fairly represents our position at the present time.

Bumm, in a paper entitled "Die Behandlung der Eklampsie," gives the result of his experience of the treatment of eclampsia in Halle and Berlin. He states that he has been enabled to reduce the mortality from 25 to 30 per cent. to from 2 to 3 per cent., the former high mortality existing when expectant treatment was adopted. He believes that the quicker the uterus is emptied after the onset of the fits the better the prognosis. An achievement such as this vouchsafed by so high an authority is important evidence in favour of rapid delivery. As it is possible to collect statistics to prove either the advantages or the disadvantages of rapid delivery, it is, I think, more reliable if we can obtain

recent evidence from a competent observer who has had a considerable experience of the disease.

Herman, who has published so many valuable papers on the subject of puerperal eclampsia, is strongly opposed to rapid delivery, and in a paper published in the Transactions of the Medical Society of London, 1902, vol. xxv., p. 224, has collected a large series of statistics, showing the effect of delivery on the fits. I shall, however, only refer to his own cases. During the years 1891–1901, 38 pregnant women suffering from epileptiform convulsions were admitted into the London Hospital. Of the 38, 20 recovered and 18 died. He says: "This is a very large mortality, but it is partly due to the tendency of general practitioners to send to the hospital those cases that seem likely to end unfavourably. Thus two of the patients were admitted in deep coma and died a few hours after admission. In two others there was reason to believe that the fits were due to cerebral tumours, and the cases were therefore not puerperal eclampsia in the proper sense." A post-mortem examination was, unfortunately, not obtained in either case.

The statistics of the Glasgow Maternity Hospital collected by Munro Kerr for a period of 15 years show a mortality of 47 per cent. Jardine says: "The majority of the patients are sent in after they have been having convulsions for many hours. It is rare for us to get them within 12 hours of the first fit." If this is so, is it not due to the current teaching in this country that expectant methods of treatment should be adopted, and that when the case is beyond hope further advice is sought, and even then a continuance of this treatment is advised. The general practitioner looks for guidance to those who make a special study of obstetrics, and amongst the latter there is still considerable disagreement over the various methods of treatment.

After delivery the fits do not always cease; indeed, they may even occur for the first time during the puerperium, but they do cease in a considerable percentage of cases. It may, however, be fairly stated that the *termination of pregnancy exerts a more powerful and constant influence on the course of the disease than any method of treatment yet employed.*

Are we then to continue poisoning our patients with chloroform and morphia, or are we to hasten delivery? Of all forms of rapid delivery Cæsarean section would appear to be the best in this disease for the reasons already stated, and I would invite an expression of opinion on two important questions: 1. Is Cæsarean section justifiable in the treatment of puerperal eclampsia? 2. What are the special indications for this operation?

I think that in this country the time has arrived when a reconsideration of the propriety of rapid delivery in this disease should take place, and that definite indications should be laid down for the guidance of those who may be unfortunate enough to encounter in their practice severe cases of puerperal eclampsia.

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LITERARY INTELLIGENCE.—Messrs. Baillière, Tindall, and Cox will publish the following books during September:—"Manual of Physiology," by Dr. G. N. Stewart, sixth edition; "Military Hygiene," by Lieutenant-Colonel R. Caldwell, R.A.M.C., second edition; "After-results of Abdominal Operations," by Mr. A. E. Giles; "Intestinal Surgery," by Mr. L. A. Bidwell, second edition; "Gynæcological Therapeutics," by Dr. S. J. Aarons; "Veterinary Parasitology," by Mr. R. H. Smythe; "Physiological Principles in Treatment," by Dr. W. L. Brown, second edition; "Syphilis: its Diagnosis and Treatment," by Colonel F. J. Lambkin, P.A.M.C.; "Pigs, Pigsties, and Pork," by Mr. G. Mayall; "Hæmoglobinuria," by Dr. A. Charpentier; "Some Considerations of Medical Education," by Dr. S. Squire Sprigge; "Accidents in their Medico-legal Aspect," by Dr. W. Douglas Knocker; and "Medical Supervision in Schools," by Dr. E. M. Steven.

NOTE ON THE CENTRAL ORIGIN OF SOME CASES OF SO-CALLED HEART-BLOCK.

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IN THE LANCET of June 18th, 1910 (p. 1706), appeared an annotation on a case of temporary recovery in Stokes-Adams disease recorded by Dr. H. C. Earnshaw in the *American Journal of Medical Sciences*. Dr. Earnshaw seems to accept the opinion, now, I believe, generally held, that this disease is due to heart-block, and that heart-block is due to actual disease of the heart muscle—gummatous, fibrotic, fatty, calcareous, as the case may be; but it is added, and this is the point I wish to speak about, that it is difficult to understand how temporary recovery can take place from lesions such as these.

It is because I have always had this difficulty in view myself that I am unable to accept the present doctrine of the cause of Stokes-Adams disease, at any rate as applicable to *all* cases of that disease. Typical cases of it are by no means common, but I hold that if a certain latitude be allowed for the presence and severity of its leading features the disease is by no means rare. However this may be, I happen to have had more or less under my notice for some 12 years a case of this kind, which was, I think, quite typical, and from it I long ago concluded that it was not cardiac in origin at all, but that it was epileptiform in its nature. As an epileptiform malady there is no difficulty in explaining Dr. Earnshaw's case.

I first saw my own patient in 1896. He was a man, aged 59 years, a strong, athletic, business man, who had epilepsy in his family. He had had gout twice in previous years, and for a year or so past he had had attacks of giddiness, faintness, and unconsciousness, mostly followed by vomiting as he came out of the attack. He had thus fallen and hurt himself. He had fallen off his bicycle; he had fallen faint when running after a rabbit; he had even when out shooting felt an attack coming on, had put down his gun, laid himself down, fainted off and come too again, and had been sick. He was at that time in good condition; keen for exercise; he had a steady heart; a pulse of 60; but his radial arteries were thick. From that time onwards he had many attacks, in most of which he probably was not seen by any medical man, but four or five months later in his natural health his pulse was still 60 and regular, and I have no doubt that it had remained so when out of his attacks at any rate, for the suggestion had been already made that his condition was due to muscular degeneration of the heart, and one cannot doubt that that organ had been repeatedly and carefully examined. In May, 1897, he had a bad attack which came on with giddiness, and went through the usual course. During it his pulse was timed at the wrist to be no more than 4 or 5 in the minute. He had at this time come out of the unconscious stage, and had, I gather, been sick. He was not white, nor was he in any clammy perspiration. His pulse slowly improved, and was fairly good next morning. On another occasion, coming round from an attack, he looked faint, and his pulse was almost imperceptible and very irregular. Fifteen months later I noted that he now easily tires; the pulse is rather irregular at the wrist—a few slow beats, then several quick ones—altogether 52 per minute. "It is hard," I say in my notes made at the time, "to say there is anything wrong with his heart. The systole at the base is a little rough, and the second sound possibly thick, but it has no ring; the first sound at the apex is also not quite clear, and yet there is nothing more than one often hears when listening to hearts that are presumably healthy." Up to this time the patient had been of active habit, between his attacks walking, shooting, &c. In August, 1900, he had an acute attack of gout, and about that time his pulse-rate permanently declined to from 24 to 36 per minute. His attacks now became much more frequent and passed more into a sort of *petit mal*, many occurring in the course of a day. One day he had an attack when my finger was on his pulse at the wrist. I think his pulse stopped *before* he became unconscious. It ceased for five or six seconds and then resumed a slower beat—20 in place of the 30 it had been before. At the end of the attack there came, as had so often happened before, eight or ten deep air hunger sort of pants. He then woke up, said he felt quite

ill, and appeared to be quite unconscious of his attack. further note at this time is that "his cardiac impulse is w outside the nipple, and the first sound is whiffy. My pression is that the innervation of the heart is less good an it was, and that the heart is giving out." However, he nt on with a fairly steady pulse of 24, except in the acks, in which his pulse has been found to be absent at e wrist or imperceptible for as long as 20 seconds. I also find n described as all right as long as the pulse is quick, which st mean 24 to 30, I suppose. Directly it stops he snores and ats. There is not much more to be said. Early in 1901 he d a bad fall in one of the seizures, and we thought he ght have even fractured the base of his skull, for he had able vision for some time after. But his attacks gradually much less frequent, and he could do more without oting. He would saunter slowly round his garden, rying a camp stool for occasional rests or threaten- s. His bowels would act and micturition be per- med without faint, his pulse remaining at 28, quite ular, and the impulse being an inch outside the nipple. also complained from time to time of a tightness across sternum, rather suggestive of angina pectoris, but he t fairly well. A note made in November, 1904, says that had had no attack for a year; his pulse was 30; and his rt sounds were fairly good, and in March, 1905, I noted, n what I was *told*, that he had had no faint for two years, that he was leading a fairly happy although an invalid. I saw him no more, but he died in 1908 or 1909 from e acute illness, probably pneumonic, and up to that time had remained much as when I last heard of him.

ooking back upon this case, then, it lasted some 14 years all, and although in its course some signs of cardiac kness did develop, these were not present in the earlier ges, and he was a strong and vigorous man, who between attacks was eager and able to take much physical rtion. So much so, that it was impossible to think that e could be any such serious heart lesion as muscular eneration. He was seen by other physicians of great ite, and all I believe were in accord that his attacks e of epileptic nature. His brother I know to have been epileptic.

admit the difficulty of being sure in many of these cases ther brain or heart is primarily at fault, but for this one I think we approach certainty. But there are two r groups of cases that I rely upon. I have seen several s in people in the declining decades of life who have first vn signs of illness by way of brain, such as vertigo, porary weakness of one side, or loss of consciousness or abling speech, and it has been only *after* these attacks the heart has shown signs of these vagaries of action. elieve myself that these all start from some primary bral disturbance. There are other cases where a similar lition of things—giddiness, fainting, slow pulse—come vith an attack of gout, and they pass off as it subsides. the strongest argument, as it seems to me, against the rrence of heart block being the *cause* of such cerebral ptoms is that people with heart disease—that is, the eme forms of valvular disease and muscular degeneration *ver faint.*

ere is no rule that is absolute in medicine, but this one ry nearly so. A man may tumble down dead once and ever, but he never faints off and wakes up again and n and again. Our conduits guard us against that, and possessing this, their own particular function, they ess also the sometimes inconvenient susceptibility of z provoked into spasm by the media in which they run. int and a vertigo are therefore nearly always purely bral, and it is almost absolutely true that if a man wants eart examined because he has fainted you can tell him out examining him that his heart will be found to be d. Now this may seem almost an academic question, for a heart beating at 24, more or less, and often irregular, rious ways, whatever way it commences it comes sooner ter to be a serious disease of the heart. And, of course, is true. Nevertheless, the question is clearly a vital one, use upon it depends whether you are going to plan campaign of treatment upon dealing with a damaged iac muscle or a debilitated or damaged nerve centre. I have in mind here a very large question indeed. It races that large group of cases where after middle age in haps strenuous life the heart quite suddenly becomes irregular in action and remains so, very often whatever remedies are applied. These cases are all lumped now into dilatation till we are all sick of the word, and this in face of the obvious fact that there is often not a single symptom of failing heart except its peculiar action. The strained heart of the athlete and of the young adult I should like to see discussed from the same standpoint. Methinks it would rescue many a one from an enforced rest of many months that is detrimental to both mind and body.

There are indeed many conditions where at first sight it might be thought that the cardiac muscle was at fault, but from the course that they run there is great difficulty in continuing to hold that view.

Portland-place, W.

ENTERIC FEVER SPREAD BY MILK INFECTION, PROBABLY BY MEANS OF A CARRIER CASE.

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I WISH to bring to the notice of readers of THE LANCET an account of cases of enteric fever recurring in a hamlet in my district during several years, which cases were spread by milk, probably by infection of milk and water through a man who was employed as cowman and who had suffered from enteric fever some years previously. I will briefly state the facts in connexion with several outbreaks in this part of the district, and will draw attention to some of the difficulties that one meets in discovering the cause of such illness and in taking measures to prevent the spread of enteric fever.

The district affected is situated in Mid-Sussex, some 30 miles on the main line from London, and resting on the geological formation known as the Hastings Beds of the Wealden Series. A considerable quantity of alluvial deposit is found in the low-lying part of this area. The River Mole, a tributary of the Thames, drains the surface water from the land, and at one time the bed of the river no doubt was considerably larger than at present. Wells sunk to 25 feet deep yield in this soil plenty of water, but of a doubtful character. In this hamlet there are some 281 houses close together, and within a mile another collection of 25 houses, while in another direction there are 14 houses and in a lane some 9 houses, making a total number of houses of 329, with a total population of about 1645 persons. There are a few large residential houses, but many of the houses are small and occupied by railway men, mechanics, labourers, and small tradespeople. The water-supply now is obtained chiefly from two well-known waterworks companies, but until 1909 water was in many cases obtained from shallow wells. The drainage of the houses contiguous to one another is carried by pipe sewers to sewage disposal works, while the separate houses have cesspools, pail-closets, or privies. The milk-supply is obtained from nine separate dairymen: two have separate shops in the locality, six bring the milk from their own farms, while one brings the milk from a distance and retails it. Watercress is hawked round the district and is obtained from various sources, all of which have been inquired into.

From the year 1899 to the year 1910 (July) 58 cases of enteric fever have been notified in this area.

In 1899	4	cases of enteric fever were notified in			3 houses.
,, 1900	3	,,	,,	,,	1 house.
,, 1901	4	,,	,,	,,	3 houses.
,, 1902	5	,,	,,	,,	2 ,,
,, 1903	7	,,	,,	,,	6 ,,
,, 1904	6	,,	,,	,,	4 ,,
,, 1905	0	,,	,,	,,	0 ,,
,, 1906	0	,,	,,	,,	0 ,,
,, 1907	1	,,	,,	,,	1 gipsy van.
,, 1908	0	,,	,,	,,	0
,, 1909	19	,,	,,	,,	12 houses.
,, 1910 (July)	9	cases	,,	,,	9 ,,

The cause of the cases of enteric fever in the year 1899 was carefully inquired into at the time. The first case was that of a female servant in a villa, with four other residents. The water was obtained from a shallow well. It was

polluted, and there was a defective privy. The milk was obtained from a local milk-dealer. The milk-supply was at the time suspected, but a bacteriological examination showed the milk to be good. Two of the milk-dealer's children were ill in November of this year. The previous patient (the servant) was ill in October. The milk-seller kept six cows and supplied customers locally. His milkman who milked the cows and carried the milk round we will call F; the milk-dealer's name can be given as Mr. X.

In 1900 three cases of enteric fever occurred in one house at Three Bridges; the milk was obtained from Mr. X's dairy.

In 1901 four cases of enteric fever occurred at a large house; three of these patients were servants and one a visitor. All were supplied with milk from the occupier's own cows. F, above mentioned, had given up his employment with the local milk-seller, Mr. X, and was employed by Mr. R, the occupier of the large house, to milk cows. F began to milk cows in the spring of 1901 for Mr. R, and the first case of enteric fever to be notified in this house was in June, 1901. The drainage of this house was found to be defective and the water was polluted. It was suspected that an officer who arrived from South Africa in the early part of the year, and who was said to be suffering from dysentery, might have had enteric fever, but inquiry showed that the illness was not enteric fever.

In 1902 five cases of enteric fever again occurred in the house of Mr. X, the local milk-seller. The water-supply and drainage were found to be polluted and defective. F, the cowman, who had formerly been employed by Mr. X and had left to act as cowman to Mr. R, returned in the spring of 1902 to act as cowman for Mr. X. The first case of enteric fever to occur in this house in the year 1902 was on June 19th.

In 1903 seven cases of enteric fever were notified in six different houses; in these houses the water-supply was found to be polluted and the drainage defective. The milk-supply was from Mr. X's dairy.

In 1904 six cases of enteric fever occurred in four houses; in all these cases the milk was supplied by Mr. X. The milk-supply from Mr. X was stopped in this year. The water was the chief cause suspected.

In 1905, 1906, and 1908 there were no cases of enteric fever notified in the district; in 1907 one case, that of a gipsy dweller, was notified. The reasons given for no cases of enteric fever being notified during these years were because the rural district council had obtained a good supply of water from a waterworks company which was laid on under constant pressure, and it had also laid a sewer, so that the disposal of sewage was properly provided for. On looking into further details it was noticed that F, the cowman, was not employed as cowman from 1904 to 1909.

In the year 1909, 19 cases of enteric fever were notified in the district and six other cases were directly attributable to contacts outside the district. These cases occurred among persons who obtained their milk-supply from Mr. M, who had removed to his present dairy-farm from his previous premises occupied formerly by Mr. X, who sold his business in 1904 to Mr. M. The first case was an adult female, who at the time of removal to the infectious fever hospital was nursing an infant a year old. This infant, no doubt, contracted enteric fever and infected the woman who came from a distance to take the mother's place. The child was then removed to a place on the South Coast; here two relatives contracted enteric fever. The child was suspected to be a carrier case. The fæces were examined, but with negative result. The child came home to the mother, who had returned from the hospital on August 22nd, 1909. It being suspected that the child had been ill I obtained a sample of blood, which on examination gave Widal's reaction in all dilutions. The child was given urotropin. Within three weeks of this baby's return a neighbour who washed the infant's clothes contracted enteric fever. Undoubtedly this baby contracted enteric fever from the mother and became a carrier case. Inquiries were made into the cause of this outbreak of enteric in the year 1909. The first case occurred on June 13th, and the second case on June 14th. Both of these patients had eaten some fried fish from a local shop, and it was found that a child had died at this house in February from "infectious diarrhœa." The later cases clearly showed that milk was the carrier of the infection, because in families where only one of the relatives drank any quantity of milk those were the only persons infected.

In several cases only small quantities of milk in tea were taken, or in some cases only butter, yet there was infec with enteric fever. The cases of enteric fever occurred on following dates: June 13th and 14th; July 18th, 23rd, 2 24th, 25th, 29th, 30th, and 31st; August 5th, 6th, 10th, 2 and 24th; Sept. 5th and 22nd; Oct. 7th and 22nd. ages of the patients were 26, 23, 27, 29, 38, 27, 25, 49, 6 17, 15, 21, 4, 1, 35, 18, 22, 7. Nine of these were fem 10 were males. All of these persons except three removed to the isolation hospital. All the cases clinically diagnosed as enteric fever, and Widal's reac was shown to be present in every one. With the excep of three all recovered. All cases were treated with hemit urotropin before leaving the isolation hospital. Two case doubt contracted enteric fever from unstopping an inspec chamber which had become filled with sewage fro infected house. In two cases the illness appeared to been secondary contact cases, otherwise all were pri cases and occurred only in separate houses. The milk-su was suspected. The water-supply at the dairy was fou be polluted after two analyses. A defective drain and were found on the farm discharging polluted matter a well.

The farmer M had about 37 milk customers and 25 b customers; he kept 12 cows. One of his own sons frequently drank milk contracted the illness. His daughters disliked milk and drank tea without it; ne became ill. The son helped to milk cows with F, the cow mentioned above. This farmer, M, removed to his premises in May, 1909; he employed F, who had been man to X in 1899, to R in 1899, to X again in 1900, 1902, 1903, and 1904, and so soon as F was engaged as man enteric fever seems to have appeared. A magist order was obtained under Section 4 of the Infectious Di (Prevention) Act, 1890, to inspect together with a veter surgeon M's dairy and animals. The animals were f healthy. The milk was examined chemically and bact logically and found to be good. It was suggested th should voluntarily agree to discontinue his milk-supp remove his cows from the farm. This farmer agreed t continue the supply and fed calves with the milk. The supply, after repairs had been carried out with regard t drainage of the farm and a new water-supply had obtained, was again sold in November, 1909. F was employed as cowman.

F was suspected at this time to be a carrier of the illn his urine was examined with one negative result and h at that time acquitted. F's history was as follows. H born in the year 1860 and had lived about this distri his years. In the year 1893, when Worthing suffered an outbreak of enteric fever, this man contracted e fever while working in Surrey for a dairy farmer, who from Worthing suffering from enteric fever. F was remo the Redhill Infirmary. He was a baker until 1887, and became a cowman, working, as has been stated, at X's, R's, 1900; X's, 1900 again; also in 1901, 1902, 1903, When X sold his business to M he left and was doing jobs from 1904 till 1909. He was a cowman again for M in and 1910. It is curious to note the absence of enteric fe the district from 1905–1909. Was F the carrier Further examinations are being made of the man's and urine and saliva. The man F has facial paralysi probably to some injury of the seventh nerve at birth, the result that saliva is constantly running from his m and this might easily have been mixed with the F has lived in his present house for nine years. house has a pan w.c. connected with the sewer. No of enteric fever have been notified in the row of houses road in which F lives; previously to this F lived in lod and no cases of enteric fever occurred there. This m used to work all day at the farm where he was empl and returned home to sleep at night. On inquiring o what he did when he wanted to defæcate or pass urin reply was that he never used a privy or w.c., but pref relieving himself in the fields or woods.

At M's farm undoubtedly the privy was infected, an in turn infected the well water. Did F at any time us privy? In the year 1910 enteric fever again appea the district. On April 1st nine cases were notified, th of the persons being 37, 20, 9, 6, 27, 18, 21, 30, a years. The dates on which illness occurred were as fol April 1st, May 1st, 16th, 14th, 22nd, and 18th, and Jun 11th, and 30th. They were five males and four females.

ese persons had milk from M's dairy farm. Two of the men ank one or two tumblerfuls each day. All cases were found be enteric by Widal's reaction, and all were removed to the lation hospital. No deaths occurred. No return cases curred in any of the houses after the patients returned m the hospital.

As the result of communications with the Local Govern- nt Board offers of assistance were made with respect to e examination of the fæces and urine of suspected carrier es. Samples of fæces and urine of the persons at M's ry farm, where the suspected source of infection arose in 09 and 1910, were forwarded to Dr. J. C. G. Ledingham at e Lister Institute, who is carrying out bacteriological mination of materials on behalf of the Local Government ard, and to the present date after considerable difficulty e specimens of fæces and urine have been examined from ferent persons at M's dairy farm. All samples were orted negative except F's, the cowman, whose fæces and ne were examined in June and July, 1910, and found to be itive. It should be remembered that F's urine was mined in 1909 and was declared to be negative. A mple of F's saliva was examined and found to be negative. is F must be looked upon by the circumstantial and teriological evidence as a carrier case, and the whole of se series of 58 cases or the frequent outbreaks of enteric er occurring in this area from 1899 to 1910 were due narily to F.

n all the outbreaks of enteric fever the usual precautions e taken. Cases were removed at once to isolation hos- l and premises disinfected. Notices were issued to each se asking occupiers to boil all milk and water used for king from wells. Chemical and bacteriological examina- s were made of water supplied from water companies, water was found to be good. Sewers were flushed twice eek with water and chloride of lime. House-to-house ections were made. Sanitary defects were remedied. niry was made as to possible carrier case or cases. The tary authority was most willing to carry out any sugges- s with regard to improvement of the sanitation of the rict and prevent the recurrence of the illness.

hat the surface water and shallow well water in the rict was polluted with fæcal matter there was not the ntest doubt, because several chemical and bacteriological ninations were made, and all showed that the water was uted. The milk was the suspected source of infection in he outbreaks, because all the primary cases obtained r supply from the same source. The period of incubation he illness appeared to be short. The outbreak was len and as soon as the milk-supply was stopped the ss ceased. The illness was not of a severe type. se in the families who drank raw milk in any ntities were generally the only members of the family e affected. The source of infection in the milk appeared rise from use of polluted water for washing churns or water accidentally coming in contact with the milk.

must be remembered, too, that in milk-borne epidemics period of incubation in enteric fever is not easily defined. e cases have symptoms almost immediately, while rs go without symptoms for three weeks or longer. as been noticed that when concentrated amounts of ction have been ingested, as in milk outbreaks of enteric r, the period of incubation is short and prodromal ptoms disappear or are absent. In many of the cases nteric fever mentioned the patients did not come under ment until the second or third week of the illness.

is now recognised that persons may carry the typhoid lus about for years without clinical evidence of any ss. Such persons may infect others and finally infect iselves. Davies and Hall report a carrier case in LANCET of Nov. 28th, 1908 (p. 1585). This case ed three outbreaks of enteric fever in three successive s, and the patient also finally had herself an attack h was considered to be enteric. If this diagnosis was ct it means that this female had a period of incubation ree years—that is, that typhoid bacilli were contained in ntestinal tract for a period of three years before she lf showed signs of illness.

e difficulty of investigating outbreaks of enteric fever, cially those epidemics likely to be due to carrier cases, added to by the necessity for proving the case by ated bacteriological examinations. The urine, fæces, other discharges of persons within range of possible infection must be frequently examined. Should a single examination prove negative one must not be satisfied, but probably six examinations must be carried out before an opinion can be expressed. The difficulty of obtaining the sanction of the person to these examinations is usually great and the expense must be considered. When after several examinations the result is positive, what is one to do with the carrier case? Is he or she to be notified as suffering from an infectious illness? In my opinion, yes; the case should be notified and precautions and treatment adopted to render free from infection the fæces and urine, and the case should from a sanitary point of view be treated as an ordinary case of enteric fever.

Flies do not play much part in the dissemination or spread of infection of typhoid fever in well-sewered towns, but they may carry infection to a greater extent in rural districts, where privies, pail-closets, and dung-heaps are everywhere present. These chances of infection should be remembered and by a proper control of the flies' breeding-places their access to food and infectious matter should be prevented.

In all outbreaks of enteric fever in the future carrier cases must be searched for.

In controlling an outbreak of enteric fever all possible means should be taken so that a correct diagnosis of the illness should be made. Widal's test should always support the clinical diagnosis before notification, and sanitary authorities should provide the means for such diagnosis. Widal's reaction test is fairly accurate in about 97 per cent. of tests applied. It is more determinate after the first week. Blood culture is said to be accurate in about 90 per cent. of cases in the first week. Bacterial examinations of stools and urine should be the routine practice adopted in all isolation hospitals, and until the urine and fæces are free from infection patients should not be allowed to leave the hospital or the house except under proper precautions. A course of hemitol or urotropin should be the general rule adopted for all patients who have suffered from enteric fever.

F, the cowman, has been treated with 5 grains of urotropin three times a day for ten days and a bacterial examination has been made with the result, it is reported, that no typhoid bacilli were found in the urine but many colonies in the fæces.

It must be remembered that the typhoid bacillus multiplies rapidly in milk and resists the commencement of acid formation, but the growth of this bacillus is checked with advancing acidity. The bacillus is not killed by the process of churning, it may live in butter at least for ten days; hence milk, cream, buttermilk, and fresh cheese may carry the bacillus.

From what I have stated one can assume that F, the cowman, who suffered from enteric fever six years previously and who acted as cowman in the several dairy stalls, from which dairies the milk appeared to carry the specific cause of enteric fever, was the means of spreading the infection of enteric fever; or, in other words, F was a carrier case of enteric fever. How did the milk-supply become infected? Probably F, in spite of his assertions that he did not use the privies or water-closets at the places where he was employed, did use these places, and that through these defective closets and drains the water-supplies and the wells became infected. It will be noticed that in every place where F was employed the closets and drains were found to be defective and the water-supply polluted. Again, F might have defæcated in the cowsheds or fields and cows might have lain in the infected stools, or F's hands might have been infected with the matter. The saliva from F's mouth might have become mixed with the milk at milking time. F had facial paralysis from infancy and had no control over his flow of saliva.

Further investigations are being made, with the assistance of the Local Government Board, into the bacteriology of the excreta and urine of other suspected carrier cases, but the results are not as yet to hand.

Lewes.

ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE.—At a meeting of the house committee held on Sept. 1st the chairman, Sir George Hare Philipson, announced that His Majesty King George V. has been graciously pleased to become the patron of the Royal Victoria Infirmary in succession to His late Majesty King Edward VII.

VESICO-VAGINAL FISTULÆ: A SUMMARY OF 21 CASES OPERATED ON.[1]

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RECOGNISING that in Western countries, with their superabundance of medical and surgical skill, the occurrence of vesico-vaginal fistulæ is comparatively rare, and in looking into the records of the last ten years in the various journals and periodicals, finding but few references to the condition, I ventured to think that a few notes of a series of 21 cases on which I operated while in charge of the 15 hospitals of the London Missionary Society in Travancore, South India, might be interesting.

I will first of all take an introductory survey of the subject as a whole, and thus divide my paper into the following divisions: (1) introductory survey; (2) *résumé* of cases; (3) cases of special interest; and (4) technique of treatment adopted throughout.

1. *Introductory survey.*—The cause of these abnormal communications between bladder and vagina in 19 cases out of 20, according to Herman, is by sloughing, the result of prolonged pressure of the fœtal head on the vesico-vaginal septum, and hence by the too long delayed (or non-) application of forceps. This fact was insisted on by W. T. Schmidt as far back as 1828, in spite of which there is a tendency by some to attribute the damage to forceps. And so in a country like India, when delay in labour is often attributed to the influence of an evil spirit holding the fœtus back, such pressure is frequent, and worse still incredible maltreatment adds to the trouble. On several occasions I have known of handfuls of cow-dung being introduced into the vagina in a protracted labour, perhaps after a week of agony, in the hope that the effect of the dung of the sacred cow would expel the evil spirit within, and on three such occasions it has been my lot to extract by handfuls the maggots which the contents of the unemptied uterus had become converted into.

Previous to the Christian era and for nearly 1600 years afterwards no clear references are found to this distressing condition, and already in Western lands the references and works on the subject are becoming less, while to-day with Western science getting to work in the East there remains much to be done.

It was in the latter half of the sixteenth century that descriptions of the conditions began to appear (Kelly). Luiz de Mercado, a Spanish physician, Felix Plater of Basle, and Severin Pineau of Chartres all wrote on it about this time. Plater says: "As a sequence of a difficult first labour, a young country girl had the opening of the bladder rent to such a degree that there was a long gaping furrow in its place, and the open bladder could be seen. I have twice inspected it myself, and discovered that it was so by using a probe. On account of this injury there is a constant involuntary discharge of urine, and the surrounding parts become excoriated and inflamed."

In 1675 and in 1684 we find the first records of successful operation for the closure of the fistulæ by Fatio, who placed his patients in the lithotomy position and exposed the fistulæ with a speculum; he then freshened its margins with a delicate pair of scissors, and brought the edges together by passing a sharpened quill through them and winding a thread over the ends of the quill to keep it from coming out. Both cases recovered. Lallemand, Gosset, Jobert de Lamballe, and many other surgeons worked at the subject, but with what measure of success may be judged by the words of Velpeau, who, writing in 1839, says: "To abrade the borders of an opening, when we do not know where to grip them; to shut it up by means of needle or thread, when we have no point apparently to secure them; to act upon a moveable partition between two cavities, hidden from our sight, and upon which we can scarcely find any purchase, seems to be calculated to have no other result than to cause unnecessary suffering to the patient."

We owe nearly everything in the work of dealing wit vesico-vaginal fistulæ to J. Marion Sims, who, in 1852, mad three things clear in his paper in the *American Journal Medical Sciences*[2]: (1) the use of his speculum for exposu of parts concerned; (2) the funnel-like denuding of the edg of the fistulæ down to, but not involving vesical muco membranes; and (3) suturing by non-irritating silver wir This latter surely as near an approach to aseptic suture the age permitted! Since his day Simon and Emmet evolv methods of dealing with large fistulæ, and the former in 18 introduced colpocleisis or closing of the vagina for dealin with large fistulæ otherwise untreatable, and four such a recorded in the series below.

Walcher introduced the flap method called by the Fren "*auto-plastic par dédoublement*," in which he split t vaginal wall from the vesical and turned the bladder edg into the bladder, and the vaginal edges into the vagin Walcher preceded his operation by removing a thin colla but Winckel in an important paper published in 1891 show this to be unnecessary. This flap method as modified Winckel is the operation referred to in the subsequent ser as used in four cases.

In the last 20 years routes and methods have multipli fast and the names of L. von Dittel, Mackenrodt, Freur Dudley, Trendelenburg, Kelly, and many others are pro nent in the literature of the subject. In the Gynæcologic Transactions of 1906 (p. 225 *et seq.*) Kelly wrote exhaustive paper in support of the suprapubic route fi introduced by Trendelenburg in 1881, a method especia useful when the vagina is contracted with cicatrices as is often the case. He quotes 13 different routes associa with different operators' names, and more than double t number of methods.

In India the lot of women suffering from this trouble is possible, worse than that of their fellow sufferers in West lands. For there they are often cast out of their homes possessed of some evil power; true it is that as they en the out-patient clinique of our hospitals they are possessed an evil odour which tells you that one such is amongst day's crowd as soon as it assembles, and our students wo not infrequently come in from the waiting-room informing of the presence of a vesico-vaginal case. Not a few of th hold their urine for a few hours while in the erect positi though it will leak immediately they assume the horizont a fact mentioned by Reed of Cincinnati in his "Text-bo of Gynæcology," and due to the high position of the fist enabling the bladder to fill up to the level of the opening the vertical position.

2. *Résumé of 21 consecutive cases.*—The accompanying ta presents the series in tabular form under certain heads.

(*a*) *The ages* range from 16 to 35 and give an average of Two factors must be borne in mind in connexion with ages—one, that several of the cases came two, three, or f years after the confinement; and a second, that the hi caste strict purdah women of India, where marriage child-birth are much earlier than in the general class of hospital patients, only form 3 out of the 21 cases. Other the age incidence would be much lower.

(*b*) *Number of confinement.*—As the cause is protrac labour naturally the fistulæ usually occur at the first conf men. In the series two occurred at the fourth labour and at the third. The remainder of those noted were at the confinement.

(*c*) *Days in labour.*—This brings out a point of su interest as showing how cases are allowed to drag on in t country: one for eight days, one for five days, six for days, and six for three days, and one for two days- average of 3·8 days.

(*d*) *Nature of delivery.*—In many of these cases co months or years after delivery the method thereof unknown. However, it may be accepted that no stri instrumental interference was adopted, as such would h been in hospital, and hence recorded. The native midwi however vigorous with their hands or filthy applicati know of no instrumental aid to hasten matters. Ten of cases were delivered by forceps and one by craniotomy. may be well to state that no cases were brought to hos for delivery until every known resort of the native mid had been practised, and delay usually prolonged until sufferer seemed at death's door. Then in the friends' anx

[1] Read as a communication before the Southport Medical Society, Feb. 23rd, 1910.

[2] Vol. xxiii., 1852, p. 59.

save the child's life the mother was brought in, hence e forceps were not so likely to be the prime factor in the ıusation of the fistulæ as the prolonged pressure. The ıuses of delay in the forceps cases we saw in hospital were iefly three: jammed right occipito-posterior, flat pelves, ıd a form of Nägele's pelvis, due, in my opinion, to the ct that nearly all the girls as soon as they could lift a pot ıd to carry water from the village well twice daily with the ll and heavy pot resting on the right hip in a way that sturbed the whole pelvis at the period of its active velopment.

(*e*) *Days after delivery when urine leaked.*—The average of e 15 cases where this was ascertained is 5·3 days, though e case ran up to 15 days and another to 12, while three mmenced to leak at once. The bulk of the cases began to ık just at the time that the pressed and injured septum is pposed to require to slough away—viz., three to four days.

(*j*) *The operation.*—In 12 cases the ordinary Sims's operation of removing a collar of tissue around the opening and stitching with silver wire was performed; in 4 the flap method above referred to. Four others were dealt with by complete closure of the vagina or colpocleisis, though with the experience I have since gained I should now attempt them by the suprapubic route and open up the cicatricially contracted vagina. In one case I did the operation, described by Kelly in his "Operative Gynæcology," of bringing the posterior wall of the bladder down and stitching it into the gap.

3. *Cases of special interest.*—Case 6 was combined with a recto-vaginal fistula, and the vaginal outlet would not admit one finger owing to cicatricial contraction. Per rectum, however, two fingers passed easily through, and the opening into the bladder seemed much wider still. The recto-vaginal fistula was first closed, and then a colpocleisis done. For ten days all went well, and then she complained of diarrhœa,

Table giving a Series of Twenty-one Consecutive Cases of Vesico-Vaginal Fistulæ.

o. in ries.	Age.	Number of confinement.	Days in labour.	Nature of delivery.	Days after labour urine leaked.	Time after labour operation performed.	Size of the fistulæ.	Result.	Operation.
1	22	3	3	Forceps.	8	8 months.	Admits middle finger.	Incomplete closure.	Paring.
2	22	1	5	,,	2	4 ,,	Tip of little finger.	,, ,,	,,
3	35	4	2	,,	Unknown.	3 ,,	3 fingers can enter bladder.	Complete closure.	Flap.
4	35	4	4	,,	At once.	2 years.	2 fingers can enter bladder.	,, ,,	,,
5	25	1	3	Cranio-tomy.	Unknown.	2 ,,	Tip of index finger.	,, ,,	Paring.
6	19	1	4	Forceps.	,,	3 ,,	Admits 4 fingers.	,, ,,	Colpocleisis.
7	27	Unknown.	4	,,	,,	3 ,,	Tip of index finger.	,, ,,	Paring.
8	25	,,	3	Unknown.	15	43 days.	Admits 2 fingers.	Incomplete closure.	,,
9	22	2	8	,,	7	4 years.	,, ,,	Complete closure.	Flap.
10	20	Unknown.	3	Forceps.	3	3 months.	Greatly contracted vagina.	,, ,,	Colpocleisis.
11	25	1	4	Unknown.	4	1½ ,,	Greater part of anterior vaginal wall.	Incomplete closure.	Posterior wall of bladder brought down and stitched in.
12	20	1	Unknown.	Forceps.	At once.	1 year.	Size of a pea.	Complete closure.	Paring.
13	23	Unknown.	,,	Unknown.	3	5 months.	Just admits a probe.	Incomplete closure.	,,
14	18	1	3	,,	3	4 ,,	Tip of little finger.	,, ,,	,,
15	35	1	4	Forceps.	5	10 years.	Admits three fingers.	Complete closure.	,,
16	18	1	4	,,	Unknown.	9 months.	Admits 2 fingers.	Patient ran away.	,,
17	22	Unknown.	Unknown.	Native midwife.	9	11 ,,	Vagina only admits little finger.	Complete closure.	Colpocleisis.
18	28	,,	3	Forceps.	6	3 ,,	2 small fistulæ.	,, ,,	Paring.
19	16	1	Unknown.	,,	At once.	4 ,,	No note.	Ran away.	,,
20	30	1	3	Unknown.	12	1 year.	Admits 2 fingers.	Incomplete closure.	Flap.
21	35	3	Unknown.	Native midwife.	Unknown.	2 years.	Vagina only admits probe.	Complete closure.	Colpocleisis.

(*f*) *Time after labour operation performed.*—It was, of ırse, very seldom that we could choose the period for ɛrating. When life became unendurable usually they ne, and not infrequently because they had been turned out their homes as possessed of evil spirits! Hence the figures der this head are of more interest than value. The shortest riod was 43 days, and the longest 10 years after the ıfinement.

(*g*) *Size of the fistulæ.*—One was too small to admit a female ss catheter, and only just allowed a probe to pass, while largest was a great gap, involving the whole of the erior vaginal wall from the anterior fornix down to the el of the urethra. This case is referred to in detail later. was not the size so much as the condition of the fistulæ ıt qualified the success of the closure, a small opening with rous edges and environment being much less likely to close ın a much larger one with softer surroundings.

(*h*) *Results of operation.*—These are the results of a single ɛration only, and of the incomplete closures the 2 who re operated on a second time (1 closing and 1 not) are not ınted in the series twice over. Twelve went away with no k; 7 leaked, but showed a much smaller fistula than ore operation; and 2 ran away before the stitches were noved. This gives a 63 per cent. of complete closures h one operation; mortality *nil*.

and examination per rectum showed a small fistula persisting, which, of course, must have been in communication with the bladder. Six months later she reported that she kept quite dry, but often had diarrhœa. In Case 7 examination showed that there was no perineum at all, the rectum and vagina being one cloaca, and yet, in spite of this, she made no complaint of diarrhœa or incontinence of fæces! Case 8 gave a most interesting history; the following is an exact copy of my Indian student's note: "The patient says that 43 days ago she gave birth to a child. The labour pains lasted for three days, and on the third day they noticed first the presenting of the right hand of the child, then the right leg, and last of all the head was extracted by the native midwife, who found the child to be dead. The patient was quite conscious of the processes of the labour even up to its finish." Case 11 was the case in which the gap was so large that I had to adopt Kelly's plan and dissect up between uterus and bladder so as to free enough posterior bladder wall to bring down and stitch to the lower edge of the opening so that the upper part of the anterior vaginal wall had no vaginal covering at all, but was simply the bladder wall alone. To protect the ureters in this manipulation flexible ureteral catheters were passed, and when the operation was concluded their ends were left protruding through the urethra alongside

a glass catheter tied in to drain off any possible bladder hæmorrhage. For three days the temperature was between 99° and 100° F., and there were considerable general distress and pain with vomiting and definite pain in the region of the kidneys though urine trickled nicely through the ureteral catheters. Fourteen days after operation she went home leaking from a small fistula at the site of union of bladder wall and vaginal edge. Case 15, who was operated on ten years after the leak began, is interesting inasmuch as she had two children after it, and when she came for treatment one was nine years old and well, the second had been born dead. Case 21 showed such an amount of cicatricial contraction of the outlet of the vagina that only a probe would pass through —telling a tale of woeful maltreatment—admittedly at the hands of a native midwife. Colpocleisis was very simple.

4. *Technique of treatment adopted throughout.*—On entering the hospital we gave these patients at least four or five days' alum douching morning and evening, and attended to their general condition. To postpone the operation longer would have lost the patients, because if not dealt with at once many of that class of patient simply ran away from hospital, so not infrequently one operated before excoriations, &c., were healed up. The night before the operation, scrubbing, shaving, and a douche of biniodide of mercury 1 in 2000 and the usual purgation formed the preliminary preparation. In the morning an ordinary soap-and-water or sometimes a turpentine enema was given to ensure clearance of the bowels. Chloroform was administered and the lithotomy position adopted. Scrubbing followed by spirit and then biniodide of mercury, and finishing with a douche of the last, formed the prelude to the operation. Two assistants manipulated four specula, anterior, posterior, and one on either side, and any cicatricial contraction of the vaginal orifice was freely incised, as clear exposure was half the battle. A fairly lax vaginal wall permitted almost any method with good assurance of an easy operation and ultimate success, but cicatricial tissue anywhere about the fistulæ usually made a difficult operation and more speculation as to the issue. I learnt to prefer any size of an opening in lax tissue to the merest crack in fibrous scar tissue. A glass catheter was then introduced into the urethra, or rather an attempt was made to introduce it, for in quite half the cases the urethra was either closed up, or nearly so, and had to be negotiated with a probe and dilated, and sometimes viâ the fistula and from within outwards. If now there was any difficulty in tracking the exact site of a small or tortuous fistula a boric injection through the catheter into the bladder would trickle through the opening and reveal it. It was surprising how difficult some tiny things were to get at, high up in the anterior fornix with a densely cicatricial and fixed cervix behind, and hard fibrous bands in front that precluded any possibility of pulling things down at all. The next step was to plan the best line of suture, a straight, transverse, or vertical, or any variety of curve was preferable to angled lines or T-shaped unions, because at the junction of two lines of suture a leak was most likely to occur. When possible the "paring" method of Sims was adopted. A collar of tissue around the opening was clean cut away, as far as possible to leave a funnel-shaped orifice, wide to the vagina, narrow to the bladder, a most "tricky" thing, and the great difficulty of one's early operations, and yet good union evidently much depended on this bevelling of the rawed edges. The orthodox fistula knives never gave me the same facility of manipulation that the use of Emmet's little sharp-pointed scissors with long handles did, the left hand seizing the margin to be cut away with a long, fine, fixation forceps. If the whole circumference was not cut round clean, great care was needed to be sure that little angles did not escape rawing; and if the neighbouring tissue was not sufficiently lax to allow of easy approximation of the edges made wider by the paring some other method had better be considered, or Valpeau's words of 1839 would be applicable (*vide supra*). A hot douche or the pressure of a swab on a holder arrested bleeding sufficiently to give clear view for the suturing. Sims's original silver wire I learnt to like best, though more difficult to insert and most difficult to remove without damage to the line of union. But the firm support it gave to the parts and its lesser liability to cut or eat out made one feel happier about a case when it was used. A fairly stout but soft wire seemed best, and to introduce it a double silk was passed on a handled needle and the wire bent sharp over the loop of the silk and drawn through. The needle point was made to enter the vaginal mucous membrane and to come out at the bottom of the funnel-shap opening just short of the bladder mucous membrane, cr the gap, and reverse the route on the other side, emerg on vaginal mucous membrane opposite the entrance. A number from two to five of such sutures might be required, a all should be passed before any are tightened. The tight ing is best effected by seizing each end of the w with a Greig-Smith, or strong Spencer Wells forceps, a giving a single twist, gripping the forceps in such a way to make the wire brace up the rawed edges in a firm a good union, carefully avoiding the great tendency t twisting action. The wires are best left 2 or 3 inches l to facilitate removal and hold the part steady, which la result was helped by threading the long ends through rubber tube and gently stuffing this round with iodof gauzes.

The "flap" method, or more correctly called "dédou ment," and associated with the name of Walcher, is g where there is not enough tissue to freshen the edges sa factorily. In this manœuvre the vaginal wall is split off vesical wall all round the gap; the vesical portion is t tucked inwards to the bladder and sutured by a buried sil catgut, avoiding needling the actual mucous membr because of the liability of it to bleed into the bladder; t the vaginal portion is everted and sutured as in the "pari method. The rawed areas approximated are extensive, it seems reasonable to look for a more solid union in su method. The splitting of the layers needs rather n delicate manipulation than paring, and then there is double stitching requisite, factors which prolong an opera always tedious at the best.

Finally, we douched the vagina, and then always inje the bladder viâ the catheter with boiled boric acid solutio test the closure, and occasionally a slight leak when bladder was well distended would show where another s silkworm gut suture might prevent a failure. A long ru tube was attached to the catheter, which was tied in, sight of the steady drip from which into a vessel filling urine was one of the pleasures of the next morning's roun the ward.

After-treatment.—The only pain felt afterwards was in back from the prolonged lithotomy position, and somet it was severe enough to need a little morphia. A neighb ing surgeon used to place the patient in the genu-pec position for the operation to avoid this pain. The cath was left in for four or five days; and the gauze plug ar the tube holding the long ends of the wire sutures carefully removed, a vaginal douche given of 1 in biniodide, and the gauze repacked daily. It has lately urged that no tying in of the catheter is needed, but t is a sense of security in so doing that one is loth to fo The removal of the sutures after 14 days is a big que where wire has been used; the nipping is easy, the unbe is difficult, and it seemed best to secure the cut en the wire in strong Spencer Wells forceps, the great of course, being the opening of the wound, by the pu on the sutures. The withdrawal of the partially u wire is equally difficult, and three of my incomplete clo were due to opening the wound with the removal of o the wires. Two days after the stitches were out we all the patient to go home, and in India one could but feel she not only went out a successful case but she went received back into the home from which she had been t forth as "unclean."

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Southport.

N THE FAILURE OF NERVE ANASTOMOSIS IN INFANTILE PALSY.

By Dr. A. STOFFEL,

SPECIALARZT FÜR ORTHOPÄDIE IN HEIDELBERG, OBERARZT DER PROFESSOR VULPIUS'SCHE KLINIK.

Under the above title,[1] Dr. W. B. Warrington and Mr. W. Murray published their experience of nerve anastosis in cases of infantile paralysis, an experience which is entirely of an unfavourable nature. There is a danger that their article may prejudice the minds of the English profession against the operation of neuroplasty, which is still in its infancy, but worthy and capable of being extended. There is also good ground for assuming that their failures must be attributed, not to any fault in the idea or method, but to defects in their plan of operation and to a technique which is not free from objection. I therefore venture to oppose the opinion expressed by these two writers, as I feel that my studies in this branch of surgery and the practical experience I have gained in dealing with the large paralytic material in Professor Vulpius's clinic entitle me to do so.

In three of their cases an anastomosis was made between the external and internal popliteal nerves for paralysis of muscles supplied by anterior tibial nerve. Case 3: "The extensors of the feet remained, however, absolutely powerless." Case 4: "The extensors of the right foot alone were paralysed." Case 5: "The injury had damaged the external popliteal fibres, ... especially those making up the anterior tibial nerve."] Now, in two of these cases the external popliteal (peroneus) nerve was divided and implanted into a slit in the internal popliteal (tibialis), and in the other a flap was raised from the internal popliteal and grafted end-to-end with the divided external popliteal. To such a procedure I have the following objections. As the object of the transplantation was only to innervate the fibres of the anterior tibial nerve it was not necessary to divide the whole of the external popliteal and graft it into the internal popliteal. It would have been sufficient to graft only the bundle destined for the anterior tibial nerve, as I have proved that the external popliteal nerve can be split without difficulty into its two component parts, anterior tibial and musculo-cutaneous, as far up as the popliteal space and lower third of the thigh. This subdivision of the nerve has hitherto been described only in the leg. The anterior tibial part lies close to the tendon of the biceps, while the musculo-cutaneous portion looks towards the popliteal space. Had this fact been known to Warrington and Murray they would not have sacrificed the musculo-cutaneous nerve—e.g., in Case 4, where the muscles it supplied were healthy—a point of great importance for the success of the operation. They would have brought only the fibres of the anterior tibial nerve into contact with the sectioned internal popliteal, which would involve a much smaller transverse section of nerve. The whole of the internal popliteal nerve is too thick to be innervated from a comparatively small slit in the internal popliteal.

A second very important point has been overlooked. Just as the external popliteal nerve can be separated into its two different component nerves, so the fibres of each of these can be further subdivided, so as to determine accurately the course of the fibres for the tibialis anticus, extensor longus, hallucis, &c.; or, in the case of the musculo-cutaneous, of the motor and sensory fibres. In the same way we can determine in the internal popliteal the tracts for the calf muscles, the extensors of the toes, &c.

In the cross section of a nerve the fibres for the different muscles have a fixed position, therefore we may speak of the topography of the cross section of the nerve. What I have said about the popliteal nerve holds good for all the nerves in the body.

I have worked out this idea of mine in an article[2] in which I have described the internal anatomy of the nerve trunks of the upper and lower extremities. Warrington and Murray united the divided external popliteal into the internal popliteal, or raised a flap from the latter and joined with the former. In what part of the internal popliteal nerve was the slit made? With which tract of the nerve was the paralysed external popliteal brought into contact? Which portions of the internal popliteal nerve were cut out? Was the slit made in a motor or sensory tract? Was it made into a healthy tract? [The internal popliteal was not absolutely intact in all cases.] Did the flap raised from the internal popliteal contain sensory or motor fibres, and, in the latter case, were they functionally active? These are all questions to which Warrington and Murray can give no answer. They contain considerations of the highest importance for the success of the operation, and to the neglect of these the failures must be ascribed.

A further factor which can be held responsible for Warrington and Murray's negative results is to be found in the technique of the implantation. If a longitudinal incision is made into a healthy nerve there is great risk of the knife failing to cut the actual nerve fibres; it may merely separate them and pass into endoneural connective tissue in the intervals between the nerve bundles. If a nerve is grafted into such a position, and comes into contact with connective tissue and not with freshened nerve fibres, failure is certain. To avoid this I make a transverse section with a fine sharp pair of scissors, and so make sure of having a sufficient freshened nerve surface to bring into contact with the paralysed nerve. To fix the two nerves with their cut surfaces in exact contact a longitudinal incision may be made at right angles to the small transverse incision. The same mistakes were made in Case 2 in grafting the fifth cervical nerve into a longitudinal incision in the sixth root in the brachial plexus. The same consideration ought to be paid to the relation of the elements in a transverse section of the sixth root, though I must admit that it is very difficult to determine one's exact position when so near the centre.

Nerve transplantation is a very difficult undertaking. If the procedure is so primitive as simple division of a nerve trunk or root and its insertion into another, success is not to be expected. The vital function of a nerve, a structure consisting of many individual elements, can only be restored by a highly developed procedure which takes account of all anatomical and physiological considerations down to the most minute detail. Let us hope that we shall soon possess it.

I have had to raise these objections to Warrington and Murray's article, for it would be a matter for regret were English surgeons to drop nerve transplantation as unsuitable for these cases because the hopes entertained in their first enthusiasm were not fulfilled. I am sure the operation will render good service when it has been fully developed, and when regard is paid to the anatomical arrangement of nerve bundles within nerve trunks. There have been successes in restoring the function of the deltoid in three cases of transplantation of the circumflex nerve for total palsy of the muscle lasting one, three, and five years. One child had been treated for a year by neurologists.[3] Yet I would utter a warning against the enthusiastic speculations rife in certain quarters, which are as erroneous as the declaration that the operation is bankrupt. I do not believe that nerve transplantation will in the future entirely oust the operation of tendon transplantation which has given such excellent results.

[1] THE LANCET, April 2nd, 1910, p. 912.

[2] Deutsche Zeitschrift für Orthopädische Chirurgie, Band xxv.

[3] Loc. cit.

A CASE OF CHRONIC CONSTIPATION TREATED BY FARADISM OF THE LARGE INTESTINE.

By W. J. BURROUGHS, M.R.C.S. Eng., L.R.C.P. Lond.

In times both past and present, much thought and no little ingenuity have been brought to bear on the subject of chronic constipation, but I have the temerity to think that the treatment I am about to briefly describe will hold its own with the best. Latterly, electrotherapy appears to have given excellent results in such cases and doubtless has a distinct advantage over drugs or non-electrical stimuli. With drugs there is the question of elimination, and with ordinary mechanical stimulation that of obtaining a recovery of a lasting nature. Excellent results are claimed for the static wave current and rectal electrode or faradism with rectal electrode and roller electrode over the large bowel, but

one cannot help thinking that from the point of view of both operator and patient the elimination of the rectal electrode is desirable if equally good results can be obtained without it. That this can be done I am sure, as I have treated a considerable number of cases without such an instrument and with the most gratifying results. In all cases, however, the restoration of the musculature of the large intestine has been the fundamental object in view. Apart from its functions of secretion and absorption, the greater enteron being essentially a muscular viscus, it is probable that, once the atonic muscular coats have recovered, a fair chance is offered to the mucosa to follow suit. For if the cæcum can be got to expel its residual contents satisfactorily, which it does not usually do in this affection, the mucous coat will be relieved of its chief source of bacterial invasion or toxic production, and will so far be able to cope with its pathogenic organisms as to render the introduction of the massol bacillus or the removal of the large intestine unnecessary expedients. This I venture to say as there seems no reason to doubt that. once the autotoxæmic condition of the patient is eliminated, his phagocytes will be in a sufficiently healthy state to perform their natural function as a defending force.

Have not most of us, if not all, met with individuals of both sexes, who have lived to a ripe old age, performing all their intestinal functions normally, and have never heard of the massol bacillus? If this be so, should not our efforts be directed rather to restoring the bowel to its natural state than to inducing what one might term a bacterial habit? For wherein is the man who daily partakes of his dose of benign bacteria better than he who has nightly recourse to purgatives? Is it not even a remote possibility that our defending legions, relying constantly upon reinforcements of these somewhat doubtful allies, may in time become even more indifferent to their duties and still further dependent upon this artificial aid? This may or may not be so much theory, but I venture to think there will be at least a few who will agree when I say that to effect the restoration of the large intestine is an infinitely better result than its temporary sterilisation, stimulation, or permanent extirpation. Amongst other advantages of the muscular recovery of the large bowel is the important one of rendering the appendix far less liable to become a seat of trouble: first, because of the decreased laxity of its valvular orifice; and secondly, on account of the increased purity of the gut.

In the method suggested for the restoration of this atonic and dilated viscus I lay no claim to originality, as I have merely adopted one which has been used on the continent with the utmost success; but beyond being employed in one or two large general hospitals it is so far practically new to this country. The treatment consists in the application to the large intestine of a faradic current of a high degree of penetration and capable of very exaggerated interruption. The method positively resolves itself into putting the abdominal and intestinal muscles through a variety of physical drill, by which they daily gain in strength and efficiency till their restoration is positively complete.

The circumstances which first led me to adopt the particular mode of treatment I am now about to describe were the following. About ten months previously I had been called to a lady who suffered from chronic constipation, and who on this particular occasion had not experienced an action of her bowels for nearly three weeks. On examination I found that she had a large mass of impacted fæcal material at the sigmoid flexure of the colon, the lower gut being perfectly empty. A high tube enema was administered with satisfactory result, and repeated on the following day to make sure that the intestine had been efficiently cleared. Although the operation as far as it went was satisfactory, she soon became entirely reliant on aperients once more. I consequently placed her on a vegetable diet and abdominal massage was daily resorted to, under which treatment she very greatly improved. But alas! she tired of the diet, and the massage, after having been persisted in for two months, was discontinued. But in spite of this for a time she remained better, and it was not till some weeks later that I found that she had relapsed to purgatives and was taking "Somebody's" patent pills regularly each night. It was, however, just at this time that I happened to make the discovery of the particular apparatus I now use, and having inquired carefully into the history and result in several cases treated therewith, decided, after making a thorou trial of the machine, that I would give the patie above mentioned the benefit of what experience I ha in the matter. Having therefore obtained her consent the adoption of such a course, a series of treatments, whi ultimately led to a very satisfactory recovery, was initiate When treated the patient was placed in a sitting positi leaning slightly forward. Two flat leaden electrodes we adjusted next to the skin over about the middle of t ascending and descending colon respectively. A farad current of about 9 volts, with an ampèrage adjusted to t requirements of the patient, was passed for 15 minutes a the current then reversed for another 15 minutes, at t end of which the first séance closed. The next morning the was an evacuation without an aperient. She had about treatments at ever-increasing intervals until the evacuatio became normal in consistency and frequence. I may s that I am continuing to have most satisfactory results, a these without the use of a rectal electrode.

Welbeck-street, W.

A CASE OF SO-CALLED CHRONIC NEURAS THENIA DUE TO ABDOMINAL ADHESIONS; OPERATION; RECOVERY.

BY P. LOCKHART MUMMERY, B.C. CANTAB., F.R.C.S. ENG.,

SENIOR ASSISTANT SURGEON TO ST. MARK'S HOSPITAL FOR CANC FISTULA, AND OTHER DISEASES OF THE RECTUM, CITY ROAD, E.C.; AND TO THE QUEEN'S HOSPITAL FOR CHILDREN, HACKNEY ROAD, E.;

AND

E. CHITTENDEN BRIDGES, M.D. DURH., M.R.C.S. EN

CONSULTING PHYSICIAN TO MARGARET STREET HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, CAVENDISH SQUARE, W.

THE following case presents so many interesting poin that we consider it worth publishing.

The patient was a man, aged 41 years. When ni years of age he had had an attack of what at the tin was called "low fever." (This was probably typho fever, as another inmate of the house subsequently g typhoid fever and died.) The symptoms practically da from this time. For many years past he has been su ject to occasional attacks of abdominal pain, so seve at times as to "double him up." The pain general passed off on getting rid of flatulence. At about 17 yea of age he was much troubled with dyspepsia and constip tion and a dragging pain in the back. Five years later t patient had his first attack of severe abdominal pain. Whil taking a cold shower bath he was seized with acute abd minal pain, which necessitated his being lifted out of t bath and put to bed. The pain gradually passed off, and a few days' time he was able to get about again. N vomiting or pyrexia was present. The patient at the tin was much troubled with flatulence. There was no constip tion. An east wind or cold weather generally used to pr dispose to an attack, or any sudden movement—i.e., sneezin coughing, or sudden shock, like a cold bath. The patie consulted at different times a considerable number of medic men, and the general opinion was that he was suffering fro neurasthenia. Purgatives very often brought on an attac These attacks continued off and on at irregular interva until February, 1908, when he had his most severe attac The patient was taking a warm bath when, by mistake, t cold water was suddenly turned on. He was immediate seized with intense abdominal pain and marked rigidity the abdominal muscles. The pain was situated on the le iliac fossa, radiating to the back, and it lasted for abo one and a half hours, but was relieved by antispasmodi advised by Mr. John Pardoe, who saw him during t attack. The following are Mr. Pardoe's remarks describi the attack:—

I saw him about 9.30 in the morning. The attack had then last about one hour. Patient was lying flat on his back in bed, perspiri about hands and forehead (not body). Pulse 78, soft and regul Face calm (until the spasm to be described occurred). Tongue cle and moist. Temperature 97·6° F. Whilst I was talking to him a looking at his abdomen, which was absolutely rigid, respiration bei diaphragmatic in character, a ripple of muscular contractions occurr from below upwards along the recti, which were standing out marked

It was exactly like peristalsis. The abdominal muscles then were drawn in until it looked as though you could not lay a sheet of paper between the anterior abdominal muscles and the spinal column. The whole thing shortly relaxed and the abdomen was normal again. This happened twice in the space of about ten minutes. During the spasm his face was screwed up and he sweated profusely on the forehead and scalp. Pulse was regular and not quickened. He had a good action of the bowels later in the day, and next day was apparently all right.

In October, 1908, the patient consulted Dr. Bridges, who, thinking the condition might be due to some auto-intoxication in the bowel, put him on sour milk, with the result that he did not have any attack during the following winter months.

On Jan. 31st, 1910, Dr. Bridges was called to see the patient, who was in another attack. On arrival the patient was sitting lying back in an arm chair, leaning towards the right side with his legs slightly flexed, resting on a cushion, quite afraid to move. The pulse was quiet and the temperature was normal. The patient complained of great pain and dragging on the left side of the abdomen, going through to the back. The administration of amyl nitrite relieved the spasm temporarily. After some time he was enabled to get to bed with the aid of two sticks. But it was quite impossible to straighten his back or move his left leg with any freedom. After the attack Dr. Bridges, considering the length of time the patient had suffered, advised him to have the lower bowel thoroughly examined under an anæsthetic.

On Feb. 3rd Mr. Lockhart Mummery examined the patient under an anæsthetic with the sigmoidoscope, and the following are his notes written just after the examination :—

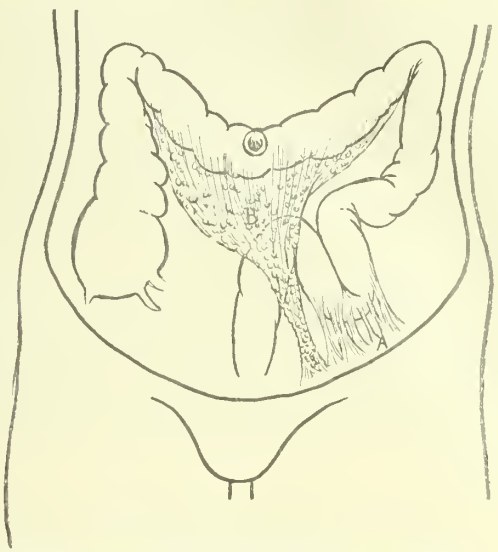
The rectum is normal. About one and a half inches above the recto-sigmoidal junction the bowel takes a sharp turn to the left at an acute angle and is fixed, apparently to the left iliac fossa. (The bowel here should be freely moveable.) This partial fixation of the bowel was confirmed by inflation and by the fact that it is impossible to introduce the instrument any further. Otherwise the bowel appeared to be normal, and nothing abnormal could be felt on bimanual or abdominal palpation. I am of opinion that the sigmoid flexure is kinked by adhesions, probably the result of some previous inflammation. It seems probable that the pain which the patient suffers from is due to severe entero-spasm in the bowel just above the fixed portion.

After a consultation with Mr. Pardoe and Dr. Bridges it was decided to perform laparotomy with the object of removing any adhesions and straightening the bowel.

On Feb. 10th Mr. Lockhart Mummery opened the abdomen on the left side through the rectus muscle. On opening the peritoneal cavity a long band of omentum some three inches in length was discovered, the extremity of which was attached to the middle of the left iliac fossa, passing across the sigmoid flexure. This band practically anchored the stomach and transverse colon to the left iliac fossa. Further investigation showed a number of very tough adhesions tying down the centre of the sigmoid flexure to the same spot in the iliac fossa. The spot to which the adhesions were attached in the iliac fossa was about the size of a shilling, and there were no other adhesions anywhere. These adhesions caused an acute double kink in the sigmoid flexure, and prevented this part of the bowel from rising out of the pelvis. All the adhesions were very tough and obviously of old standing. There were no signs of any inflammatory lesion or any thickening or disease of the bowel. Everything else in the abdominal cavity appeared to be quite normal. There was a short normal appendix. All the adhesions were cut through with scissors, and the sigmoid flexure freed until it could assume a normal position and the kinks had been got rid of. The resulting raw surface uncovered by peritoneum was then carefully closed in by suturing the peritoneum from side to side in such a way as to prevent any re-formation of a kink. When this was done the sigmoid could assume its normal position and no raw surface remained. Great care was taken to prevent bleeding during the operation, and to leave the peritoneal cavity quite free from blood clot. The abdomen was then closed in three layers. The superficial stitches were removed in six days, and the patient made an uneventful recovery. The illustration shows the condition found at the operation. Almost directly after the operation the patient stated that he felt more comfortable in the abdomen than he had been for some years, and that the old vague pains had quite subsided.

The case is one of particular interest owing to the abnormal symptoms and the very long time that they had existed. The acute attacks of abdominal pain appear to have been due to violent entero-spasm above the partial obstruction in the colon caused by the adhesions, and it is remarkable that there were very few other symptoms except of a vague nature. The origin of the adhesions is somewhat obscure, and the only explanation appears to lie in an attack of typhoid fever at the age of nine years, from which time the symptoms appear to have dated.

The case well illustrates the value of a careful sigmoidoscopic examination in such cases, as without it the diagnosis would have been impossible. It is a well-known fact that the mere division of the adhesions is not sufficient in these



A, Tough adhesions anchoring the centre of the pelvic colon to the iliac fascia and causing a sharp kink in the bowel. B, Omentum which on left side was drawn out into a narrow band and adherent to the iliac fossa across the pelvic colon.

cases, as there is a risk of their re-forming. We are of opinion that the best way of preventing this is to secure very careful hæmostasis during the operation, and to carefully cover in all raw surfaces by some form of plastic operation on the peritoneum. In addition to the above precaution, abdominal massage and exercises were used in the present case as soon as the condition of the abdominal wound allowed of this. Care was also taken to keep the bowels acting daily by means of enemata.

The patient was seen a few days ago by one of us, and he had put on a stone in weight since the operation, and now he feels better than he remembers ever to have felt before.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

AN OPERATION FOR PROLAPSE OF THE RECTUM.

BY LESLIE W. DRYLAND, M R.C.S. ENG., L.R.C.P. LOND., D P.H.,
HONORARY SURGEON TO THE KETTERING GENERAL HOSPITAL.

THE patient, a female, aged 47 years, was admitted on Jan. 4th to Kettering General Hospital suffering from procidentia recti of six years' duration. The rectum prolapsed during each act of defæcation, the pain being excruciating. For the past year the prolapse would not return of itself, and the patient's medical attendant had frequently to be sent for to reduce it.

On examination the prolapse was found to be 6 inches long, but was easily returnable. There was undue relaxation of the anal parts, the perineum being flabby. A little straining was sufficient to cause the bowel to prolapse. The constant worry and pain made the patient fear defæcation, and she was the emblem of a neurasthenic.

On Jan. 8th the patient was placed on the operating table with the prolapse hanging down, and with the assistance of Mr. G. Watson Hill (house surgeon) the abdomen was

opened along the outer border of the left rectus abdominis muscle, the deep epigastric was pulled aside, and on opening the peritoneum a good view was obtained of the sigmoid and upper part of the rectum, and forcible traction on this quickly reduced the prolapse. An incision was now made in the peritoneum covering the iliacus muscle, parallel to and about an inch and a half above the external iliac vessels. A flap of this peritoneum was dissected downwards and firmly stitched to the upper and posterior portion of the rectum, firm traction being employed to bring this up out of the pelvis as high as possible. The upper flap of peritoneum was now brought over to the front of the bowel and was firmly secured by interrupted silk sutures; by these means nearly half the external covering of the bowel, which had been scratched previously to the insertion of the anterior layer of sutures, was brought into direct contact with the iliacus muscle. The abdomen was now closed in the usual way. The patient was kept in bed for six weeks, the bowels being kept open by an enema daily for the first month. The patient made a good recovery and there has been no further trouble since the operation 12 weeks ago.

My object in publishing this case is to obtain information as to whether this operation has been performed in other hospitals, and if so with what permanent results. I did not think the patient was in a fit state to undergo the usual operation recommended for this trouble. I might mention that a small multilocular ovarian cyst was found attached to the left tube and was removed during the operation, but I do not think that this was in any way the cause of the procidentia.

Kettering.

A CASE OF HENOCH'S PURPURA WITH INTUSSUSCEPTION.

BY JOHN H. TONKING, M.B. LOND.,
SURGEON TO THE REDRUTH HOSPITALS.

ON account of its rarity I thought the following case might be worth recording.

The patient was a boy, aged 5½ years, and was taken ill on June 2nd, 1910, with earache and vomiting with a slight rise in temperature. He remained in the same condition, complaining of earache and headache. The temperature on the 5th was 102° F.; on the 7th the temperature was 103°, pulse 120, and respirations 24. There was no sign of pneumonia. On the 8th œdema of the scrotum was observed. The temperature was normal and the pulse 96. On the 10th he could not move the right arm on account of pain in the joints; the hand was swollen. On the 12th œdema of the eyelids was noted. On the 13th and 14th purpuric spots on the buttocks were observed. The boy kept about the same until the 18th, when at 7 A.M. he complained of great abdominal pain; he vomited. On examination at 9 A.M. a swelling was detected above the umbilicus. Examination per anum revealed fæces in the rectum but no mucus or blood. An enema was followed by a normal action with no blood or mucus. I decided to send him to the Redruth Hospitals and perform laparotomy. The urine was normal. Dr. Frank Hichens agreed with me as to the diagnosis.

I opened the abdomen at 5 P.M. through the right rectus in the umbilical region. The tumour proved to be an enteric intussusception several inches in length. Reduction was easy. The apex of the intussusception looked like a piece of blood clot. The whole of the tumour was infiltrated with blood. The time occupied by the operation was 20 minutes. The abdomen was closed with through-and-through silkworm-gut sutures. The pulse before the operation was 80; afterwards it was 140. The pulse gradually came down to 96 on the sixth day. No temperature over 99·5° was recorded. The patient was given 4 ounces of water containing 5 grains of lactate of calcium every six hours per rectum and was given albumin water by the stomach, followed later by peptonised milk. On the day after the operation a simple enema was followed by a normal stool, with no blood.

This case is interesting as an example of the absence of one of the recognised signs of intussusception—blood and mucus per rectum. Although intussusception was complicated by a disease associated with hæmorrhage, there was not at any time the least blood per anum. My thanks are due to Sister Freeman for careful after-nursing.

Camborne, Cornwall.

A CASE OF AORTIC REGURGITATION IN AN INFANT.

BY W. ANSLEY-YOUNG, M.R.C.S. ENG., L.R.C.P. LOND.

SOME days ago a woman brought a male child, aged 18 months, into my surgery and told me she thought he was suffering from worms. I was much struck by the extreme pallor of the child, and questioning the mother on this point, elicited from her the fact that the baby had always been very pale, ever since birth. As a matter of routine, I placed my finger on the child's wrist and was much surprised to feel a typical Corrigan's pulse. Becoming interested, I had the child undressed, and, after a careful examination of the heart, I concluded that the child was suffering from well-marked aortic regurgitation. The physical signs were as follows: Marked universal pallor; pulsation in the vessels at the root of the neck; diffuse pulsation over an area corresponding to the fifth, sixth, and seventh spaces in the apical region, with a localised apex beat in the sixth space, half an inch outside the mid-clavicular line. Percussion showed enlargement of the left ventricle. The upper limit of the heart was normal and there was no dulness to the right of the sternum. On auscultation the first and second sounds were heard at the apex, and a diastolic murmur. Over the tricuspid area the sounds were normal but over the aortic and pulmonary areas no sounds were heard, these being replaced by a well-marked double or "to-and-fro" murmur, the diastolic bruit being well conducted down the left border of the sternum towards the apex.

The most interesting question in the case is the cause of the lesion. The mother, aged 28 years, gives a history of two attacks of rheumatism, the first having occurred six years ago and the second two and a half years ago. These attacks, however, seem to have had little or no effect upon the heart, for the sounds are quite clear and no enlargement can be detected on percussion. The only indication of any cardiac mischief is some accentuation of the pulmonary second sound. Did this child contract an endocarditis *in utero* as a result of the rheumatic virus in the mother, or is the case one of congenital morbus cordis, in which the aortic valves are malformed or deficient?

There is one other child in the family, a girl aged 5 years. I have carefully examined her heart but cannot find any abnormality.

Skewen, Glamorgan.

Reviews and Notices of Books.

A Text-book of Medical Jurisprudence and Toxicology. By JOHN GLAISTER, M.D. Glasg., D.P.H. Camb., F.R.S.E., Professor of Forensic Medicine and Public Health in the University of Glasgow. With 130 Illustrations. Second edition. Edinburgh: E. and S. Livingtone. 1910. Pp. 784. Price 14*s*.

IN the first edition of this work the plan was adopted of combining in a single text-book or manual the subjects of medical jurisprudence, toxicology, and public health. Whilst this combination had some advantages, it was at the same time not unattended by certain drawbacks. As the subjects tended to expand it became increasingly difficult to maintain the combination in a single volume such as would result at once in a handy book for the student and a work of reference for the practitioner. These considerations have induced the author to issue the present edition in two separate volumes, of which the one now under consideration deals with medical jurisprudence and toxicology. We think that the change is a wise one, and Professor Glaister has now produced an excellent manual on these two subjects. He has had an unusually wide experience in the field of medico-legal work and practice, and out of the large store of material which he has accumulated during 25 years he has selected exactly the right matter for the purpose of fully illustrating and verifying the text. This renders the book all the more interesting and more useful to the members of the legal as well as the medical profession

All the various subjects coming under the heading of medical jurisprudence are dealt with fully and in terms that are easy to follow and understand. The difficult matter of identity, for instance, is discussed in a way that rivets the attention and conveys instruction on points where a practitioner may at any time be required to give an opinion. The chapter on death by lightning and electricity gives information which will not be found in the ordinary medical text-books. Some interesting instances are given of death by lightning. One of the most remarkable is that in which lightning struck a tent near Waringstown, Ireland, in which a congregation of about 250 persons were assembled. In all 60 persons were simultaneously struck and were thrown upon the floor of the tent in various states of insensibility. Some recovered consciousness quickly, others at longer intervals; but in the end all recovered consciousness with the exception of two men, one of whom appeared to have been killed outright, the other surviving for some minutes after having been struck.

Wounds in their medico-legal relations are described at length, and numerous instances are recorded showing the difficulties which may be met with in forensic work. This section deserves close study, for at the present time a very fierce light beats upon the medical man whose professional duties involve him in forensic procedure of this sort.

The differential diagnosis of states of insensibility occupies a separate chapter in its consideration. There is no part of the work of the divisional surgeon of police, or of the medical practitioner who may be called in by the police, more difficult than the diagnosis of the cause of insensibility of persons who are either brought to the police station or are found in the public streets in an unconscious condition. Professor Glaister has arranged his material most ably, and really valuable assistance may be obtained by a study of his remarks.

In this edition the various subjects have been brought into line with present-day advancements. Some of the chapters have been largely rewritten or remodelled, many have received substantial additions, and all have been carefully re-edited. More detailed attention has been given to lunacy law and procedure, and some enlarged consideration of the subject of anæsthetics and their administration has rightly been thought necessary. In the section of toxicology the number of poisons described has been added to. The work is admirably illustrated, considerably increasing the interest of the letter press.

We consider this work a good text-book for students and a reliable work of reference for practitioners.

Wounds in War: the Mechanism of their Production and their Treatment. By Colonel W. F. STEVENSON, C.B., K.H.S., R.A.M.C. (retired), B.A., M.B., M.Ch. Dub., late Local Surgeon-General and Professor of Military Surgery, Royal Army Medical College, London. Third edition. London: Longmans, Green, and Co. 1910. Pp. 559. Price 16*s.* net.

THAT a third edition of this work is called for after the lapse of so short a time since the second edition is an indication of the favour in which it is held. Besides a call for a new edition in order to supply the demand there is another reason for reissuing the work, which is that since the last edition was written the surgical history of the cases which were observed in the Boer war has been completed, and because a war on a vast scale has taken place between Russia and Japan, from the happenings in which some useful lessons are to be learnt.

Colonel Stevenson was editor of the "Report on the Surgical Cases Noted in the South African War, 1899-1902," and explained how it was that much of the material afforded by that war was lost to the science of military surgery, for the medical officers found themselves in the presence of much more medical and surgical work than had been expected or for which provision had been made, and, as a consequence, very little time remained for note-taking, and the materials for the report were much more meagre than under favourable conditions they should have been. For this reason the statistics given in this work—namely, 6·3 per cent. of total casualties over strength—cannot be taken as the true statistics for the whole war, which would probably show results less favourable than the statistics indicate. This would still be a far lower rate than was predicted for modern firearms in war, and than occurred in the Russo-Japanese war in Manchuria, 1904-05, where the Russian loss was 12·4 per cent. of those engaged, and the Japanese 14·5 per cent. Taking into consideration the enormously extended effectiveness of modern firearms, the comparatively low percentage of casualties experienced in the Boer war must have been due to the long ranges at which, for the most part, engagements were fought, the care used to take advantage of cover, and the open formations in which the troops were placed. When attacks are pushed home and ranges become short the percentage of casualties will be far higher amongst the troops actually engaged than the average for the whole army in South Africa. It was under the latter conditions that much of the fighting was carried out in the late war in Manchuria, and the higher figures for the Russo-Japanese war are probably thus explained.

In reviewing the second edition of this work we said: "There seems to be a general impression in the profession of this country that penetrating gunshot wounds of the abdomen were not nearly so fatal in the Boer war as they were in former times. The author says he believes that some reduction will be found to have occurred in the mortality, but that the question can only be decided by the full statistics of the campaign, which are, of course, not yet available." Now that the statistics are complete, so far as it is possible to complete them, Colonel Stevenson states that the experiences of the Boer war have in no way changed the surgery of abdominal injuries as regards the propriety and necessity of operative treatment, but they have very clearly shown how the actual conditions of field service modified surgical practice in that campaign, and how probable it is that the treatment of these cases in war can never be expected to be carried out on the lines of a civil hospital at home, either as regards the number of cases operated on or the percentage of recoveries obtained after operation. The Boer war has shown that many penetrating gunshot injuries of the abdomen get well without operation; in some of these there were no symptoms and in others there were distinct evidences of visceral lesion. The war showed that many of the cases were so severely injured that from the first operation was out of the question, and that in other cases, somewhat less grave, operation was the only method offering a chance of recovery. The conditions prevailing in active service were so unfavourable, that success resulted in few instances, and surgical intervention was only justified in cases otherwise hopeless. The clamour which arose during the early stages of the Boer war against abdominal surgery in the field was directed against the theory of *necessity* of operation in abdominal wounds; it should have been aimed against operations in these cases only because of the unfavourable conditions under which they had to be performed. A different thing altogether, for it leaves the surgeon still to be the judge as to what are favourable or unfavourable conditions.

Of gunshot injuries of the spine, even those which are entered in the returns as "Recovered," the best that can be said of the majority is that they did not die from their

wounds previous to being invalided from the service. Their general condition can only be referred to as pitiable, and, sad to say, it is scarcely a matter for regret that the early mortality in these injuries reaches 78 per cent.

The means employed for the succour and treatment of sick and wounded in war have lately undergone much alteration, and the Geneva Convention was revised at a conference held in Geneva in 1906. These subjects are fully dealt with in a chapter which includes also a consideration of the effects of the use of small-arms in modern warfare. The duties and expectations of high efficiency in field ambulances, of their stretcher divisions, in the field, their collecting, dressing, and tent divisions, are clearly given in a chapter which will be read with interest by Regular and Territorial medical officers alike.

Mr. Mackenzie Davidson has added a good deal to his contribution on skiagraphic localisation, and Major Spencer has supplied some new illustrations of skiagraphs of bone injuries.

There can be no doubt of the value of the volume which has been produced. It carries the evidences of the large amount of solid work and careful scrutiny of statistics which has gone to its production, and it is a pity that there should be any part of it which we cannot completely praise. We must, however, state that the index is very meagre, and we think that in a work of surgical character and bearing the inclusion of a chapter on the mechanics of projectiles is a mistake. It matters little to surgeons what are the forces which combine to impart a parabolic path to projectiles if, on account of the variable air resistances, the actual path taken is no known regular curve, and we are inclined to agree with those who think that "the power a projectile has of producing injury" does not vary with the square of its velocity to nearly so great a degree as it varies with the physiological value of the part of the body that is struck. The formula MV^2 may not be wrong, but we agree with Colonel Stevenson in thinking that the experiences of the Boer war will not cause it to be modified.

Practical Obstetrics. By E. HASTINGS TWEEDY, F.R.C.P. Irel., Master of the Rotunda Hospital; and G. T. WRENCH, M.D. Lond., late Assistant Master. Second edition. London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 491. Price 12*s.* 6*d.* net.

THIS is the second edition of the work formerly called "The Rotunda Practical Midwifery" by the same authors. The main alterations in this edition appear to be, besides a complete general revision, the rewriting of the chapters on the toxæmia of pregnancy, uterine inertia and contracted pelves, and the addition of articles on subcutaneous pubiotomy, hysterotomy, and infant digestion.

If we turn to the section on uterine inertia we find a definition of secondary uterine inertia which will certainly surprise students belonging at any rate to the London school. The authors term the condition commonly known as obstructed labour secondary uterine inertia, while of real secondary inertia, or as it is often termed exhaustion of the uterus, they say but little. According to the authors "secondary uterine inertia is associated with the signs of obstructed labour." That this is not the customary use of these terms in the Dublin School of Obstetrics appears clear from a reference to another well-known text-book written by one of the teachers of this school in which the important distinctions so clearly laid down by Braxton Hicks in his classical paper are carefully and accurately described. We would recommend a study of this paper to the authors; it is to be found in the ninth volume of the Transactions of the Obstetrical Society of London.

In considering the treatment of cases of rupture of the uterus the authors condemn hysterectomy and recommend plugging in all cases in which it is possible. That many cases recover after plugging we can certainly affirm, but in these cases we have always had grave doubts as to how much of the successful result could be attributed to the method of treatment. In slight cases or cases of incomplete rupture plugging is often associated with recovery, but in severe cases it is practically of no avail. We cannot agree with the authors when they recommend if possible the delivery of the child through the tear by the vagina, even when it has passed into the peritoneal cavity. The statement in the section on the treatment of contracted pelves that 50 to 70 per cent. of premature children die within the first year of life is not in accordance with the most trustworthy statistics. Figures are not available for the accurate estimation of the death-rate in this country, but in Dresden and in Halle Leopold and Lorey record a mortality during the first year of life actually less than that of children born at full term, while the average immediate death-rate of children born after the induction of premature labour does not exceed 25 to 30 per cent.

The authors recommend hysterotomy in certain conditions, an operation in which we fail to see any advantages over ordinary Cæsarean section. In reality it cannot as a rule be performed extra-peritoneally, and indeed the authors actually recommend cutting through the parietal peritoneum and opening the peritoneal cavity, and since they do not consider it a suitable operation in cases where the cavity of the uterus may be septic we cannot believe that it has any real advantages, while it often entails the greatest difficulty in the delivery of the child. The authors appear to have been exceptionally fortunate, since they have not had to perforate a living child in their hospital for a great number of years, nor have they ever had to sacrifice a child in this way in private practice.

This book will be read with interest as an exposition of the present teaching of the Rotunda Hospital, with much of which, rightly or wrongly, we are not in agreement. But while we think it necessary to show this, we have not lost sight of the fact that the work is the outcome of a large experience, and for that reason demands careful study, while it contains many undoubtedly valuable lessons.

La Pratique des Maladies des Enfants (Diagnostic et Thérapeutique). Published in fasciculi by Dr. APERT, Dr. BARBIER, Dr. CASTAIGNE, Dr. GRENET, Dr. GUILLEMOT, Dr. GUINON, Dr. MARFAN, Dr. MÉRY, and Dr. SIMON, of Paris; Dr. ANDERODIAS, Dr. CRUCHET, Dr. MOUSSOUS, and Dr. ROCAZ, of Bordeaux; Dr. WEIL and Dr. PÉHU of Lyon; Dr. CARRIERE of Lille; Dr. HAUSHALTER of Nancy; Dr. DALOUS of Toulouse; and Dr. LEENHARDT of Montpellier, &c. Vol. III. (*Diseases of the Appendix, the Peritoneum, the Liver, the Kidneys, the Pancreas, the Blood, and the Lymphatic Glands.*) 89 illustrations and 12 coloured plates. Paris: J. B. Baillière et Fils. 1910. Pp. 432. Price 12 francs.

THIS book represents the third volume of a systematic handbook of medicine which deals with the diagnostic and therapeutic aspect of disease in children. The present volume is concerned with the disease of the appendix, the peritoneum, the liver, the pancreas, the kidneys, the lymphatic glands, and the spleen. The contributions to the work as a whole are confined to authors who write in French, though several of them are not of French nationality. In this volume, however, each article is from the pen of a French physician. The diseases of the appendix and peritoneum are described by Dr. Haushalter, professor of pædiatrics at Nancy. Professor Castaigne, of the Faculty of Medicine in Paris and M. L. G. Simon contribute articles on the symptomatology and treatment of diseases of the liver, pancreas, and suprarenals. It is interesting to note that diabetes is grouped among diseases of these

organs. Among the diseases of the liver is included that condition of colourless stools in children to which we believe Dr. W. B. Cheadle first gave the name of "acholia." This disease was at one time called by Dr. S. J. Gee "cœliac disease," a term which is quite comprehensible, since it implies a disturbance of the nervous supply of the liver, spleen, and pancreas, and possibly also of the duodenum and small intestines. Many cases of acholia are presented by infants and children, in whom the pancreatic functions are undoubtedly disturbed. Professor Castaigne and his collaborator, however, describe acholia as a disease of the liver, and devote considerable space to the description of Dr. H. Triboulet's method of estimating the colouring matter contained in the stools. He contrasts acholia with a pleio-chromic condition in which there is excess of stercobilin. A colour reaction is obtained by adding a sublimated acetic acid solution to a small quantity of fæces shaken np with water. The reaction shows itself within an hour, and a diagnostic and prognostic opinion may be based on the results observed. Normal stools give a violet-pink colouration due to the presence of a normal quantity of stercobilin. Excess of the latter colouring matter affords a reddish tint which is specially deep in the deposit at the bottom of the tube. Of fatal significance is decolouration of the supernatant fluid and a colourless or light grey colour of the precipitate, for such a condition implies very serious disturbance of liver function.

On the subject of hepatic insufficiency Professor Castaigne and his colleague make several interesting observations and refer to the work of Richardière and Mauban. These writers point out that periodic vomiting of the nature of migraine can occur in children without acetonæmia, and in such cases the liver is for the time being in a condition of snspended function. It is thus easy to understand how these recurrent attacks occur in children with hereditary or family weakness of the liver (hepatism). A form of infantilism, of the Lorraine type, is described in this section as due to hepatic insnfficiency. The account of this condition is not, however, convincing; it appears more likely that such reported cases are instances of pancreatic insufficiency rather than liver insufficiency, or possibly a combination of the two.

Professor Leenhardt of Monpellier gives an admirable acconnt of the diseases of the blood and lymph glands common to children.

From the point of view of practical medicine this volnme appears to us to leave nothing to be desired; the authors who contribute to it are all physicians who may be said to be specialists in these particular lines. Each section is complete in itself, and the treatment which is based on the symptomatology is practical and thoroughly up to date.

Duodenal Ulcer. By B. G. A. MOYNIHAN, M.S. Lond., F.R.C.S. Eng. Illustrated. London and Philadelphia: W. B. Saunders Company. 1910. Pp. 379. Price 18*s.* net.

THE recent discnssion at the Royal Society of Medicine on the treatment of duodenal ulcer revealed a wide divergence of opinion on nearly all the points connected with this lesion. While, on the one hand, some held the view which may be termed classical, that duodenal ulcer is not very common, and that even when it exists it may be satisfactorily treated in the majority of cases by diet and medicine; on the other hand, it was maintained by several of the speakers that ulcer of the duodenum was a comparatively common lesion, that it gave rise to well-marked symptoms during life quite apart from hæmorrhage, and that therefore it could be diagnosed with ease and certainty. Most of those who held these views further maintained that immediately a chronic duodenal ulcer is diagnosed it must be treated surgically withont loss of time. One of the most, perhaps the most, energetic of the speakers belonging to what may not unreasonably be termed the more modern school was Mr. Moynihan, and it is therefore useful and valuable to have presented to ns in the convenient form of a volume the arguments which can be advanced in favour of the more active methods of treatment.

It is certain that ulceration of the duodenum is not always recognised. Perforation has occurred in no small number of cases where no suspicion had arisen previously that any duodenal lesion was present. Moreover, it is now recognised that no small percentage of ulcers which have been regarded as affecting the gastric wall near the pyloric orifice have really been situated on the duodenal side of the sphincter, and have been, in fact, nlcers of the duodenum. But though nearly all observers will be ready to admit that the nnmber of duodenal ulcers has been under-estimated, it is an entirely different matter to accept the newer view that duodenal nlcer is as common as some would think it to be. It is claimed that a large proportion of affections of the stomach, which have been looked upon as functional in origin, and that many of the conditions which have been scribed to neuroses, are really the results of ulceration of the duodenum. To quote Mr. Moynihan, "There are few diseases whose symptoms appear in such a definite and well-ordered sequence as is observed in duodenal nlcer." The pain is felt not immediately after food, but two or three hours later; so that it appears when the patient is beginning to feel hungry. The relief of the pain by food is very marked and the pain is very liable to wake the patient up somewhere about 2 o'clock in the morning. It seems that the symptoms which Mr. Moynihan and his followers ascribe to duodenal nlcer are those which are commonly attributed to hyperchlorhydria. "These are the characteristic symptoms described by the patient in the anamnesis. Upon them alone a confident diagnosis of duodenal ulcer may be made."

Here is a very definite cleavage of opinion, and at present it can hardly be said that the holders of the newer view have proved their point. As to the differential diagnosis, Mr. Moynihan is very confident. He tells us that "the only difficulty likely to be encountered in making an accurate diagnosis of duodenal ulcer is concerned with the discrimination of this condition from cholelithiasis," and then he goes on to say that in a consecutive series of 100 operations wherein he had made a diagnosis of duodenal ulcer an error was committed in three cases. In two of these gall-stones were present, and in the third gall-stones and appendicitis. We are further told that "one of the most authentic features in duodenal ulcer is this recurrence of attacks in cold and wet seasons." When severe hæmorrhage is present, shown either by hæmatemesis or by melæna, Mr. Moynihan has found splenic anæmia to be present when other observers have diagnosed duodenal nlcer. Supposing the diagnosis is made, no doubt is felt by the author as to the treatment to be adopted. "In my opinion the treatment of a chronic duodenal ulcer should always be surgical." He informs us that "in a first attack, or even in a second, medical treatment may be tried, but when attacks occur in the typical manner ..... the lesion found is of such a nature that any other than surgical treatment is not worth considering. It is safer, speedier, and more certain than any other mode of treatment." If the ulcer is small, placed on the anterior surface of the duodenum, and free from adhesions, it may safely be excised and the wound in the duodenum

closed. In the very great majority of cases the operation of gastro-enterostomy is the most applicable, and the results are most satisfactory, but in order that it may give permanent relief the ulcer must be so large as to offer obstruction.

However much opinion may be divided on the diagnosis and treatment of duodenal ulcer there is little diversity of opinion as to the diagnosis and treatment of a duodenal ulcer that has perforated. Mr. Moynihan has had 11 cases of this accident in which he operated, and of these 7 recovered. The appendix to this book should prove of great value to those investigating the question of duodenal ulcer and its treatment, for it contains a detailed statement of all the cases (186) operated upon by Mr. Moynihan to the end of the year 1908 with an analysis and summary. This has been prepared by Mr. Harold Collinson, assistant surgeon to the Leeds General Infirmary. From the analysis we find that three of the patients were under 20, the youngest being 17, while the oldest patient was 67 years of age. The largest number of patients in any decade was 56—namely, between 31 and 40. Seventy of the patients gave a history of bleeding one time or another, 17 had hæmatemesis, and 23 melæna alone. Upon the 186 patients 194 operations were performed, 8 patients being operated upon twice. In 160 of these operations posterior gastro-enterotomy by simple suture, with or without infolding of the ulcer, was performed. As to the operative results, 4 patients out of the 186 died as the result of the operation—that is, 2·15 per cent. One of these died from acute intestinal obstruction, another from uræmia, a third from perforation of a jejunal ulcer, and the fourth from acute tuberculosis.

We have said sufficient to show that in this work we have an admirable presentation of the newer view of duodenal ulcer, and its perusal is essential to all surgeons who would be *au courant* with the more advanced theories on this important matter. The book is well illustrated and excellently printed. Is it pedantic to point out to Mr. Moynihan that the word melæna is plural?

Practical Hydrotherapy. By CURRAN POPE, M.D., Professor of Physiotherapy, University of Louisville Medical Department. Cincinnati Medical Book Co. 1909. Pp. 646. Price 27*s.* 6*d.* net.

THE author remarks in his preface that much prejudice has hitherto existed against "baths," and believes that this is due to the purely empirical way in which they have been applied. At the various "spas" throughout the world the systematic employment of "waters" for therapeutic purposes is well organised, but in ordinary practice hydrotherapy can only be carried out under surroundings ill adapted for the purpose. Nevertheless, some knowledge of the technique and measures adopted would be of value to all practitioners; more especially the morbid conditions most likely to benefit by a course of treatment by means of baths, pouches, and the like should be generally recognised.

From the most ancient times water has been used as an agent in the treatment of disease, but in more recent years its employment has been concentrated in certain places where waters have been found to be impregnated with certain mineral ingredients and gases. The exact manner in which the use of the waters produces beneficial effects is disputed. While some observers maintain that it is the *régime* to which the patients are submitted which is the most important factor, others insist that the waters themselves possess curative properties due to "radio-activity" or some other unknown property. In the work now under consideration a good account is given of the various forms of baths, packs, and douches which may be employed. The written description is supplemented by excellent illustrations, which give to the reader a good idea of the technique required. The diseases in which hydrotherapeutic measures may be adopted are carefully considered. The complete manner in which this part of the work is carried out is indicated by the fact that whilst 193 pages suffice for the description of the methods that may be adopted, 405 are devoted to the purely clinical aspect of the subject.

As an adjunct to the general text-books on medicine and surgery this manual will be found useful, although, owing to the special training required for satisfactorily performing the majority of hydrotherapeutic measures, many of the directions will be found impossible to carry out in ordinary practice.

LIBRARY TABLE.

Sprains and Allied Injuries of Joints. By R. H. ANGLIN WHITELOCKE, M.D., M.C. Edin., F.R.C.S. Eng., Honorary Surgeon to the Radcliffe Infirmary and County Hospital at Oxford; Lichfield Lecturer in Surgery in the University. Second edition. London: Henry Frowde, and Hodder and Stoughton. 1910. Pp. 280. Price 7*s.* 6*d.* net.—The author's purpose is to supply certain details in the recognition and treatment of sprains and allied injuries which are not to be found in the ordinary text-books on surgery. These are the embodiment for the most part of his own personal experience, which in this branch of surgery has been abundant. The fact that, after the lapse of little more than one year, a second edition has been called for speaks well for the reception accorded to the first. The general character of the work remains the same, the only alterations being in the direction of amplification. There is an important chapter dealing with the sequelæ of sprains, mentioning eight varieties of preventable disability which may result from mistakes in the management of sprains, and another chapter, consisting of about 50 pages, is given over to the discussion of internal derangements of the knee-joint. The treatment recommended in cases of recurrence is that by radical operation limited to the removal of displaced or free portions of the cartilage. The operation of suturing the cartilage to the tibia is, in the author's opinion, invariably a failure. We regret to notice no reference to muscular atrophy of the great adductor muscle as a predisposing cause of knee-joint derangement. The methods of treatment which the author advocates are very fully and clearly described. The book is well and clearly printed upon good paper, but the illustrations are mostly from photographs. It deals in a practical way with important though minor injuries and should have a large circle of readers.

Food and Hygiene. By WILLIAM TIBBLES, LL.D., M.D. Second edition. London: Rebman, Limited. 1910. Pp. 672. Price 5*s.* net.—In our review of the first edition of this work we explained the nature and scope of it and expressed the opinion that the author had carried out his responsibilities well and had succeeded where not a few fail in harmonising theory with practice. In the present edition certain additions have been made in accordance with the advances which have been made since the first edition was published. The "sour-milk treatment" is discussed at some length. We are glad to see that the author points out that in some countries, such as Russia, Bulgaria, Arabia, and others, various sour-milk products have been used as articles of diet from time immemorial, and that therefore this treatment, which has recently come so prominently into public notice, is by no means a new product as some seem to have imagined. Dr. Tibbles gives a good account of the different forms of "sour milk,"

and mentions the various bacteria which have been isolated. His remarks on the therapeutic uses of the milk are worthy of note; they are optimistic but free from exaggeration. An alphabetical list of dietaries useful for numerous diseases has been added which will be found of service to the student and practitioner. The book gives a large amount of information on food and hygiene which is usually only found scattered through text-books and medical publications; it is of great advantage to have the facts collected together into one volume.

JOURNALS AND MAGAZINES.

Edinburgh Medical Journal.—The August number of this journal contains less than the usual number of original communications, but those which appear are of considerable interest. Professor August Bier describes his method of inducing local anæsthesia by injection of a solution of novocain into a vein after local anæmia has been produced by means of an elastic bandage. He notes the failure of suprarenal extract as an aid to the local anæsthetic when thus employed as contrasted with its value in Schleich's method. Mr. George Mackay discusses the causes and prevention of blindness, noting the frequency of corneal infection following extraction of foreign bodies by unskilled persons; and Dr. F. W. N. Haultain notes some practical points in the life-history of uterine fibromyomata, which he considers a potent cause of sterility. Under the heading of "Clinical Records" some interesting gynæcological cases are recorded by Dr. James Oliver.

The Medical Chronicle.—The main original article in the August issue of this magazine is a dissertation by Dr. Donald E. Core on the Relation of the Blood Pressure to the Pulse in Clinical Medicine. The author holds that isolated observations on the blood pressure are of little value, but that charts showing its daily variation are of importance when taken along with the record of the pulse. The article, which covers nearly 50 pages, does not lend itself to abstraction, it should be read. Dr. R. T. Williamson reports a case of a tumour in the region of the corpora quadrigemina; apart from the ordinary symptoms of cerebral tumour, the patient exhibited mental dulness, ataxia, and divergent strabismus.

The Birmingham Medical Review.—In a paper which is published in the July number of this review Miss Margaret Aulton discusses the industrial future of the sanatorium patient, noting how often patients from the labouring classes break down again after improvement in a sanatorium, and suggesting the provision of farm colonies for their subsequent treatment. She emphasises the necessity of compulsion in the notification, removal, and detention of tuberculous cases. Mr. G. Percival Mills contributes a note on the Pathology of Rodent Ulcer, which he considers to arise from the cells of the sebaceous glands.

Man.—In the August number of this magazine Mr. George C. Ishmael publishes an article on the Babinza or Babinja, a large cannibal tribe in the Belgian Congo. Among these people a wife who does not bear a child within a reasonable time is sent back to her father, who exchanges her with his son-in-law for another daughter or for a niece. A woman gives birth in a sitting posture, held by the back by another woman and by the thighs by two more, whilst a third sits in front to receive the child. Men are not allowed to be present at a delivery. The birth of twins is looked upon as an ill-omen, and if they both live the mother is suspected of witchcraft. Within two months after the confinement the woman resumes her ordinary avocations and the child is managed by the father.

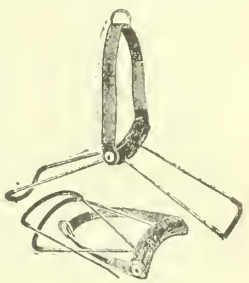
New Inventions.

THE "ANÆSTHEDONE" AND THE "SIMPLEX" CRUTCH.

Mr. Herbert Tanner, F.R.C.S., forwards us a description of two articles which he has "evolved," and explains that whilst he has only a parental interest in them, yet he thinks they should be useful to the profession.

With regard to the "Anæsthedone," Mr. Tanner has been trying for some two years to work out an apparatus which, as he explains, whilst not being, perhaps, scientifically accurate, should enable a practical person to give ether in vapour of different strengths with ease and safety, and that without the use of a rubber bag. He felt that the method of dropping or pouring the anæsthetic on layers of lint or gauze was too crude, and that an apparatus which would satisfy the scientist would be too elaborate to be of use to the average practical man. In the "Anæsthedone" Mr. Tanner submits that he has achieved the object he had in view—indeed, he has done more, for he finds that by the use of the apparatus approximately accurate doses of any of the usual anæsthetics can be presented to the patient; whilst the operator is required only to watch the patient's respiration and circulation as well as the index.

The "Simplex" Crutch, for use in perineal operations, is a compact and portable appliance for effecting the lithotomy position. By its use the legs and feet are held out of the way of the operator and his assistants, and the vessels and nerves in the ham are not pressed upon, nor is respiration impeded. Two strong flexible cords, not shown in the illustration, complete the apparatus. Both appliances can be obtained from Messrs. C. J. Hewlett and Son, Limited, Charlotte-street, London, E.C.



Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 8th, 1832.

COLD WATER IN CHOLERA.

To the Editor of THE LANCET.

SIR,—I have been much pleased by the perusal of Dr. Hardwicke Shute's paper, detailing the important results of his treatment of the collapsed stage of malignant cholera, by the unrestrained use of cold water.

In the treatment of the patients in the cholera hospital of Warsaw, in the summer and autumn of last year, I had frequent opportunities of witnessing the distressing sufferings occasioned by a restricted use of liquids of any kind—a small cup (about two tablespoonfuls) of *salop* being all that was allowed, and that only at intervals of half an hour or an hour. The consequence was, that the thirst became almost insupportable, and the hospital continually resounded with the cry of "water"—sounds more heart-rending than even the sight of the most violent symptoms of the disease. The alleged reason of this restriction, on the part of the medical officer, being, the supposed injurious effects of distending the stomach, on the operation of the remedial agents administered, which were chiefly large doses of calomel. I then had my doubts of the propriety of depriving the unfortunate patient of what nature so urgently demanded. This opinion was subsequently confirmed, when I found that the treatment adopted at Berlin with the greatest success in the stage of collapse was cold affusion, and allowing, at the same time, the free use of cold water as a beverage.

I am, Sir, yours, &c.,

Ipswich, Sept. 1, 1832. CHARLES ROBERT BREE.

THE BRITISH MEDICAL ASSOCIATION.

SEVENTY-EIGHTH ANNUAL MEETING IN LONDON.

THE SECTIONS.

ANÆSTHETICS.

FRIDAY, JULY 29TH.

President, Dr. F. W. HEWITT, M.V.O. (London).

A discussion on

The Present Position and Limitations of Spinal Analgesia

was opened by a paper (read in his absence) by Mr. E. CANNY RYALL (London). The indications and contra-indications for the use of spinal analgesia were considered, and the method was described as not being free from danger. The author thought that it should be restricted to cases in which there were weighty reasons for not employing inhalation anæsthesia or for which local or venous anæsthesia was inadequate. He described the technique of venous anæsthesia, which, he said, was applicable only to the extremities. He alluded to the small extent to which local anæsthesia was employed in this country compared with the scope there really was for it. The nature of shock was then discussed and the efficacy of spinal analgesia in preventing it. Mr. Ryall went on to affirm his belief in the perfect safety and efficiency of high spinal injections. He had never seen any sign of danger and the anæsthesia was always perfect. Abdominal operations, however, were, in his opinion, the special field for spinal analgesia, and he thought that the advantage of absence of post-operative atony of the bowel, which was obtained by this method, had not been sufficiently appreciated. Prostatectomy, again, was an operation peculiarly well suited to spinal analgesia. Military and naval surgery offered, he believed, a field in which spinal analgesia would be of the highest possible value. A *résumé* was given of the writings of many foreign authors as to the effect of spinal analgesia upon the urine, and it was concluded that novocaine was harmless in this respect. Mr. Ryall proceeded to advocate spinal analgesia for the relief of pain and spasm in certain cases and for sciatica. Amongst the contra-indications of the method perhaps the most formidable, he said, were tumours of the brain and disease of the spine or spinal cord. Hysterical and excitable persons, though not favourable, might well be operated upon under spinal analgesia.

Dr. J. BLUMFELD (London) said that he proposed to discuss spinal analgesia first as a routine method of anæsthesia, and secondly as the method of choice in certain conditions. It was first necessary, he said, to consider broadly the question of whether or not consciousness on the part of the patient was ever a desirable thing during operation. He pointed out the harmfulness of consciousness in many cases, giving instances, and he concluded that patients for spinal analgesia must be carefully selected from this point of view. His next objection to spinal analgesia lay in the want of certainty of producing perfect anæsthesia. This held good even in the best hands to an extent variously estimated at from 2 to 7 per cent. of the cases. For a number of reasons which he specified there were apt to be failures to at least this extent. In point of safety, also, he held that the method was as yet behind the point reached by general anæsthesia in competent hands. He believed that the chief utility of spinal analgesia would prove to be its power of minimising surgical shock, and he thought that in the future it would be used for this purpose in connexion with unconsciousness obtained by the use of small quantities of a general anæsthetic. He described the perfect relaxation of abdominal muscles to be obtained by spinal analgesia as a thing which could not be equalled by any general anæsthetic, but he showed that the great advantage to the surgeon of this absolutely flaccid condition was only to be obtained at the price of certain disadvantages which were described. He believed that spinal analgesia might be chosen in preference to general anæsthesia in healthy persons who feared unconsciousness and who were to undergo operations in the lower portions of the body which did not involve dragging, in amputations for diabetic gangrene, and in some cases of advanced abdominal disease and of serious lung disease.

Dr. W. J. MCCARDIE (Birmingham) said that in his review of the subject he included no cases in which cocaine was used. He dealt with eucaine, stovaine, novocaine, and with Joannesco's method. He believed that spinal analgesia had a place in the armoury of the anæsthetist, but that much experience in its employment was necessary. From very large numbers of statistics with which he had dealt he computed the death-rate of general anæsthesia at 1 in 3255 and that of spinal analgesia at 1 in 826. Several observers, however, had collected large numbers of cases without a death. In some cases fatality was attributed to badly sterilised preparations. It must be remembered that often the case of spinal analgesia was just the kind of case in which general anæsthesia too was especially dangerous. He reckoned failures at about 9 per cent., and by failure he meant cases in which there was insufficient analgesia, no analgesia, or necessity for general anæsthesia after puncture. Professor Joannesco's assertion that there was no danger and also no failure with spinal analgesia was not borne out by his experiences in America and here, and by the work of exact followers of his method. The experience of spinal analgesia at the General Hospital, Birmingham was not, the speaker said, encouraging. He went on to quote the statistics and reports of a number of foreign and colonial observers both for and against spinal analgesia as compared with general anæsthesia. After-pain in the wound was, he said, not an uncommon sequela. He believed that there was danger of collapse from psychic influence during spinal analgesia, and cases of hysterical paralysis following the process had been recorded. The combination of scopolamine and morphine with the spinal analgesia was no doubt helpful in obviating psychically caused troubles. The relaxation of the abdominal wall when spinal analgesia was successfully used for operations on that part of the body was certainly very complete; the intestines, too, were blanched and with no tendency to protrude. It was stated that the Trendelenburg position could be safely employed if morphine and scopolamine were previously administered. With regard to obstetrics, Morton said that the cervix and perineum were relaxed and that the uterine contractions were not interfered with; several injections, however, were generally necessary. Dr. McCardie said that, as regards after-effects, severe headache was the most commonly met with and lasted sometimes for days. Pain in the back was not uncommon. Retention of urine and paralysis for considerable periods of time had been often noted on the continent. He believed that diabetics were a class of patient in whose case, when operation was necessary, spinal analgesia might be urged, and that it should be valuable for naval and military service. Otherwise he thought that it was advisable only when general anæsthesia was markedly contra-indicated.

Mr. H. TYRRELL GRAY (London) said that his interest in spinal analgesia was solely concerned with its power to prevent surgical shock. If afferent impulses were completely blocked, then surgical shock was positively abolished. He would say nothing of the psychical origin of shock, for in children upon whose cases he had worked he saw no evidence of it. The most pressing problem, he said, was the accurate localising of the effect of the spinal analgesic. If localisation of effect were only accurate enough it would be safe to inject at any level, provided the respiratory nerves were not interfered with. If accurate localisation were achieved there would be, in his opinion, but one contra-indication—viz., spinal disease.

Professor J. T. MORRISON (Birmingham) preferred tropococaine to all other analgesics, and believed it to be the least toxic. In 173 cases he had met with none to give him any anxiety, and he had used spinal analgesia for patients of ages ranging from 10 to 81 years. Severe headache was the only noticeable after-effect in his experience; relaxation of the sphincters caused by the analgesic he had met with.

Legislation on Anæsthetics.

The PRESIDENT proposed a recommendation to the Council of the British Medical Association that

The Section of Anæsthetics fully approve the form of the proposed legislation suggested by the General Medical Council and by the Departmental Committee of the Home Office respectively, and recommend the Council of the British Medical Association, on behalf of the Association, to take such steps as they may think desirable to represent to the Privy Council and to the Home Secretary the need for the proposed legislation in the interest of the public safety.

He alluded to the present unsatisfactory position of unrestrained unqualified practice in anæsthetics and to the gratifying fact that the two bodies which had the matter under consideration had now reported in practically identical terms. Further, in answer to Sir William Collins in the House of Commons, the Home Secretary had promised to initiate legislation. Now, therefore, was the opportune moment for the British Medical Association to express itself in the same direction and to lend its support.

Mr. DIGBY COTES-PREEDY (London), in seconding the recommendation, discussed the proposed legislation from a layman's point of view, and from that standpoint it was, he said, to be most highly desired. There were no restrictions upon the sale, as there were none upon the use, of anæsthetics, which bodies were among the most dangerous that could be employed. He was only quoting from one of the reports referred to when he said that "this irregular state of affairs constitutes a grave menace to the public."

Sir WILLIAM COLLINS (London) said that he came to the meeting to learn from specialists, and he hoped to find answers to one or two questions which were sure to be asked in opposition to the proposed legislation. If such legislation were to come about future chroniclers might well be able to point to it as the first important step in the restraint of unqualified practice generally, and such a step might well be instituted in connexion with anæsthetics, for this was a case where the dangers of unqualified practice were extreme. It was not here a question of some trifling act or harmless drug, but it was a question of the abolition of consciousness and of the employment of some of the most potent drugs we possessed. He had asked the Home Secretary what action the Home Office would take on the reports of the General Medical Council and of the Departmental Committee, and the answer was that the reports were under consideration and that the Home Secretary hoped to propose legislation with regard to them. As to the educational side of the matter, he was referred to the recommendations of the President of the General Medical Council. Sir William Collins asked for specific information as to what the members of the section desired with regard to the respective powers of medical and dental practitioners where anæsthetics were concerned. There was never a time, he said, when the House of Commons was more favourably disposed towards the demands of scientific opinion, but members wished to feel sure that the latest word of science was really the last.

Professor MORRISON thought that the demands of the proposed legislation were too ideal and that the profession should be ready to take less. It was not practicable, he thought, to demand the presence of two qualified persons whenever an anæsthetic was administered.

Dr. V. G. L. FIELDEN (Belfast) spoke upon the necessity for education in anæsthetics.

Professor A. WALLER (London) thought that education was needed, too, for those who taught.

Mr. BUTLIN (President of the British Medical Association) alluded to the question of anæsthetising by dental practitioners in non-dental cases, an arrangement which appeared to be sometimes convenient in the country towns, and he also stated that he would be glad to further the prospects of the resolution when it came before the Council of the Association.

The recommendation was carried without dissent.

DERMATOLOGY.

FRIDAY, JULY 29TH.

President, Dr. PHINEAS S. ABRAHAM (London).

Some 18 cases of clinical interest were shown before the meeting commenced. Amongst these were examples of urticaria pigmentosa, Raynaud's disease, erythema perstans, ichthyosis, leucoderma, canities, multiple fibromata, and morphœa, together with cases of X ray dermatitis and X ray ulcers successfully treated by Hilton's method.

Sir JONATHAN HUTCHINSON (London) read a paper on

The Doctrine of Palæogenesis in Reference to Certain Symptoms.

As illustrations of this doctrine he dealt chiefly with certain modifications displayed by the integument of animals, including man. These changes concerned colour most frequently and most conspicuously, but were by no means restricted to it, for other modifications in the integument and its accessory structures often led to manifestations even more conspicuous than colour. All these conditions were subject to the laws of inheritance, but his contention was that there existed a fundamental and back-reaching inheritance which might overrule the forces usually classed under that name, and might bring the most varied species under its power. Atavism was a well-known term denoting inheritance from approximately immediate progenitors. Palæogenesis was a new term designed to include an infinitely wider range of facts, and to imply inheritance independently of species and to some extent independently of time. He suggested two hypotheses as a convenient means of explaining the colouration of the skin and appendages of animals in general. The first was that an archetype of the cutaneous envelope of the body common to all had been transmitted by inheritance with various minor modifications, all of which were capable of transmission by inheritance. The second hypothesis was that the parent form of the infinite variety of existing creatures was a cylindrical worm, constructed in rings, without limbs, and covered by skin, which was a very complex structure, containing great possibilities of growth and development. It consisted of several layers, enclosing in itself the germs of such structures as hair, nails, glands, and even teeth, and also elements capable of producing various colours. At a later period the limbs were formed by budding out from the sides, and in so doing they affected the distribution of the colours already present in the skin. The limbs pushed before them long pouches of the body-skin with its stripes or rings or spots of colour. This was definitely illustrated by the stripes of a zebra, for example. The conditions occasionally seen in the human subject in connexion with which he invoked the theory of palæogenesis were illustrated by the following: First, unilateral streaks on the neck, trunk, and limbs. To these the term "herpetic ichthyosis," or "unilateral ichthyosis," and many others had been given. Perhaps the term "Blett's bands," commemorating their first observer, and not involving any theory of cause, was the best. These streaks ought not to be described as unilateral, for they were almost always bilateral, although usually very unequal in their development on the two sides. We might recognise two forms of these bands: one in which the hand was long but narrowed, and did not branch; and another in which it spread out in a paniculate manner like herpes zoster. These conditions were rare, but were fairly well illustrated in the Clinical Museum in Chenies-street, London, to some extent in the New Sydenham Society's "Atlas," and in some of the dermatological atlases. One of such examples was the linea fusca. Our forefathers knew under this name a brown line which extended from the pubes to the umbilicus or even to the epigastrium, and which assumed a deeper tint in pregnant women. It was an illustration of the fact that there was in the pregnant state a tendency to increase of pigmentation. Such conditions, however, were not peculiar to women, nor were they peculiar to the pregnant state. The linea fusca was the abdominal streak common to most animals made conspicuous by pigmentation. In the male sex it was often not only pigmented but grew hair; a band of hair might also unite the pubic patch with another patch on the mid-chest. In the human subject the dorsal streak, so common and conspicuous in animals, was seldom well-marked. It was said to be evident in Japanese children in the earliest months of life, and it could be recognised in many adult males. It was seen especially in those of dark complexions and of the Semitic family. With it were associated the manes of animals and a growth of hair over the lumbo-sacral region; he had been accustomed to call the growth of hair in this region "the porcupine patch," since it was the part upon which the porcupine developed its quills. Virchow observed it in the human subject, and attributed it to defects in the spinal column, the so-called spina bifida occulta, but he (Sir Jonathan Hutchinson) believed that it was the remains, palæogenetically, of the "porcupine patch."

Dr. J. L. BUNCH (London) read a paper on

Vaccine Therapy.

He said that vaccines were now used for widely differing diseases, but their action in cutaneous diseases was of special importance and served as a control (so to speak), because the result could be watched more easily than in diseases where the manifestations were internal. Dr. G. Pernet and himself had published already some papers on the treatment of skin

diseases by vaccines,[1] and he (Dr. Bunch) had also written on the subject in THE LANCET of Jan. 19th and March 23rd, 1907. In many cases the lack of success was due to the fact that a mixed infection was present. For example, an ulcerative lupus vulgaris had been treated unavailingly with injections of tuberculin; cultures were then made, and staphylococci were found, and when staphylococci as well as tuberculin were injected immediate improvement resulted. Later the same patient had returned with the disease as bad as before treatment had been instituted. Cultivations proved that the bacillus coli was now present, and when a vaccine prepared from the bacillus coli was injected the lupus completely healed. The determination of the correct dose was very difficult; a patient who had not improved with a dose of 1·5000th of a milligramme of tuberculin had responded to a dose of 1-20,000th of a milligramme. He remembered a case of acne vulgaris which had been treated for some time with staphylococcal vaccines in varying doses without benefit; the opsonic index to staphylococci was found to be 1·45, so an injection of 20 million of acne bacilli was given with great improvement, but a repetition of the dose at the end of three weeks had had no good effect, and it was only when, after several failures, the dose had been reduced to 5 million bacilli that the lesions began to improve and finally cleared up. The treatment of localised streptococcal infections did not always necessitate the use of vaccines, but in cases with rapid spread of the infection, such as those cases of erysipelatous inflammation in which the streptococcus had entered through a mucous membrane, small doses of vaccines acted very favourably. A more unusual case which had come under his care was that of a man bitten on the hand by a cat. A dermatitis had spread from the wound to the whole hand and forearm, with considerable œdema. A pure culture of streptococcus pyogenes longus had been obtained from the wound discharge and also from an incision in the arm, and the opsonic index to streptococci was 5·3. Of a vaccine prepared from this culture a 5 million dose was given, and six days later a 10 million dose, and the dose was increased afterwards to 50 millions. The wound was also scraped and the arm incised with excellent results. It was a good working rule to inject smaller doses of dead cocci in proportion as the inflammation was more acute. This applied not only to cases of direct streptococcal infection by traumatism, but also to spreading erysipelatoid streptococcal infections where the site of inoculation could not be definitely determined. The administration of vaccines by the mouth had proved unsatisfactory and he never employed it.

Dr. J. GOODWIN TOMKINSON (Glasgow) read a paper on a case of

Pityriasis Rubra Pilaris

which he had shown at a meeting of the Glasgow Medico-Chirurgical Society on Dec. 10th, 1909. The patient, who was a man 30 years of age, stated that 16 years ago, after commencing work as a lithographic stone polisher, the palms of the hands became red and thickened. Seven months ago follicular papules had appeared on the proximal phalanges of the fingers, and later on the middle phalanges of the third and fourth fingers, and subsequently on the back of the hands, affecting in the main the skin over the first, second, and fifth metacarpal bones. Later the fronts of the wrists, the outer aspects of the forearms, and the backs of the elbows had become affected. Isolated follicular papules were seen on the lower abdomen, and large, horny, dark-grey follicular papules were seen over the dorsal convexity of the spine. In the summit of the inter-gluteal fold namely, over the sacrum—the papules were closely aggregated, presenting a verrucose appearance, and a similar condition was present over both ischial tuberosities. The knees were similarly, but not so markedly, affected and there was some hyperkeratosis where the boot was laced. The soles of the feet were erythematous, the neighbourhood of the heels was markedly hyperkeratotic, and also the centre of the right sole. The forehead was slightly erythematous. A few comedones were present on the face and back of the neck. The scalp was scaly, but not markedly so; the affected areas of the hands, fingers, intergluteal fold, and ischial tuberosities were slightly erythematous. The erythema appeared to begin perifollicularly and to spread laterally until neighbouring centres of origin coalesced into a continous patch. The finger-nails were longitudinally striated. The papules throughout were distinctly follicular and contained a central horny cone. On passing the hand over the lesions a distinct grater-like sensation was experienced. There was entire absence of itching and other subjective symptoms; the general health was good and the urine was normal. Histological examination of a section of skin taken from an affected area of the right hand revealed hypertrophy of the corneous and mucous layers of the epidermis, especially well marked in the region of the hair follicles, where the hairs were ensheatbed by horny accumulations of the hypertrophied lining of their follicles. Here and there the dermis showed slight infiltration. Stelwagon had observed that the disease originated in the majority of cases in childhood or early youth. This suggested some as yet undiscovered congenital deficiency in the cutaneous tissues, and the increased cornification might be a protective effort on the part of nature.

Dr. J. F. HALLS DALLY (London) read a paper entitled

Recent Experiences in the Treatment of Favus.

He had had personal experience of favus in the London County Council Special School in the East-end of London, which had been opened in June, 1906. Since that time 152 children had been treated for this disease. X ray treatment was commenced in May, 1908. Of the 152 children 82 had had X ray treatment, and 132 had been discharged recovered, 1 had been discharged for observation, 7 had been discharged with no note as to their condition on leaving, 11 had left for various private or family reasons, and 1 had died from pulmonary tuberculosis. In all the cases described as "cured" there had been careful microscopical examination of the hairs, and the majority had been kept under observation after leaving the school. In only one case was any fungus found a year and a half later. During the six months ending in June, 1909, there were 24 children admitted; during the six months ending in December of that year there were only 7 cases admitted. In May, 1910, the school was closed from lack of new cases to be treated. With one exception (Irish) all the children had been aliens. In many cases the sulphur-yellow scutula and cups described in the text-books had not been present. Kienbock's method, as described by Adamson in THE LANCET (May 15th, 1909, p. 1378), was employed when administering the X rays; by this method the entire scalp was epilated in five exposures. He had found the Chabaud and the Dressler tubes the most suitable, the latter having the advantage for its cheapness and capacity to stand a large current. Pure izal or cyllin was painted on weekly, or dilute ointment of ammoniated mercury was rubbed in daily, and in nine weeks the hair began to grow again.

Dr. G. PERNET (London) read a paper on a case of

Pemphigus Vegetans.

He said that this disease had been mistaken for syphilis until described by Neumann, and the mistake continued to be made now and then even by dermatologists. In the case of which details were given the patient was a man aged 39 years, who had had gonorrhœa at the age of 19 years but had had no history of syphilis. The disease commenced when he was 37 years of age; it first attacked the upper lip, and during the ensuing six months it spread to the pubes, groins, thighs, face, scalp, and axillæ. Some X ray treatment had had no good effect. The case had also been recorded as one of generalised condylomata and treated with anti-syphilitic remedies. Later he had had arsenic, quinine, iron, and creolin baths and soothing lotions. The face, scalp, and thighs had become covered with thick yellow crusts over soft papillomata, and in the axillæ these growths had resembled epithelioma. Over other parts of the body there had been raw discharging sores. The temperature had risen to 100 2° F.; the urine contained no albumin or sugar. Polyvalent serum had been injected with marked benefit, but relapses had occurred. At one time staphylococci had been found in the blood. A blood count had revealed polymorphonuclear cells, 65 per cent.; large mononuclear cells, 2·5 per cent.; lymphocytes, 18·5 per cent.; eosinophiles, 13·5 per cent.; and transitional forms, 0·5 per cent. The patient died, and at the necropsy there had been found a fatty liver, an enlarged soft spleen, cloudy swelling of the cortices of the kidney, vegetations at the edge of the pulmonary valve in the heart and in the lower lobes of both lungs, areas of semi-solid tissue, œdematous and friable. Pemphigus vegetans was undoubtedly due to the action of some micro-organism. At the meeting of the British Medical Association in 1904 he

[1] British Journal of Dermatology, October to December, 1906.

had described a case in which a pure culture of the bacillus pyocyaneus had been found in one of the bullæ.

Dr. DAVID WALSH (London) read a paper on

Plant Dermatitis

among the lily-pickers in the Scilly Islands. On proceeding to the islands for the purpose of investigating the disease he found that it attacked both those who picked and those who packed daffodils. It appeared on the hands and arms, also on the face, and in some cases became generalised. Some pickers escaped the disease altogether, some had only one attack, and some were so susceptible that they could not go on with the work. The most severe cases occurred in persons who had a scratch or cut on the hand. Certain varieties of daffodil were more poisonous than others. In a typical case the arms were covered with a discrete papular erythema, but in some cases there were vesicles and pustules. A generalised toxic disturbance occurred when the plant juices came in contact with a broken skin surface in some cases. Experiments with juices, tinctures, and active principles isolated from the daffodils had for the most part yielded only negative results. They had been conducted on Dr. Walsh himself, and he might be an immune individual. Inoculation with fresh juice of pheasant eye narcissi and with tincture of Scilly White produced a severe reaction with superficial excoriation of the epidermis.

Mr. WILLMOTT EVANS (London) drew attention to some points in connexion with the

Treatment of Hirsuties.

He recommended electrolysis for this purpose in preference to the X rays, which acted only as a temporary depilating agent. Strict cleanliness and antiseptic precautions prevented pustulation, and with a small current scarring did not occur.

Dr. R. B. WILD (Manchester) read a paper on some cases of

Actinomycosis,

with especial reference to treatment by potassium iodide. He said that for over ten years there had been no cases in Manchester, but in 1907 and 1908 four cases had come under his observation. The first case occurred in a lad aged 19 years, who had worked at "odd jobs," including the care and feeding of pigs. He had had swelling of the left cheek and abscesses for 14 weeks; these had been opened, and he had been given iodipin. X ray exposures were tried thrice weekly for a month without any benefit. Potassium iodide was then given in 40- and 60-grain doses three times a day and afterwards more frequently, the total maximum doses being 240 grains. Owing to the rapid elimination of the drug it was better to administer it in frequent doses, 30 to 40 grains to an ounce of water, taken in a cup of milk every two or three hours. The patient continued the treatment for 194 days without symptoms of iodism, except for a few days when he had "a cold." He was then so much better that he left the hospital and attended as an out-patient for six months longer, taking 60 grains daily of potassium iodide. He had been seen at intervals during the present year, and he remained well except for some swelling round the left eye and around the scars of the abscess incisions. In all he had taken 27,255 grains of the drug in 13 months. In the second case the patient, who was a butcher, aged 56 years, had taken small doses of potassium iodide very irregularly and had died from exhaustion in five months. The third case was that of a foreign Jewess, aged 43 years, seen first in February, 1908. Her condition had resembled, but had been less severe than, Case 1, the whole of the left side of the face and neck being swollen and studded with nodular inflammatory swellings; some of these were broken down and discharged pus and sero-pus, which contained actinomyces. She attended a hospital as an out-patient, and in addition to local sedative lotions she was given 120 grains of potassium iodide daily in divided doses in milk. She ceased to attend, considering herself well in eight months, by which time she had taken 13,280 grains of the drug. She was seen again in January and in May, 1910, and remained well. In Case 4 the patient was a woman, aged 40 years, who had undergone laparotomy for a tumour in the right iliac region behind the bowel. A few months later a red brawny swelling on the right hip broke and discharged, and a sinus was present in the scar of the operation. Actinomyces having been found in the pus, potassium iodide was at once ordered. The patient improved somewhat, but fresh places broke out again in spite of increased doses of the drug. She became too weak to take the iodide and died from exhaustion six weeks later. The necropsy revealed a healthy appendix and extreme infiltration in all the muscles round the hip, also in the bones of the pelvis and the lumbar vertebræ, and a perforation of the ascending colon. No source of infection was traced in these four cases. None had come under observation until some months after infection. No connexion between the cases could be traced, nor had they known any similarly affected individuals. The fact that such enormous doses of potassium iodide had been taken without any untoward symptoms was of interest. The diuretic action of large doses of a potassium salt was a possible explanation of the fact that symptoms of iodism occurred usually in cases where small doses were administered. When 120 grains of the drug were being taken daily other salts should be cut off, and foods containing common salt should be eliminated from the dietary.

Dr. ALFRED EDDOWES read a paper on the

Treatment of X Ray Burns.

He said that slight chronic cases of dermatitis on the backs of the hands were advantageously treated by the compound tincture of benzoin, painted on while the cracks were opened. It was a flexible dressing and its colour tended to exclude the light. The painful chronic ulcers which were rebellious to all ordinary remedies should be treated by Hilton's method. Around the ulcer was a degree of fibrositis causing tension on the nerve fibres. The problem in such cases was, to what depth and in what direction should the incision be made in order to relieve the nerve pain and to enable the gap to be filled up with healthy tissue. Dr. Eddowes then described the case on which he had operated, the details of which had been published by Dr. Agnes Savill in THE LANCET of Dec. 19th, 1909. The ulcer on the shoulder had broken down again in March, 1910, because the first incision had not severed the nerves coming up behind the humerus. Incisions should be deep enough to cut through all the nerves without endangering the vitality of the flap.

The PRESIDENT of the Section read a paper on

Some Varieties of Molluscum Contagiosum.

He said that the usual form of this disease was readily recognised by its pearly umbilicated excrescences, but some rare forms which had come under his observation were not diagnosed without difficulty, and he had not yet seen any published description of such forms. There was a variety in which the tumours were imbedded in the skin, with no elevation above its surface, and in which the central umbilication was hard to detect. He had seen such a form on the hands, and the microscope had verified the diagnosis. There was also an agminate variety in which the little tumours were so closely set together that they formed a flattened patch, somewhat raised above the surrounding surface of the skin. He had recently seen such a case in a young woman; she had on her neck a brownish, rough, and scaly oval patch of irregular outline, measuring 3 by 2 centimetres. This had been regarded and treated as "eczema," and at first sight it had resembled a chronic indurated eczema. The presence of other mollusca bodies in the neighbourhood had led him to suspect the patch, and the microscope had confirmed the diagnosis. He had been able to confirm Sir Jonathan Hutchinson's original observation, that the disease was found in those who frequented Turkish baths.

DISEASES OF CHILDREN.

FRIDAY, JULY 29TH.

President, Dr. ARCHIBALD E. GARROD (London).

Dr. J. MCCAW (Belfast) described a remarkable case of

Cyclical Vomiting

accompanied by acetone and diacetic acid in the vomited matters, breath, and urine. The patient, a female child, experienced the first attack at 2 years and 9 months, suffering for several hours with persistent vomiting and urgent dyspnœa. Six months later a similar paroxysm occurred, severe vomiting lasting three days and ceasing suddenly; dyspnœa was not so marked. A month later the third attack set in with slight vomiting but very intense dyspnœa resembling the air hunger of diabetes. At 3 years and 7 months the fourth attack came on, vomiting continuing

for 36 hours without dyspnœa. Calomel was administered, and a considerable increase in the carbohydrates was ordered in addition to proteid and fat in the dietary. A later attack was most severe; the urine was reduced to 2 ounces in the 24 hours, the child being cyanosed and apparently moribund. Two drachms of bicarbonate of soda were administered by the bowel, digitalis and ammonia being also given, and ultimately recovery took place.

Dr. R. HUTCHISON (London) commenting on the case said that the severe air hunger was very exceptional. In this condition the relation of vomiting to acidosis varied. In some cases acidosis preceded and apparently caused the symptoms, while in others acidosis followed the vomiting or was absent entirely. Probably more than one condition was included under the term cyclical vomiting.

Dr. F. LANGMEAD (London) said that there were: (1) cases in which acetone and diacetic acid occurred without symptoms; (2) cases in which these bodies accompanied other obvious disease, such as epidemic diarrhœa, pneumonia, septic sore-throat, diabetes, and others; and (3) cryptogenic acidosis, such as those of cyclical vomiting and delayed anæsthetic poisoning, in which drowsiness and headache occurred with furred tongue, glassy eyes, and signs of cerebral irritation or air hunger. Ten fatal cases had been recorded. The etiology was not understood. After anæsthetics a child might suffer at one time and not at another—so it was not idiosyncrasy; neither did it follow starvation with any constancy or carbohydrate withdrawal. Alkalies had been given without benefit in many cases, and in the five necropsies which had been made there was remarkable fatty degeneration of the liver.

The PRESIDENT considered that the question of etiology was more complicated than had been suggested. Oxybutyric acid was behind the acetone and diacetic acid found in the urine, and all the symptoms were the result of a profound blood change.

Dr. W. ESSEX WYNTER (London), Dr. ERIC PRITCHARD (London), and Mr. SAMUEL CATHCART (London) also spoke, and Dr. MCCAW replied.

Mr. J. KEOGH MURPHY (London) described by means of lantern slides the results of

Radical Treatment of Tubercle in the Ankle-joint and Tarsus in Young Children.

Diagrams were shown indicating the extent of disease and the wider range of excision, with the evidence of regeneration of bone in a number of cases.

Mr. D'ARCY POWER (London) and Mr. FRANCIS W. GOYDER (Bradford) discussed the subject, warmly congratulating the author on the excellent results of the "most conservative" treatment hitherto adopted.

Dr. OLIVE ELGOOD (Birmingham) read a paper on the

Practical Analysis of Human Breast Milk with Regard to Clinical Conditions of Mother and Child.

The results of research into the analysis of a number of samples of human breast milk taken throughout lactation from several individuals were embodied in a series of charts presented as lantern slides. The analyses were made for (1) fat and (2) solids not fat. Chart 1 showed observations on milk taken from four nursing mothers chosen at random out of the slum districts of Birmingham. The deductions drawn were: (*a*) Considerable variations in percentage of fat existed in milk taken from the average woman of the city slum; (*b*) constancy of solids not fat simultaneously existed; and (*c*) variations of fat did not depend upon period of lactation—i.e., neither fat nor solids not fat increased progressively in quantity as lactation proceeds. The next four charts showed weight curves of four infants each compared with the normal weight curve of Budin, and each showing the analysis of its respective mother's milk. From these it was found that with a variable quantity of fat the infant growth fell to a greater or less extent below the normal. With a constant quantity of fat the growth rate approximated the normal. The next three charts showed cases where three mothers (chosen for extreme poverty) were given for a definite period two good meals a day. During this time the charts showed a maintained increase in: (*a*) rate of infant growth; and (*b*) curve of fat percentage. In these the solids not fat showed no quantitative increase, suggesting that the fat is the most important constituent for the child's growth, and showing forcibly also the dependence of fat quantity, and hence of the infant's health, on the feeding of the mother. The last chart showed figures illustrating the relation of fat content to total quantity of breast milk at any given time. This, though (inversely) proportional to some extent, was not definitely so, as stated by some authors, notably Engel. This chart also showed that variations in the total quantity obtained at any time were independent of: (1) time of day, and (2) period of lactation. The paper also included a review of work already done on this subject and a description of the author's technique for the analyses.

Dr. LANGMEAD and the PRESIDENT commented on the subject.

Mr. H. TYRRELL GRAY (London) read a paper on

Lesions of the Isolated Appendix Vermiformis in the Hernial Sac.

A case was reported of a male child, aged 8 weeks, suffering from a large irreducible right inguinal hernia. At the operation the sole content of the hernial sac proved to be rather more than half the appendix vermiformis, which was inflamed, swollen, and surrounded with a large mass of plastic exudate. At its distal extremity the appendix was sharply kinked and perforated in all but its peritoneal coat. A drawing of the specimen was shown illustrating the inflammatory nature of the lesion and the complete absence of any evidence of strangulation. Reference was made to the rarity of this lesion, particularly in children, and attention was called to the contradictory opinions expressed as to the relative frequency of inflammation to strangulation. Fifty-eight cases were collected from the literature, foreign bodies, with one exception, being excluded. The analytical table of these cases showed that strangulation was twice as frequent as appendicitis, and occurred most commonly in femoral herniæ in women; the reason for the frequency in this situation was shown to be an anatomical one. The narrative and the symptoms supported the grouping of these cases, which received additional support from the observations at operation or necropsy. It was shown that a consideration of the history, symptoms, and physical signs rendered it possible to suspect the nature of the lesion in a certain number of cases, and the following conclusions were drawn: 1. Strangulation is twice as frequent as inflammation. 2. Diagnosis (collectively) rests on the symptoms and local signs. 3. Differential diagnosis rests on a combination of the following points: (*a*) age and sex; (*b*) the situation of the hernia; (*c*) narrative past and present; and (*d*) local signs, particularly in regard to rate of increase and actual size of the hernia. 4. The deceptive appearances at operation are likely to lead to accidents. Finally, the deaths, seven in number, were either due to failure to realise in time the serious nature of the lesion or to attempts at reduction by taxis. These fatalities were a warning against routine taxis and called for more detailed diagnosis of the contents of the sac in irreducible herniæ and earlier operation in doubtful cases.

Mr. R. CAMPBELL (Belfast) and Mr. HERBERT WADE (Enfield) cited additional cases.

Dr. ERIC PRITCHARD commended the use of

Banana Flour in Infant Feeding

in the proportion of one ounce to one pint of hot milk. It was cheap, wholesome, rendered the milk more digestible, and possessed a high nutritive value. The following comparative analysis was given:—

	Albumin.	Carbohydrates.	Fat.	Ash
Banana flour	2·8–4·3	..... 77·7	..... 1·0	..... 2·7
Proprietary banana flour	13·0	..... 67·0	..... 3·0	..... 2·5
,, barley food ...	5·13	..... 82·0	..... 0·97	..... 1·93
,, oods (cereal)	9·2	..... 81·2	..... 1·0	..... 0·7

GYNÆCOLOGY AND OBSTETRICS.

FRIDAY, JULY 29TH.

President, Dr. MARY A. SCHARLIEB (London).

Professor W. NAGEL (Berlin), in an interesting paper entitled

Is it Justifiable to Remove the Other Ovary if it Appears Unchanged when Removing a Proliferating Papillary Ovarian Cyst?

brought forward a number of statistics in support of the view

that it was not justifiable to remove the other ovary. According to Schmidt's and Lechner's statistics of Tauffer's clinic, 8·33 per cent. of all ovarian cysts were papillomatous. Tauffer reported that in 33 per cent. of his cases the disease was unilateral, and in 67 per cent. bilateral. Glochner reported from Zweifel's clinic that 60 per cent. of cases were bilateral. Hohn (Kiel) operated on 34 women for unilateral papillomatous cysts; in 18 there was no recurrence. Tauffer in 17 cases of unilateral cysts had traced 8 alive after five years. Hoffmeier in 30 cases of unilateral ovarian carcinoma had a recovery of 50 per cent.; 15 died in the first eight years. Tauffer out of 9 cases of unilateral ovarian carcinoma had 2 alive ten years later. Professor Nagel argued that the tendency of the second intact ovary to become carcinomatous was not great enough to indicate its extirpation. Hoffmeier reported 3 cases (2 carcinomatous, 1 innocent), Tauffer 3 cases (1 carcinomatous, 2 innocent), and Tromme 1 case (innocent) of unilateral papillomatous cysts in which the patient became pregnant and gave birth to a child after removal of the tumour. The speaker related two similar cases, and concluded that the extirpation of the healthy remaining ovary in papillary cystoma was held to be superfluous by Pfannenstiel, Glochner, and others. Even in carcinoma the same affection in the other ovary was not frequent. He thought that the danger of a possible second operation was in a young woman outweighed by the advantage of preserving the other ovary, which was proved by the cases of pregnancy reported to have occurred after the unilateral operation.

Professor S. GOTTSCHALK (Berlin) agreed entirely with Professor Nagel, and reported the case of a patient, aged 23 years, from whom he removed a large proliferating ovarian cyst and who afterwards became the mother of three children. He advocated the hemisection of the apparently healthy ovary in order to ascertain its condition.

Dr. J. A. C. KYNOCH (Dundee) remarked that in all the cases of multilocular ovarian cysts with papilloma that he had observed disease had followed in the other ovary, and therefore he advocated removal of both ovaries in these cases, but with papillomatous cysts he did not think the risk nearly so great, and that, if the patient was under 40 years of age, he would leave the second ovary.

Dr. J. MUNRO KERR (Glasgow) pointed out that it was most important to remember that papillomatous cysts varied in malignancy, and also that if the ovary was thought to be malignant then the uterus should be extirpated as well.

Dr. H. SPENCER (London) had never removed an ovary when it appeared to be normal, except for fibromyoma of the uterus. He regarded most papillomatous cysts as innocent, and out of 200 ovarian cysts he had removed, 50 were papillomatous. He did not think because there was carcinoma in one ovary therefore the other ovary would become carcinomatous.

Dr. W. W. TATE (London) stated that in his experience malignant papillomatous disease of the ovaries was always bilateral, and because of this, if he operated upon a case of malignant papillomatous disease of the ovary where the other remaining ovary was apparently healthy, he would nevertheless remove it.

Dr. W. BLAIR BELL (Liverpool) maintained that the importance of Professor Nagel's conclusions centred on the pathological findings. He agreed with the frequency of papillomatous tumours, but did not think because there was a great increase of the surface epithelium therefore the tumour was malignant. He diagnosed malignancy when the stroma had been definitely invaded. The important point was whether the malignancy or otherwise could be diagnosed at the time of operation. In some cases this could be done. For instance, cysts arising from the hilum of the ovary close against the broad ligament were innocent and the diseased ovary only need be removed. He thought that if there was any doubt as to the malignancy of an ovarian cyst at the operation, a frozen section should be at once made, which would take five minutes, and the question could then be settled.

Dr. LOUISE MCILROY (Glasgow) stated that in her experience papillomatous ovarian disease was usually bilateral. There was no clearly defined line between malignant and non-malignant cases from a macroscopical point of view. She quoted particulars of two cases where the cyst looked perfectly innocent, but was found on microscopical examination to be carcinomatous. She had knowledge of two cases where the uterus became involved with the cysts, and thought, therefore, that the uterus should always be removed in these cases.

Dr. F. MYER (Melbourne), after 22 years' hospital experience, felt bound to disagree with Professor Nagel, and thought that both ovaries should be removed.

The PRESIDENT thought it very difficult to be sure of a frozen section test, since she remembered one case in which the tumour was as large as a child's head, and on examination an adeno-carcinoma was discovered in one little portion only. As the result of her experience she regarded ovarian cysts as worse than solid ovarian tumours.

Dr. LOUISE MCILROY read a paper on

The Surgical Treatment of Fibrosis of the Uterus.

She held that palliative treatment of fibrosis of the uterus by means of drugs and pessaries was of little value, as the relief was of a temporary nature only. In the early stage of the disease fixation operations might prevent further advance in the condition, but in more pronounced cases they were useless. Curetting (sometimes repeated) gave relief from symptoms such as leucorrhœal discharges, but had not much effect if there was marked menorrhagia. For cases where there was considerable hæmorrhage the only treatment advisable was hysterectomy, and this operation should be performed without delay when it was found that other minor operative measures had proved ineffectual. She reported a case where repeated curettings were performed, later ventrofixation of the uterus, and finally hysterectomy had to be done for a cure of the patient's symptoms.

Dr. TATE had found that hysterectomy was the only cure for this class of case.

Dr. J. CURTIS WEBB (London) had treated a case very successfully by ionisation of zinc, placing the positive pole in the uterine cavity to get styptic effects. Theoretically, it would have been better to have placed the negative pole internally, as the negative pole caused softening, but it had the disadvantage that it also produced hæmorrhage, which was the principal symptom in fibrosis. The case he reported had been cured after 15 treatments, all other medicinal methods having failed.

Dr. COMYNS BERKELEY (London) did not see how ventrofixation could in any way alleviate the hæmorrhage due to fibrosis of the uterus, neither would he expect it to do so. He had had a large experience with these cases, and with the exception of electricity and steaming the uterus, had tried all the different methods of treatment advocated, and had found that hysterectomy was the only satisfactory method of treatment. The most difficult cases to deal with were those in which the patient was a young woman, say below 40, and in whom for this reason hysterectomy was a more serious procedure. He thought that many of these cases might be cured by Kelly's operation of cutting a wedge-shaped piece out of the uterus, thus reducing the size of this organ, and he had known this treatment to be successful in three cases.

Dr. HASTINGS TWEEDY (Dublin) advocated steaming of the uterus.

Dr. SPENCER thought that Kelly's operation was a good one in certain cases, and he also had had success with steaming of the uterus. When the case was approaching the menopause he thought that every endeavour should be made to postpone hysterectomy, and in these cases the arrival of the menopause cured the condition.

Dr. BLAIR BELL pointed out that there was a good deal of confusion concerning the pathology of these cases. Fibrosis did not occur unless the uterus had been infected or the patient had had children. He had never seen a case of true fibrosis in a young woman in whom the uterus had not been infected; neither did he believe such cases existed. He would never perform hysterectomy on a young woman with this condition. The cause of the hæmorrhage lay, in a large number of cases, in the endometrium, and he had had great success with calcium lactate, and would quite expect ionisation to relieve the condition, although he had never tried it. In some cases where treatment by drugs had failed he had found the thyroid gland enlarged, and on having this treated with the X rays the hæmorrhage had been cured.

Dr. KYNOCH pointed out that hospital patients could not afford the time for this repeated electrical treatment, and

that in his opinion hysterectomy was the proper treatment.

The PRESIDENT thought that fibrosis might exist at an early age, and that in a large majority of these cases hysterectomy was the only method of cure, that every effort should be made to preserve the uterus in women under 40, but over 40 it did not matter to the same extent. If a woman, therefore, expressed a wish to have her uterus removed rather than spend the best years of her life lying on a couch and suffering from repeated bleeding, she did not think that any obstacle should be placed in the way of having this treatment carried out.

Dr. ARTHUR J. WALLACE (Liverpool), in a paper on

Intra-peritoneal Hæmorrhage in Cases of Uterine Fibromyomata,

remarked that although many years had elapsed since Mathews Duncan pointed out that bleeding in cases of fibroids might occur from the tumour itself, literature contained few instances of such hæmorrhage into the peritoneal cavity. At the present time the number was under 20, and of these several were doubtful examples. Of eight well-authenticated cases, three proved fatal. The writer added a ninth case to these. The patient was a single woman, aged 31 years, whose history gave no ground for suspicion regarding the pelvic organs. After exertion she was seized with sudden abdominal pain and vomiting. She recovered from this, but ten days later had a more severe attack. Her medical attendant saw her and forthwith sent her into hospital. The menstrual history was normal. On examination there was found an abdominal swelling reaching 3½ inches above the pubes. It was extremely tender, and deep fluctuation was apparently obtained over it. Per vaginam the cervix lay far back and high up. A provisional diagnosis of an ovarian cyst with torsion of the pedicle was made. Next day the tumour was found to have doubled in size. Laparotomy disclosed an œdematous fibroid, sessile on the posterior wall of the uterus. The peritoneum contained dark fluid blood to the amount of about six or seven ounces. On the surface of the tumour was a varix, situated over a subperitoneal vein. At the time of operation there appeared to be no cause for the bleeding, although a diligent search was made. Myomectomy was carried out, and it was only after the operation that blood was noticed to be oozing through a small opening on the summit of the varix previously mentioned. Normal recovery followed. All the cases reported to date were briefly referred to, and the various lesions which had led to hæmorrhage were discussed.

Dr. C. J. NEPEAN LONGRIDGE (Cheltenham) read a paper on

Involution of the Uterus,

and pointed out that no advance in knowledge of the process of involution had been made for 20 years or more. He offered suggestions which he hoped would throw some light upon the real nature of the process and lead to further research upon the question. Involution was an autolytic degeneration of the uterine muscle. It took place in two stages—a rapid first stage and a slow second stage. The rapid stage differed from the slow stage in that in the former the uterus was comparatively anæmic and in reaction, whereas in the latter stage the blood was able to circulate more freely through the uterus and the reaction became alkaline. It might be noted that autolysis of tissues took place much more readily in an acid medium. Super-involution was prevented from occurring in the normal case by the fact that the circulation of the blood in the uterus became more free at the end of the rapid stage. The evidence in favour of this theory was partly chemical and was partly based upon clinical phenomena. The practical application of this theory might be found in securing a firmly retracted energetic uterus at the end of labour.

A lantern demonstration on Erosion of the Cervix was given by Professor GOTTSCHALK, and the interpretation of the pathological findings gave rise to an interesting discussion, in which Dr. BLAIR BELL, Dr. LOUISE MCILROY, Dr. COMYNS BERKELEY, Professor NÄGEL, and Professor GOTTSCHALK took part, but the differences in the opinions held, as Dr. Comyns Berkeley pointed out, were evidently due to the fact that the term "erosion" in England appeared to have, from the statements of Professor Nägel and Professor Gottschalk, an entirely different meaning from what it has in Germany.

LARYNGOLOGY.

FRIDAY, JULY 29TH.

President, Mr. HERBERT TILLEY (London).

Mr. SECCOMBE HETT (London) read a paper on

The Anatomy of the Capsule of the Tonsil and its Significance in Treatment of Diseases of the Tonsil.

He divided tonsils which required removal into (*a*) buried tonsils of early life; (*b*) flat tonsils; and (*c*) septic tonsils, usually small, tough, and adherent to the faucial pillars—these caused recurrent sore-throats. Mr. Hett laid it down that if the tonsil in a given case was functioning as a portal of infection it must be removed entire with its capsule. He found that out of 120 tonsils removed by the guillotine there was only one specimen in which the capsule had been removed entire. Usually the whole of the pars palatina was left behind; the tissue left showed active cell division. The guillotine did not destroy the peritonsillar space, and therefore quinsies recurred. In tonsils which showed no abnormal signs beyond hypertrophy the tubercle bacillus was often found. Dealing with adenitis of the cervical glands, Mr. Hett compared the advantages of the intra- and extra-buccal methods of removal. The anatomical relations rendered complete lymphatic extirpation very difficult, for the lymphatics lay in three groups: (1) deep, behind the jugular vein; (2) intermediate, in front of the jugular vein and behind the posterior belly of the digastric muscle; and (3) superficial, in front of the digastric muscle. The paper was supported and illustrated by the exhibition of carefully chosen macroscopic and microscopic specimens.

Dr. DAN MCKENZIE (London) pointed out that the Americans always practised enucleation, on the ground that the tonsil was always assumed to be diseased. In Europe partial tonsillotomy was the commoner practice, the argument being that the stump usually atrophied. Enucleation was a more severe operation, calling for greater skill and leaving a deeper wound. He advocated enucleation for (1) recurrent quinsies; (2) recurrent enlargements; (3) submerged tonsils; and (4) tuberculous infection of the cervical glands. In 50 cases of tuberculous glands Mr. Scott Carmichael had found tubercle bacilli in the tonsils of seven. Dr. McKenzie decried morcellement, which injured the faucial pillars and bruised the tissues. In referring to the anatomical relations, he reminded his hearers of the fascial slip extending from the anterior pillar to the lower anterior pole of the tonsil. He advocated the sitting posture, and pointed out as dangers: (1) cutting the superior constrictor of the pharynx; (2) cutting the faucial pillars; and (3) hæmorrhage, which either ceased of itself, or might be checked by applying peroxide of hydrogen, or pinching the tonsillar artery. In conclusion, he considered the operation of enucleation to be clean, complete, and radical: it was sometimes imperative, often advisable, and never contra-indicated except when the partial operation was also inadvisable.

Dr. STCLAIR THOMSON (London) said that he could remove buried tonsils with the capsule intact, using only the guillotine and volsellum forceps. The guillotine must be so small that it required to be threaded over the tonsil. He showed specimens to prove his contention.

Dr. J. H. BRYAN (Washington) said that in America, realising that arthritis deformans and other diseases might have their septic origins in the tonsil, surgeons left no tonsillar tissue behind. He advocated the use of the cold snare.

Mr. E. B. WAGGETT (London) denied the difficulty of enucleation so long as dissection be not attempted. If the tonsil be seized with Luc's polypus forceps, and then a small puncture made behind the tonsil at its upper pole, air entered between the capsule and superior constrictor and the tonsil with its capsule shelled out with ease. If snares be used there should be two handy. The écraseur of the first was tightened and left on, while the second was similarly treated; then the first snare was removed, and lastly the second. This method checked hæmorrhage. The choosing of an expert anæsthetist was important, because, among other reasons, the anæsthetist was also the first assistant.

The PRESIDENT said that in comparing the advantages of tonsillotomy and tonsillectomy it would be useful to know the relative amounts of after-pain, sloughing, adhesions, and change of voice in the various operations.

Dr. WILLIAM HILL (London) lauded the use of the snare with a small guillotine, but he admitted that after tonsillotomy he always felt heart-searchings as to whether he had left any tonsillar tissue behind.

Dr. J. DUNDAS GRANT (London), in selecting cases for operation by the guillotine, had developed an eclectic attitude of mind, lest he should leave some tissue behind. But the volsellum made it fairly safe. If any tonsillar tissue was left behind the crypts must be destroyed.

Dr. H. LUC (Paris) said that he used Vachez's cold snare, in which two blunt rings worked along a common horizontal axis in opposite directions. 1 per cent. novocain might be injected locally in place of a general anæsthetic.

Dr. J. DONELAN (London) stated that he used enucleation for recurrent cases of tonsillitis (hypertrophic).

Dr. G. W. SPOHN (Indiana) said that in America ether was used as an anæsthetic.

Dr. P. WATSON WILLIAMS (Bristol) remarked that he had noticed that in people who were of a rheumatic diathesis the tonsils were often atrophied; it was fair to argue that in these the portal of infection was unguarded, therefore the total removal of tonsils was undesirable.

Dr. H. L. LACK (London) said that he thought, with Dr. StClair Thomson, that with care the guillotine gave excellent results.

Mr. W. STUART-LOW (London) said that he strongly advocated enucleation in adults, especially when the tonsil had a long attachment extending from the apex to the base. Care must be taken not to dissect deeper than the peritonsillar tissue.

The PRESIDENT deduced at least this much from the mass of conflicting and weighty opinions—that it was necessary to choose the method for individual cases. If the pillars be thoroughly freed the guillotine or snare might in most cases be used.

Dr. W. S. SYME (Glasgow), Dr. L. HEMINGTON PEGLER (London), and Dr. N. C. HARING (Manchester) also took part in the discussion.

Mr. HETT, in reply, said that if Dr. StClair Thomson could, with the guillotine, remove all tonsils entire with capsules as perfectly as the one shown, he (Mr. Hett) could think of nothing better.

Dr. MCKENZIE and Dr. STCLAIR THOMSON also replied.

Dr. HEMINGTON PEGLER read a note on

Headaches in Association with Obstruction in the Nasal Passages.

Dr. Pegler was seriously handicapped by shortness of time and was compelled to give only a *résumé* of a great deal of thought and work on a very wide subject. Headache with an intranasal origin might have as reflex exciting factors: I., of the inferior turbinal—(*a*) erectile tumefaction; (*b*) polypoid degeneration; and (*c*) simple bony hypertrophy. II., of the middle turbinal—(*a*) simple enlargement; (*b*) cystic hypertrophy; and (*c*) polypoid mucous degeneration. The principal reflex foci might be: (A) anterior ends of the inferior turbinals; (B) posterior ends of the inferior turbinals; (C) anterior ends of the middle turbinals; and (D) septum nasi. The pain might be caused by (1) the pressure induced; (2) the pressure induced, *plus* the effect of toxins absorbed through deficient drainage; (3) toxic absorption owing to deficient oxygenation of blood; and (4) inflammatory, arising from the accessory sinuses. Dr. Pegler exhibited diagrams to show pain areas, and that these did not necessarily correspond topographically with underlying sinuses.

The PRESIDENT remarked that if in any case cocaine be applied on successive small areas supposed to initiate headache, the cessation of the pain showed that the spot had been found. He further announced that Professor Onodi (Budapest), who was unavoidably absent, had sent the contribution which he would otherwise have read.

Dr. PEGLER replied.

Dr. R. H. SCANES SPICER (London) read a paper on

Cancer of the Throat.

This paper consisted of further observations on the sites of predilection of malignant degeneration in the œsophagus, pharynx, and larynx in relation to augmentation of strain, stress, and friction incident at these sites in faulty postures and workings of the living body, and discussed the relative displacements in this connexion. Dr. Spicer, like Dr. Pegler, was compelled by shortness of time to deal in brief synopsis with a subject on which he had prepared an exhaustive thesis. He argued that the use of the diaphragm in the abdominal type of breathing was bad, squeezing all the organs in the abdomen, interfering with the portal system, and dragging down the trachea. The soft parts were squeezed against the hard endo-skeleton, and cancer originated in soft tissues near prominent points of bone or cartilage. Extrinsic cancers about the cricoid showed the same thing; they originated at the vocal process or in the anterior commissure—all points where rigid resistance met soft tissues. Cancer was not accidental in its topography; it was no bolt from the blue, but had predilectory sites in the throat.

The PRESIDENT congratulated Dr. Spicer on the large amount of data collected.

Mr. STUART-LOW said that irritation of healthy mucous membrane did not cause carcinoma. The mucosa must first be thin, weakened, and desiccated.

Dr. PEGLER asked Dr. Spicer for further enlightenment as to the real use of the diaphragm.

Dr. SPICER, in reply, agreed with Mr. Stuart-Low and referred Dr. Pegler to Duchesne's "Physiologie de Mouvement."

Dr. WATSON WILLIAMS showed a woman on whom he had most successfully performed an osteoplastic radical operation for frontal sinus suppuration.

Mr. HENRY T. BUTLIN, President of the Royal College of Surgeons of England, proposed a vote of thanks to Mr. Herbert Tilley, the President of the section.

The PRESIDENT of the section, in reply, averred that the thanks of the section were due rather to his honorary secretaries, and thanked Mr. Butlin for visiting the section.

The proceedings then closed.

MEDICAL SOCIOLOGY.

FRIDAY, JULY 29TH.

President, Dr. JAMES ALEXANDER MACDONALD (Taunton).

Dr. J. W. BALLANTYNE (Edinburgh) opened a discussion on

Social Aspects of the Falling Birth-rate.

He said that the "torrent of babies" of which Tennyson had once spoken was now reduced to a rivulet, and it was incumbent on sociology to take account of this new state of things. The experience of the past taught that tampering with the institution of the family led to social disaster, and there was unquestionably a disposition at the present time to attack the foundations of the monogamous system. This tendency was illustrated in the works of certain notorious writers of popular fiction. It was not, however, from this side that the most dangerous attack was being made on the family as the unit of society. A far graver evil was threatened by the growing practice of lessening procreation within the family. In view of this phenomenon he found it hard to wax enthusiastic over eugenics, for he thought that a stock-breeder would be hardly justified in trying to improve the breed by a weeding-out process when he had to do with a rapidly diminishing herd. The statistics of recent years had shown that the limitation of the family was by no means a Gallic prerogative. The process could be seen at work in this country and in the colonies, and in the middle and lower-middle as well as the upper classes. Its causes were very complex. One of the most important was the diffusion of neo-Malthusian literature, and in this connexion he thought that it would be well if more attention were given to ascertaining and making known the effects on bodily and mental health which resulted from the practice of methods for preventing conception. Another great cause was the growing love of personal comforts and luxury. Present-day civilisation seemed to have no room for the baby. Again, there was an increasing tendency to later marriage. There were other possible causes, regarding which he would speak less positively, for he recognised that the nature of their influence was less clear, and there was much to be said for them as well as against them. Amongst such causes he mentioned the higher education of women, their economic competition with men, and the increased employment of women in factories. Possibly the athletic training of girls had some influence also in this direction. He had been assured by one of his patients, who was herself an enthusiastic hockey-player, that girls who went in for that game were never able

to nurse their babies. Finally, he thought that they should not forget the increasing frequency of gynæcological operations which involved subsequent sterility. As corrective measures he advocated the dissemination of sounder notions on sexual matters, and he suggested that it might be desirable to limit the work of women in factories, to give a more specifically adapted character to the education of girls, and to offer fiscal bribes to fathers of families. He was doubtful, however, of the efficacy of many of these remedies, and in any case their influence would probably be slow. Meanwhile, he thought that a great deal might be done to counteract the effect of the falling birth-rate by checking infantile and fœtal mortality. There ought to be more attention given to ante-natal and neo-natal hygiene, and more particularly there should be a more complete and continned medical control of pregnancy. Finally, he urged the medical profession to recognise the duty that lay upon them to help in repelling the attack which was being made on the integrity of the family.

Mr. F. E. FREMANTLE (medical officer of health of Herts) presented a series of statistical diagrams showing the movement of the birth-rate and of population in different countries. He referred to the conclusions arrived at by the Registrar-General as to the amount of the decrease in the birth-rate in this country and as to the large measure in which the decrease must be attributed to voluntary limitation of fertility. It had been proved by Heron in his researches on the relation of fertility in man to social status that undesirable social conditions were associated with a high birth-rate, and this he (the speaker) held meant that the unfit were multiplying faster than the fit and that the quality of the race was being debased. Many causes contributed to keep down the birth-rate. It was abnormally low in towns which were the seat of textile industries employing a large number of women, while it remained high in mining districts where the women were mainly engaged in their homes. Employers advertised for servants without "encumbrances"; in model dwellings families were not admitted with more than two children; even Government departments forbade their servants to marry. In the upper classes the motive for limiting the family was mainly prudential, and behind the conscious motive was the unconscious submission to a false standard of values which led people to sacrifice everything real to the duty of keeping up appearances. The change in women's ideals had contributed much to bring about this evil. The girls' public schools boasted of the strong, determined, well-equipped young women whom they turned out to face the battle of life; but it was a mistake: they were unprepared for married life. Their ideal seemed to be to beat man at his game, but the only resnlt they attained was to get out of practice at their own game.

Dr. J. W. HUNTER (Ruddington) from an extensive study of cases of Mongolian idiocy, maintained that the elder born children of a family were more liable to suffer from defective conditions than the younger ones. In working-class families this held good up to and including the seventh born child. With the eighth born there was a sudden sharp rise in the liability to "defect," and the type of "defect" was more severe than that affecting the elder born; with still later members this liability to "defect" steadily increased. The offspring of parents who were themselves elder born members of a family showed more "defect" than the offspring of parents who were younger members, this holding true up to and including the eighth born parent. It was with the children of the ninth born parent that the marked rise in "defect" was apparent. The "defect" at the close of the large family was generally of so pronounced a type that few such individuals survived to become parents, so that from a practical point of view it was the "defect" among the early born that was of importance. Dr. Hunter's statistics suggested that somewhere about 24 or 25 years of age a woman was best fitted to give birth to her first child, and that with regular pregnancies the power to reproduce well increased steadily until the mother reached 35 years of age, after which it declined very rapidly. He believed that a period of sterility, natural or artificial, lowered the quality of a child subsequently born. As abortion and sterility showed this relation to defect, he was doubtful of the advantages of trying to preserve the products of conception that conld only be saved by special measures of ante-natal hygiene.

Dr. R. C. BUIST (Dundee) pointed out that the conclusions drawn from biometric inquiries should not be accepted in an nncritical spirit. The method was, no doubt, sound from a mathematical point of view, bnt the data to which it was applied and the results which it yielded had to be further considered from the economic and from the biological points of view. In Heron's researches, for instance, which had been referred to in the debate, the results could not be interpreted without a preliminary determination of how far the fact of living under undesirable social conditions was an index to character. He deprecated the assumption that the fall in the birth-rate was necessarily an evil. Whether it was so or not depended in part on the view they took of the economic factors which contribnted to bring it about. He thought that they ought to maintain an attitude of scepticism towards the theories that professed to give a complete and simple explanation of the biological inwardness of a phenomenon of so complex causation as the falling birth-rate.

Mr. J. DULBERG (Manchester) agreed with Dr. Ballantyne as to the importance of counteracting the effect of the diminished birth-rate by preventing ante-natal and neo-natal mortality. He referred especially to the injurious results of bottle-feeding, and instanced the low infantile death-rate in the Jewish districts in Manchester where the women all suckled their babies. He was convinced that much moral and social evil resulted from the employment of women, especially married women, in factories, and he considered that they would be better employed as wet nnrses.

Professor BENJAMIN MOORE (Liverpool) desired as a physiologist to protest against the assumption that a diminution in the birth-rate was something to be lamented. He thought that they ought to be on their guard lest they should seem to be advising people to breed as much as they could. In the lower and middle classes children were produced far too rapidly in the first years of married life. It was not necessary to get statistics to prove this: it was enough to look at the mothers and the children. An interval of three years between each child was desirable. When people talked of the danger of the npper and middle classes failing to procreate they forgot that these classes were being constantly recruited from the more capable members of the lower class. The association of high fertility with unfavonrable environmental conditions was a normal phenomenon. The fall in the birth-rate which had occurred in this country was not excessive, and merely indicated that we were making the proper scientific adjustment to the economic conditions under which we lived.

Dr. GRACE CADELL (Leith) believed that the rise in the average age at marriage was an advantage; the children were stronger when the mother did not begin to bear until she was about 25 to 30. Luxury and vice were the chief causes of diminished fertility. She thought that the influence of gonorrhœa and syphilis in lowering the birth-rate was not sufficiently appreciated. Not only were these diseases, and particularly gonorrhœa, most potent causes of sterility, but the fear of contracting them and so incurring life-long invalidity deterred many girls from marriage. It was the duty of medical men to educate public opinion on this aspect of the question.

Dr. A. W. GILCHRIST (Nice) referred to the influence of social and political ideals in determining the movement of the birth-rate. The present position was the result of the *régime* of industrialism.

Dr. R. E. HOWELL (Middlesbrough) thought that they should regard the question rather as it affected the quality of the population. There were two classes in the State—those who paid and those who got. The second class was not snpported by the State, but by the other section of the State, and the increasing burden which their snpport imposed had a considerable influence in causing the limitation of families in the middle classes. He advocated the sterilisation of drunkards and of other socially noxious persons.

Dr. FRANCES IVENS (Liverpool), speaking as a gynæcologist, wished to endorse what had been said about the importance of gonorrhœa as a cause of sterility. In an inquiry into this matter amongst hospital patients she had found that 14 per cent. of the cases she saw had had gonorrhœal infection, generally leading to sterility.

Dr. W. L. MUIR (Glasgow) said that he was not at all concerned at the fall in the birth-rate. He saw scores of children in Glasgow who ought never to have been born. It was

necessary to have regard to the capability of the country for feeding its inhabitants, and in this phenomenon which so much alarmed people he saw nothing more than the action of nature limiting population to the means of subsistence.

Dr. HELEN B. HANSON (London) remarked that the recent change in the ideals of women was increasing the integrity of family life by making wives the comrades of their husbands. Immorality was an important cause of diminished fertility, and immorality was promoted by keeping the status of women degraded, as could he seen, for instance, in India. The fall in the birth-rate in this country was due, in the first place, to the fact that the present generation were more thoughtful with regard to the future of their children; they realised more fully the risks of transmitting hereditary taints, and they also felt bound to secure that their children should not have to step down in the social scale, as was likely to occur with large families in the middle classes. Another cause of the falling birth-rate was the restriction on the labour of married women, and in this matter the State set a very bad example by compelling women to give up their appointments on marriage. At present, too, women naturally hesitated to marry and have children because they did not know what kind of time their daughters might have in the future.

Dr. ETHEL BENTHAM (London) protested against the tendency of some of the speakers to offer generalisations instead of evidence. She did not believe that healthy muscular development interfered with motherhood. The fundamental causes of the fall in the birth-rate lay in the existing economic conditions.

Lieutenant J. A. CLARK, R.A.M.C., referred to the limitation of the family in the classes from which army officers were drawn, and expressed the belief that an appeal to patriotic feeling would check this tendency.

Dr. B. DUNLOP (Brasted) thought that limitation of the family was necessary, but they should see that it did not occur predominantly in the best sections of the community.

Mr. L W. REYNOLDS (High Wycombe) thought that the speakers had dealt too exclusively with the question as it affected the lower classes. The limitation of the family in the upper classes was a very grave symptom. He thought that the medical profession and the Church could do a great deal towards awakening the public conscience on this matter, and he was glad to mention that the Bishop of Oxford had recently organised a committee in his diocese to investigate the whole question. It was nonsense to talk of having to limit the population while the colonies were hungering for British settlers.

Dr. BALLANTYNE briefly replied on the points raised in the discussion.

NAVY, ARMY, AND AMBULANCE.

FRIDAY, JULY 29TH.

President, Colonel ANDREW CLARK, A.M.S. (T.F.), (London).

Major S. L. CUMMINS, R.A.M.C., read a paper on

Isolation of Disease Carriers and Methods of Dealing with Them.

He said that under European conditions the chronic carrier was not a very great direct menace to the health of his neighbours. But all regular soldiers were liable to serve abroad, and a moment's consideration would show that the potential danger of a "carrier" was multiplied a thousandfold under military conditions in warm climates. In Europe, under peace conditions, the disposal of excreta was likely to be thorough. Flies, now proved by Major N. Faichnie, R.A.M.C., and others to he active agents in the spread of typhoid bacilli from infected fæces, were relatively few. Above all, the average health of the soldier was good. He was under his natural conditions of climate, and in the best position to withstand infection if it came his way. Abroad, all that was changed. The disposal of excreta was often imperfect, flies abounded, and the soldier was under new and unfamiliar conditions of life. Diet, climate, perhaps the exertion of active service, al .tended to lower his health and diminish his resistance, while at the same time the paths of dissemination of typhoid bacilli from the ever-present carrier were greatly increased in number. He repeated that the danger from carriers, small under European conditions, was urgent in the tropics. How, then, should they deal with their carriers? They did not yet know how to cure them, so that door was closed to them. It was not enough to give them careful instructions as to what precautions they must take. Klinger mentioned that "chronic carriers who had been told to take precautions caused 78 infections." There was only once course open to them—they must get rid of them. They were a source of but little danger to the civil population, hut in the army under conditions of active service or tropical climate they were likely to he very dangerous indeed. Their only course was what was now being done in the army—the men should be kept under observation for some months. If the excretion of bacilli was persistent, they should be discharged from the service, notifying their respective medical officers of health as to their condition. But with all their precautions tbey must realise that they would always have typhoid carriers in the army, and that fact must be taken into account. The best prophylaxis against the production of typhoid carriers was the prevention of typhoid fever, and that was best accomplished by sound general measures of garrison hygiene, and by diminishing the susceptibility of individuals and communities by anti-typhoid inoculation. It should be remembered that for every 100 cases of typhoid prevented, they had eliminated, say, 3 chronic and 97 temporary carriers, with their geometrically increasing potentiality of producing disease.

Dr. JOHN BROWN (Bacup) asked what experience had Major Cummins of the value of urotropine in regard to destroying the typhoid bacillus in the urine? In urinary diseases due to pathogenic bacilli it was very effective.

Fleet-Surgeon P. W. BASSETT-SMITH, R.N., said that the early diagnosis of typhoid carriers by high opsonic index and agglutination reaction was very important, but only the latter was practical in general use.

Major CUMMINS, in reply, said that in his experience urotropine, though useful in diminishing the number of hacteria excreted, was not in any sense curative.

Surgeon L. F. COPE, R.N., read a paper on

Air and Ventilation in Modern Warships.

He said that pure air was as necessary to health as pure food. In modern ships there were two main methods of ventilation: (1) natural, hy means of ports, scuttles, and hatchways; and (2) artificial, hy electric fans. He thought a perfect system of ventilation should he designed in such a manner that the following points were all ensured: 1. Complete and sufficient changing of the air without draughts. 2. In the event of natural ventilation failing there must hc a system of artificial ventilation as good, if not hetter, to substitute for it. 3. In every case of supply or exhaust there must be provision for corresponding outlet or inlet. 4. If the air was to be heated it must also he supplied with moisture, so as not to lower its relative humidity. 5. The openings of all air trunks, whether connected with the supply or exhaust systems, should he placed on the superstructure, so as to enable them to he used at sea in all weathers. With regard to those points he would suggest the following improvements on the present system. Draughts might he avoided if inlet and outlet were placed sufficiently far apart. Such a system also tended to better ventilation by the prevention of pockets of undisturbed foul air. With regard to the system of ventilating fans, it seemed ohvious that some steps must he taken to prevent the trunks from the fans being rendered useless by means of hammocks or clothes being introduced, as was frequently done. Louvres could be fitted with a padlock, hy which means, when once opened, they could be locked and thus prevented from being closed, while a stout grating placed over the end of the trunk would prevent its heing stopped up by introduced foreign bodies. The men's living spaces should he supplied with exhaust fans. That would tend to a much greater degree of efficiency in ventilation. If run in conjunction with the supply fans and suitably placed, they should ensure almost perfect draughtless ventilation even under the most adverse circumstances, at the same time fulfilling the requirements of a sufficiency of corresponding inlets and outlets. The openings of air trunks should induhitably all he placed on the superstructure, those on the upper deck being useless in a heavy sea as they had to be closed to prevent water washing down them, while the superstructure was practically never under water, so that air trunks opening there would be always available. There could be no doubt that the ventilation of a warship was a very difficult problem. The structure

of a warship was such that its efficiency as a fighting machine rendered all other points of secondary interest. In addition to the difficulties due to structure which had to be overcome there were others due to the character and upbringing of the ship's inhabitauts. The bluejacket could not realise that the cleanliness of the air was as important as the cleanliness of the body, and having been brought up from earliest childhood in surroundings almost hermetically sealed against the entrance of fresh air, an atmosphere that was past "stuffy" seemed to him merely uormal, and consequently he regarded any attempt at the admission of fresh air as an infringement of his liberties. In the face of such difficulties the present satisfactory condition of the air in modern ships reflected great credit on the officers whose duties it had been for years past to gradually evolve a system which needed but slight attention to details to be classed as almost perfect.

Mr. W. H. WHITING said that that particular problem, like so many others in ships, was difficult in itself, and was made much more difficult by special conditions of warships. Ventilation ashore in public or private dwellings had not reached a very high level.

Fleet-Surgeon ROBLEY H. BROWNE, R.N., bore testimony to the enormous improvement in modern conditions and the obvious desire of the Constructive Department of the Admiralty to deal with that question.

Fleet-Surgeon BASSETT-SMITH said that ventilation had a direct bearing on the distribution of disease.

Colonel W. CULVER JAMES, H.A.C., suggested the improvement of the supply of air, or, better still, of oxygen, by a system of chambers of compressed air or oxygen from which the gas was allowed gradually to escape when required into those parts of the vessel that were worst ventilated in time of need.

ODONTOLOGY.

FRIDAY, JULY 29TH.

President, Mr. J. HOWARD MUMMERY (London).

Mr. J. G. TURNER (London) contributed a paper on

The Value of Teeth to the Human Economy,

and said that many years ago his attention was drawn to this subject by an aged relative who, though toothless, ate pork crackling with relish, and lately the question had become insistent owing to the needs of large numbers of indigent patients at a big general London hospital. What was the value of teeth to the human economy under the conditions of contemporary civilisation? No one would deny their intrinsic beauty; and in his opinion complete regular dental arches (excepting the third molar), articulating within the limits of normal, were indispensable to the full beauty and nobilty of the human countenance. On this account he set a great value on the retention of temporary teeth till their due date of shedding. Early loss meant contraction of the dental arch, and sequent exclusion of a permanent tooth, unless the child could be induced to wear some form of apparatus designed to preserve the full size of the arch. Many people postulated for the temporary teeth, or, perhaps he should say, for the presence of teeth during the growing age. In idiot children such as might be seen at Darenth, whose mental development was so low that if given solid food they made no attempt at mastication but swallowed it whole and choked themselves, and who were, therefore, always spoon-fed on slops, the jaws were above the average in size. He might also say a word as to the perfect occlusion. The mandible was a loose bone with no such yoked articulation, demanding perfectly correlated growth for full performance of its function, as obtained in the case, e.g., of the ulna. It made no difference to mastication or cleanliness whether the lower teeth bit forward or backward, inward or outward, in their relation to the upper, and Nature was not over-particular on the point. Till recently the only recognised dental defect was deficiency in the numbers, and whatever ills—chiefly those in which failure of nutrition was an outstanding symptom—the physician saw fit to correct with teeth were ascribed to a deficiency in number—to loss of tooth-masticatory power. As a consequence, both in the popular and in the medical mind the idea of the almost vital importance of teeth became fixed as an axiomatic truth: teeth were for eating; they could not eat without teeth; teeth were indispensable to life—an *a priori* argument which seemed to fit in well with fact, since most people began to lose their teeth early in life. Now they had learned the importance and extent of oral sepsis, and it became imperative to inquire whether the belief in the importance of teeth might not have lost some of its old-time force. The dental profession, he found, presented two camps—one camp bewailed that the food of civilised man nowadays afforded no use for teeth; the other was continually crying "More teeth." The former camp he hoped would be with him in pushing the argument when needful to its logical conclusion. When mastication was spoken of, tooth-mastication was always meant. But there were also tongue- and gum-mastication and machine mastication. Cereal foods were finely ground, and could readily be dealt with by tongue- and gum-mastication, and meat could be cooked and minced or shredded beyond the powers of the most efficient tooth-mastication. In the presence of food, salivary and gastric reflexes were as readily and efficiently promoted by tongue- and gum-mastication as by tooth-mastication. Hence they might expect to find as a working rule that teeth were non-essential, and *de facto* the conclusion was right. In hospital practice he unhesitatingly removed from the mouths of children of any age every septic or painful tooth, leaving some edentulous, many practically so. The result was always greatly to the child's benefit. When the children were seen one or two or three years after they were always well-grown and well-nourished, and the mothers made no complaint of any difficulty in feeding them. He did the same in the case of adults, and with similar results. Patients who were slowly dying from oral sepsis returned to work in their edentulous state, and when they came back six months later asking for false teeth they were unrecognisable in their new-found vigour. Obviously they had been able to nourish themselves to the full extent of metabolic possibilities, and they acknowledged it on questioning. The only unmanageable food one labourer could think of was pickles. He cited cases to show that the state of stable nutritional equilibrium could readily be maintained in the edentulous. He dined lately with a healthy old gentleman of 80. There was a full-course dinner of fish, roast mutton, &c., of which he ate his due share. After dinner he told him that he had been edentulous for 20 years, having discarded his false teeth as impracticable. Five years ago a medical friend of his saw two sisters; the elder had a full set of teeth and was healthy, the younger had pronounced oral sepsis and was always ill. The younger had all her teeth out, but never got a false set. To-day the positions were reversed: the younger was healthy and strong, but the teeth of the elder had gone the way of all teeth, and she had a septic mouth and was the invalid. There was a point which concerned the partly edentulous which needed mention. A few teeth interdigitating rather than opposing might actually interfere with mastication rather than assist, and especially so if septic or painful, though he had been surprised to find that, e.g., the isolated lower canines he left when possible to steady a lower denture were no source of inconvenience to any hospital patients, perhaps owing to the absence of sepsis. On the insertion of false teeth tooth-mastication was restored and tender teeth relieved, but equally useful mastication would have been obtained by total extirpation. And here he would ask those physicians who differed fundamentally from him in their estimate of the value of tooth-mastication whether some such condition was not present in the cases on which they based their estimate. To test his opinion he obtained leave to visit the Brompton Hospital Sanatorium, and with Dr. Patmore examined 40 inmates, male and female, in equal numbers. Owing to the care of the dental surgeon at Brompton in dealing with sepsis, he found a considerable number practically edentulous and many with but a small amount of tooth-masticating surface. But Dr. M. S. Paterson told him he found no difficulty in feeding them, nor did the absence of teeth bear any causal relation to the incidence of indigestion. In spite of the absence of teeth the patients improved. One man in his edentulous state had reached and maintained while doing labourer's work his highest known weight; another recovered through having no teeth in his upper jaw, and had been working now for 40 years as a tailor's fitter. Nature herself made numerous experiments in the same direction. His answer to the question, What is the value of tooth-mastication? was that among civilised peoples of

to-day it was a non-essential; the edentulous could with a little care fare equally well with the fully equipped. To the question, What, then, was the value of teeth to civilised man? he answered, "Beauty." Beauty it was that was in the balance against sepsis. He had brought up this subject hoping to find others whose experience was similar to his own, and that so they might open a way out of the difficulty presented by the impossibility of supplying artificial teeth to every hospital patient who appeared to need it. The difficulty would vanish when both physician and patient realised that sepsis was the enemy, not loss, and that it needed but a little care to fare just as well in an edentulous state as with a full set of teeth.

The PRESIDENT, in reply to Mr. Turner, said that in his experience it was remarkable to find how much persons improved when they had had their teeth removed—such teeth, of course, being in a septic condition. Persons with septic mouths, and who remained in what they usually called very good health, were really living over a volcano, which might at any time become a cause of grave trouble, and the patient become subject to septic poisoning, an attack of influenza or some such lowering disease being the determining cause. He was inclined, however, to the opinion that no teeth were better than septic teeth.

Mr. HARRY BALDWIN (London) read a paper on

The Hygienic Aspect of Crowns and Banded Teeth.

He thought that a very large number of decomposing roots of teeth affected by pyorrhœa alveolaris and other septic conditions were often crowned; further, that in many cases such crowns were badly fitting and often also supported bridges in themselves badly fitting. A large number of persons were on this account disinclined to the use of crowns or bridges in any case whatsoever. But this extreme view was founded on half knowledge or half appreciation of the faults which it was desirous to avoid. The construction and fitting of the crown required considerable technical ability, and, further, also required that the matter should be looked upon from the surgical point of view. When abscesses occurred with crowned teeth it was invariably because the preliminary treatment had not been properly carried out, but as a rule a dead or pulpless tooth was more likely to remain in an aseptic condition when covered with a crown than in other circumstances, especially when the pulp canals had been rendered aseptic and properly filled. It was common, however, to see a crown with excrescences and projections at the edges which acted as a lodgment point for food which decomposed in the situation. The advantages of cap crowns and collars were that they added to the strength and stability of the crowns, that they protected the sectionised edge of the tooth from the action of saliva and caries-producing organisms, and that they greatly reduced the tendency of the root to split under the strain of mastication or by accidental violence. The collar crowns, as a rule, were not admissible if they had to be fixed far under the gum; they should, however, be fitted further than the natural free edge of the gum or just short of it; they should be fitted quite close and bevelled and properly luted with cement, and when fixed in this way there could be no possible objection to them. They were in no way as objectionable as a layer of tartar. It would be seen, therefore, that it was the abuse, and not the proper use, of crowns which was to be condemned. Hundreds of thousands of crowns, both caps and collars, were to be found in the mouths of patients who had no abscess, no gumboils, and no uncleanliness.

The PRESIDENT said that Mr. Baldwin seemed to consider that crowns possessed every virtue and no vice, but this could hardly be substantiated, particularly as it was exceedingly problematic that any crown ever fitted at all. One could probably accept a compromise and consider what was most conducive to the good of the patient in the given instance. There was no question that the majority of fixed bridges and crowns were always more or less septic.

Mr. J. LEWIN PAYNE (London) did not agree with Mr. Baldwin's statement that well-fitting artificial crowns caused no irritation. He was inclined to consider that some degree of irritation or abscesses were always present wherever there was a crown fitted near the gum.

Mr. E. B. DOWSETT (London) said that it was quite possible and well known that crowns in many instances caused inflammation, and the collection of crowns which Mr. Turner exhibited in the Museum showed that it was necessary in many cases to remove the crowns because of the septic trouble which arose, but he himself had put in a large number of banded crowns during the last few years, and thought that with great care it was possible to make such crowns fit, and that, for the slight risk of sepsis which might occur, in the majority of cases it was not legitimate to deprive the patient of an extremely useful procedure.

OPHTHALMOLOGY.

FRIDAY, JULY 29TH.

President, Mr. CHARLES HIGGENS (London).

Dr. J. S. RISIEN RUSSELL (London) opened a discussion on

The Diagnostic Values of Ophthalmoplegia, Partial and Total.

Paralysis of ocular muscles had always been regarded as one of the most reliable signs of organic disease, as opposed to functional affections of the nervous system, and he saw no reason to question the correctness of that view. A transient diplopia might suggest a functional origin, but there was much to indicate the possibility of its being organic, and an early manifestation of a grave disorder such as disseminated sclerosis. Both paralysis and spasm of muscles had to be considered; failure to do this would cause error, say, in overlooking a myotonus which was characteristic of Thomsen's disease. On the other hand, a definite paralysis was an invaluable aid in distinguishing such similar affections as neurasthenia and myasthenia; in the former it was absent, in the latter it was a recognised feature. Paralysis of the eye muscles excluded not only functional disorders, but certainly many organic disorders of the nervous system, such as subacute combined degeneration of the spinal cord, and most ordinary varieties of peripheral neuritis, in contrast to disseminated sclerosis and tabes. The importance of ocular paralysis as a diagnostic feature of intracranial tumour could not be over-estimated, yet in this connexion the rare condition of *migraine ophtalmoplégique* had to be borne in mind. The localisation of intracranial tumours was aided by consideration of the ocular paralyses. As regards the weight to be attached to the mode of onset and progress of the paralysis, he held that sudden onset did not necessarily imply a vascular lesion and contra-indicate sclerosis; experience proved the contrary. He did not think much reliance could be placed on the combination in which ocular muscles were affected as distinguishing between lesions of the nucleus and those of the nerve; he had experience of clinical symptoms pointing to central lesion which were in reality due to peripheral affection. Combinations of ocular paralyses had their value, but they must not be too rigidly insisted upon. Lastly, he urged the importance of making a thorough general examination of the patient before one was justified in making a diagnosis from what appeared to be the most conclusive ocular symptoms. Examination of the blood, of the cerebro-spinal fluid, and by means of specific tests, such as Wassermann's, were necessary correlations. Syphilis was the cause of many of these lesions, yet the fact that they improved with anti-syphilitic remedies was not certain proof for such a primary origin of the affection.

The PRESIDENT said he had always looked upon these ocular paralyses as indications of grave disease, and he was accustomed to warn patients' medical advisers to that effect; yet subsequent events did not always bear out that prognosis—at any rate, for many years.

Mr. L. VERNON CARGILL (London) took for granted the certain diagnosis of an ophthalmoplegia, and the exclusion of such functional causes as refraction, concomitancy, and hysterical disturbance. Diplopia was not always manifest; there were cases of the gravest organic disease where it was absent, such as in the conjugate paralyses of cortical and subcortical lesions, and replaced by vertigo and false or excessive projection to the paralysed side. Diplopia was also absent in cases of double ophthalmoplegia externa, the patient moved the head instead of the eyes, and they might be unaware of the defect. It very frequently happened that the ophthalmologist was the first to detect the oncoming of serious nerve disease by the discovery of pupil derangements; and in this connexion they must be prepared to undertake a thorough general examination of such patients or hand them over to neurologists. The history of the oncoming diplopia was of the greatest value in determining its importance, and although this might be complicated by symptoms that were obtrusively hysterical, that did not disprove the presence of

an organic lesion. Hysterical symptoms could usually he distinguished hy their "dissociated" character, and the greater affection of direct and voluntary movements. History was of importance in distinguishing paralysis from mydriasis, mitosis, traumatism, and post-diphtheritic influences; and they had always to be on their guard against fixity of pupils from old inflammation; occasionally by such means alone a diagnosis could be made. Further, intra-ocular examinations might afford valuable help, active or "obsolescent" tubercle, or syphilitic mischief, retinal arteriosclerosis, or diabetic or renal retinitis, might he detected. The presence of papillitis, or primary optic atrophy, might shed a flood of light on the accompanying ophthalmoplegia. There might be orhital symptoms or signs of old injury. There were cases of isolated ocular paralysis, mostly of the external rectus, which appeared due to rheumatism, and there the neuritis was probahly similar to Bell's paralysis. He had notes of two cases where paresis of the superior obliquc was accompanied hy pain of the pulley and probably indicated a fibro-synovitis. He thought rheumatic myositis or fibrositis might pick out an extra-ocular muscle and he indicated hy local pain on movement, tenderness, or even slight œdema. These cases cleared up readily with suitahle treatment.

Dr. E. FARQUHAR BUZZARD (London) dealt particularly with the pupil phenomena of ophthalmoplegia. The value of the Argyll Robertson pupil in the diagnosis of syphilitic disease could hardly he over-estimated, notwithstanding that a satisfactory anatomical explanation was wanting. He then dealt with the cases of two women who suffered from paroxysmal headache of great severity, vomiting, and some degree of optic neuritis, in whom pupillary symptoms were marked. There were inequality and failure of reaction to light. Post mortem there was found in each case a small cyst within the third ventricle. From these and other cases he concluded that failure of the pupillary light reflex was a valuahle sign of gross disease in the third ventriclc or in the structures immediately surrounding it, and that it not infrequently constituted the first localising evidence of that disease. Further, they must remember that the light reflex was only lost in actual eye disease when it passed to a full degree of optic atrophy; it persisted even in severe papillitis. In the absence of such signs failure of the light reflex indicated grave deep-seated central disease. Yet when tumour was suspected the possibility of operation was totally excluded since the lesion was too deep for eradication. Decompression might, however, be resorted to.

Dr. W. B. WARRINGTON (Liverpool) commented upon the occurrence of cases of single ocular muscle paralysis without indications of grave general disease.

Mr. N. BISHOP HARMAN (London) said he believed that there were many cases of single muscle paralysis which were due to exposure to unusual extremes of cold. He had heard no reference to them in the able papers of the neurologists, hut Mr. Cargill indicated that he recognised rheumatic cases. He could only suppose that these cases did not come into the hands of the neurologist. Or were they included in the warning that Dr. Russell had given of the transient paralysis which he described as foreshadowing disseminated sclerosis? He (the speaker) instanced the case of a man who had been exposed without food throughout a whole day to a cold east wind on a motor-boat; the experience had an immediate effect upon his sense of well-heing, and the succeeding day he awoke with diplopia due to paresis of one external rectus. There were no other symptoms and good evidence against syphilis. Was it not more likely that such a case was a genuine peripheral neuritis similar to Bell's paralysis rather than a precursor of grave disease? He concluded that these cases did occur, and fairly frequently. Acting upon this view he discarded anti-syphilitic measures and prescribed strychnine. In the case instanced cure was established in three weeks. To view such cases gravely and to give serious warning to the patient or his medical attendant was to court trouble.

The PRESIDENT said he douhted if these cases ever got to a neurologist; to him the diagnosis was estahlished in that they got well speedily.

Dr. R A. REEVE (Toronto) also concurred in the influence of exposure to cold on the causation of isolated paralysis; often he found signs of deep-seated pain.

Dr. AMY SHEPPARD (London) said she had seen similar cases and obtained evidence of tenderness in the region of the affected muscle.

Mr. A. W. ORMOND (London) questioned whether these cases really got well. The relief was only temporary. And if exposure could be credited with the occurrence, why were these cases not more frequent?

Dr. ANGUS MACGILLIVRAY (Dundee) agreed with Mr. Harman in the existence of the cases, but he found that six weeks was the usual duration. He gave a guarded prognosis until the six weeks were up. If at that time the paresis had not passed he considered the prognosis was grave and indicative of ultimate central disease. He had not found local pain in the temporary cases, but he was sure syphilis was not a necessary factor. Further, some of these cases he had watched for 20 years and more and there had been no recurrence and no suhsequent grave effects.

Mr. A. HILL GRIFFITH (Manchester) asked if Dr. Russell made use of electrical reactions as an aid to diagnosis. He had seen several cases, and had had them under observation for many years, where monocular mydriasis occurred without other symptoms. To what cause could such uncomplicated stationary lesions paralyses be due?

Dr. JOHN HERN (Darlington) said he had seen many cases of paresis of an external rectus of one eye, such as Mr. Harman had described, and had watched them for 20 years afterwards and they had not recurred. It was apparently a peripheral lesion and should be treated as such where there were no other manifestations to indicate a central lesion.

Major H. A. J. GIDNEY, I.M.S., said these cases should present no difficulty if syphilis was excluded by the Wassermann reaction.

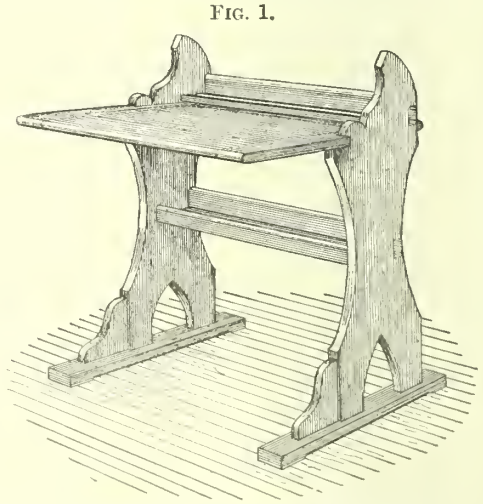
Dr. RISIEN RUSSELL, in reply, said the observations concerning the pupil reaction hy Dr. Buzzard were of the highest importance. Regarding the question of the occurrence of single paralyses due to cold such as described by Mr. Harman and confirmed by so many speakers, he agreed that such cases did occur, and cited one recently seen in an engine-driver in whom cure resulted in three weeks, to his great surprise. Yet their opinion had to be determined on the general question hy the subsequent history of the cases. Dr. MacGillivray and Dr. Hern had watched cases for 20 years; that was conclusive evidence. On the other hand, there were many cases of disseminated sclerosis in which history of early single and transient paralysis was obtained. The presence or absence of syphilis did not prove the point, though it had an important hearing.

Mr. BISHOP HARMAN (London) read a paper on

The Education of High Myopes.

The action of the ophthalmic surgeon in regard to these cases was one of difficulty, especially in London elementary schools with their huge number of children. It was common to give negative injunctions. Reading and writing were pro-

FIG. 1.



Harman's "Myope Desk"—in use as table for manual work.

hibited, sometimes school was prohibited. These negations did not solve the difficulty. Besides, they were either inoperative or injured the child. The prohibition of school

was a real injury; school nowadays was a good place, where lasting advantage was gained. To stop a child who could read from reading was next to impossible. He then outlined a scheme which was being put into operation in London by the establishment of "myope classes," which he thought would go far to solve the difficulty. The curriculum in these classes was divided into three portions—oral teaching, handicraft, and literary work. The first and most important was taken in company with the normal-sighted in the ordinary school; no books were allowed; here the main part of their mental instruction was given. The other sections were carried on in special classes. Every sort of handicraft

FIG. 2.

Harman's "Myope Desk"—in use as blackboard for literary work.

that developed feeling rather than sight was practised. And, lastly, such knowledge of the ordinary means of communication, as they must know, was taught by writing free-arm fashion on blackboards. By these means they hoped to train the children in such habits as would spare their eyes undue strain. The success of the work depended upon the intelligence of the teachers. He then showed the desk furniture he had designed for use in these classes, which gave to each child its own table for manual work and a large blackboard for such writing as was taught.[1]

Major G. H. FINK, I.M.S., read a paper entitled

A Plea for Efficient Drainage after Cataract Extraction.

He favoured the use of adhesive plaster dressings after operation. These dressings were particularly useful in preventing patients handling their eyes and so damaging the opened globe. In cold weather a dry dressing was used, in hot weather a moist one. To obtain the best effects of the dressing it was necessary to secure free vent of tears or discharges, and this was obtained by inserting a thin rubber tube into the lower conjunctival sac; the ends projected from the dressing, and through them irrigation could be performed.

Major GIDNEY did not think well of the procedure. Irrigation after extraction was likely to damage the tissues and prevent healing by first intention.

Mr. BISHOP HARMAN then proposed the following resolution:—

That in view of the importance of obtaining continuity of treatment of defects of vision in school children throughout the period of education, and of proper coordination of medical inspection and treatment, it is the opinion of the Ophthalmological Section of the Association that the organisation of school clinics is desirable.

He said that the subject was being agitated in municipal circles, but they had no concern with that. They were interested in its medical aspect. As members of the Association they would not be content with any scheme of treatment required by the State that did not fairly remunerate the services of the doctor. Attempts had been made to throw the whole work on the voluntary hospitals but they failed, as these had not the necessary means of coping with such a huge mass of work. Various schemes were in process of trial. Private and public school clinics had been formed in some places. In London hospitals were subsidised in some quarters to do the work. Of the principles concerned in the London scheme he would say nothing, but the effects of the arrangements were fair comment. One effect had been that children were refused treatment at many hospitals without a school "voucher" certifying payment. The arrangement as at present worked entailed a serious loss of time and labour to the parents, and it was provocative of ill-feeling and distaste for treatment. A matter of great concern to them, from the scientific side of their work, was the means of obtaining knowledge of the causes of the defects of vision or the influences that accentuated them. This they could obtain by a properly organised scheme of clinics covering given school areas, but it was impossible when patients went haphazard to any hospital. It was only by developing this valuable side of their work that they could exert a proper influence in the prevention of disease.

Mr. WALTER EDMUNDS (London) seconded the motion. He said they ought to recognise that this question affected the great majority, for of the children of the country 86 per cent. belonged to public elementary schools, 10 per cent. to Poor-law schools and orphanages, and only 4 per cent. to private schools. Medical inspection was wasted without arrangements for treatment. This could be done by subsidising hospitals or by maintaining school clinics. He thought arrangement with hospitals unsatisfactory; the permanent staff was insufficient, so recourse was had to temporary clinical assistants who were not always experienced. Further, the practice tended to produce many clinical assistants for whom permanent work could not be found. The only alternative was school clinics.

Dr. A. HUGH THOMPSON (London) said it did not matter who did the work so long as it was properly done and properly organised. There was ample room for voluntary organisation and for public work. He detailed the work of a voluntary school clinic which he had worked in Woolwich for the past three years, and which had been a perfect success.

Dr. J. A. MENZIES (Rochdale) said that the matter had already been settled in Rochdale by the establishment of a school clinic by the education authority. The hospital did not consider it fell within the scope of its charitable work. The children who were found by the school medical inspector to require eye treatment were later seen by the ophthalmic surgeon in a convenient room and the work was done on the spot. Cases requiring operative treatment were referred to the hospital. The matter had been arranged on bnsinesslike lines, and it was a success.

Dr. MACGILLIVRAY (Dundee) thoroughly agreed with the motion. He further commented upon the qualification required of candidates for posts of school doctors. They were expected to hold the D.P.H.; that meant they knew everything about bakeries, sewage, and Local Government Board laws, but nothing about schools or school children.

Dr. R. BEATSON HIRD (Birmingham) supported the motion. In Birmingham, he said, some of the treatment was being undertaken by the school doctors, and it did not seem satisfactory; special men were required. He then described the working of a school clinic which had been established in a small rural district. The defective children were examined on Saturdays in the schools; the parents paid for the glasses and a small sum for treatment in penny contributions. The work had been done for two years, and was an illustration of effective organisation.

Dr. HERN said that at Darlington attempt had been made to throw this work on the hospital, but the attempt had been foiled. It was not necessary that they should settle details at this time; the principle of the clinic was the point.

Mr. R. PHILIP BROOKS (London) said that before he could support such a motion he must know what a school clinic implied. He was opposed to gratuitous work of this kind, and he was also opposed to building new and expensive State hospitals for school children.

Mr. HILL GRIFFITH said that in Manchester and Salford they had an extraordinary divergence of practice. These places formed really one city, yet in Manchester the work was thrown on the charitable hospitals, and in Salford a properly paid ophthalmic surgeon had been appointed to do

[1] The desk was lent by Messrs. G. Hammer and Son, 430, Strand, London, W.C., for the occasion.

the work in the schools. The matter really rested with the governors of hospitals—they had the control.

Dr. R. HALDANE COOK (Enfield) called attention to the Association's pamphlet No. 25 on this subject. There would be found a scheme for the working of local school clinics which seemed to promise satisfaction.

Mr. CHARLES WRAY (London) said that at Croydon he did the work for the education authority. They had fitted up a room as a school clinic and it was satisfactory.

Dr. R. E. HARCOURT (Liverpool) agreed with the motion, and instanced the need of the school children in his city.

Dr. R. LESLIE RIDGE (Enfield) said that the establishment of school clinics would do much good to the prestige of the profession. It was bad to educate the general public to rely upon the hospitals for this treatment.

The PRESIDENT said there could be no doubt that proper organisation was required. He had always objected to seeing school children at hospital. The difficulty was acute in rural districts where such kind of special treatment could not be obtained. He read letters which the local authority sent out to those who failed to get the vision of their children treated. These yokels were told they were liable to a fine of £100 or to two years' imprisonment! This notice had been sent to a woman whose husband had left her, and who kept herself and three children on 12*s.* a week! The whole thing was ludicrous in such circumstances. He then put the motion to the vote, when it was carried with one dissentient, there being about 35 present.

A vote of thanks to the President of the Section concluded the proceedings.

OTOLOGY.

FRIDAY, JULY 29TH.

President, Dr. EDWARD LAW (London).

Mr. BUTLIN, P.R.C.S., President of the British Medical Association, attended and contributed to the earlier part of the proceedings.

Dr. JOBSON HORNE (London) read a paper on

Deafness and Diseases of the Ear in Relation to the Public Services and Insurance; and their Bearing upon Forensic Cases and the Choice of a Means of Earning a Livelihood.

He said that the subject covered a considerable amount of ground and was one about which there was undoubtedly room for more than one opinion—in short, it lent itself to discussion. He therefore confined himself to submitting for consideration points that at times occasioned considerable anxiety to those who had to adjudicate upon them. It was not possible to lay down hard-and-fast rules, or even general principles, for accepting or rejecting candidates in cases of deafness and ear disease, of general application to those candidates coming within the scope of the title of the paper. What would be applicable to one would not be applicable to another. For example sake, a candidate not acceptable for life insurance might be accepted for accident insurance and *vice versâ*. Whilst a third candidate might be accepted for both kinds of insurance and rejected for any public service, using the term in a comprehensive sense to include the telephone company and the indifferent waitress at the teashop. In the title of the paper the term insurance had been used to cover both life insurance and accident insurance. As regarded deafness and ear disease in relation to life insurance, there was an increasing competition amongst life offices for business, and whilst offices were always most anxious to exclude lives the acceptance of which would be an injustice to others insured, at the same time they were not desirous of turning away business. At times there had been a tendency to regard middle-ear disease a little too seriously in the matter of life insurance. In a word, the life office had to temper medical science with business purposes. The last time that this subject was discussed by the British Medical Association was in 1898 in Edinburgh at a conjoint meeting of the Sections of Laryngology and Otology, and Medicine in relation to Life Insurance. The difficulty that confronted that meeting 12 years ago and prevented it from arriving at useful conclusions confronted the meeting that day 12 years afterwards. The difficulty was this—an absolute want of reliable statistics upon which to base sound opinions. The meeting 12 years ago naturally dealt with suppurative diseases of the ear to the exclusion almost of all other forms of ear disease and of causes of deafness. They limited their subject to life insurance; they were now dealing with the subject in a much broader manner, and before he touched upon the suppurative diseases of the ear he would wish incidentally to refer to the non-suppurative varieties in connexion with life insurance. For instance, could anybody present tell him from reliable statistics what was the average length of life of a person the subject of oto-sclerosis? Further, could anyone tell him the causes of death of such subjects, and whether the causes of death had a remote bearing upon the ear disease? In the present state of their knowledge could they with confidence state that insurance without delay could be recommended in oto-sclerosis? Unfortunately, the ear had hitherto been regarded too much as an appendage distinct from the body, with the result that a knowledge of the causes of some forms of ear disease had not advanced. The suppurative diseases of the ear naturally bulked the aural problems in life offices, and he submitted for their consideration and discussion the following points. Speaking generally, persons suffering from acute inflammations of the external and middle ear would not offer themselves for life insurance until the acute stage had passed by. However, exceptions arose, and life insurance was at times a matter of urgency. Should such cases be accepted in the acute stage? Was it advisable to put off insurance in cases of chronic inflammation of the external ear? Passing to the middle ear, he thought it would be generally agreed, but even here there were two opinions, that chronic suppurative cases should not be accepted if there were inflammation in the attic or the mastoid, if there were cholesteatomata or tubercle, or any form of bone disease, or facial paralysis, or if there were associated with the middle-ear disease giddiness, headache confined to one side, or narrowing of the meatus which would prevent free escape of secretion. Apart from these, should other cases of chronic suppuration of the ear be accepted? Did a permanent perforation of the drum, without obvious discharge, call for rejection or some increase of premium? And lastly, with respect to the suppurative forms of disease, should those chronic cases of suppuration treated by radical operation be rejected or even weighted? Passing to insurance against accidents, he thought it would be generally agreed that marked deafness on both sides and vertigo should call for increased terms for acceptance, if not for rejection. The suppurative forms of disease of the ear in the matter of insurance against accidents alone, at first sight, should not stand in the way of the acceptance of the candidate. However, there appeared to be room for litigation over the meaning to be attached to the term "accident," as shown by the recent case of a widow trying to recover compensation for the loss of her husband who was deliberately shot in a railway train. In the event of a subject of disease undergoing an operation for the cure or relief of his ear disease and succumbing to the operation, should that be regarded as an accident? If so, such cases ought to be weighted for accident insurance. He would not take up time in talking platitudes about the lack of attention paid to ear disease by insurance companies, but in illustration of his point he cited a recent experience. About a fortnight previously a lady the subject of middle-ear suppuration involving the attic and antrum of some 35 years' standing, was advised to undergo a radical mastoid operation. Before acting upon the advice she consulted him, and whilst he fully agreed with her that she had been able to go through 35 years of life without the operation, and that possibly she might be able to go through another 35 years without it, at the same time he thought she had had sound advice given to her, and he advised her to submit to the operation. There was some hesitation, and in order to make his point clear to her he mentioned that her position amounted to this, that no life office would put twopence upon her life until the operation had been done. The reply was, "Oh, you are quite wrong, doctor, I have already paid two premiums." And in what office, he inquired? The office was one of the best in the kingdom. He further inquired whether she had disclosed the fact that she had been subject to ear disease for the greater part of her life, and the reply was, "Oh, yes; I mentioned that in my paper." Did they examine the ear? Oh, no! As regards the bearing of deafness and ear disease on forensic cases, this part of the discussion was obviously concerned mainly with

cases of malingering—for example sake, when an individual sought to recover compensation for alleged deafness resulting from accident. Here the ingenuity of the aural surgeon might be taxed to the utmost in detecting the low cunning of the individual. Finally, coming to the choice of a means of earning a livelihood, this part of the subject might be usefully considered under two headings—those cases in which the patient was already deaf, and those cases in which there was a family tendency to deafness. As regarded the former, the choice of the means of earning a livelihood would naturally in a great measure be decided by the degree of deafness. The most marked deafness need not be the means of preventing a person earning a livelihood; on the other hand, it might be of considerable assistance to him in doing so. He had no intention to tell stories about intentional deafness, but there was money to be made by not hearing too much. The moral of the paper was that reliable statistics were sadly needed to enable them to speak with confidence on the several matters which they had under discussion. Altogether apart from the questions before them, it would be most instructive to learn the fate of the old suppurative diseases of the ear and also of the non-suppurative. They seldom saw in hospital practice suppurative disease of the ear in advancing life, or, to put the matter more correctly, the cases that came under their notice were for the most part under 35 years of age. He gathered that that was about the age at which life insurance was more largely effected; they therefore might assume that the cases of middle-ear suppurative disease, by the time they were submitted for life insurance, had given a good deal of indication of how they intended to progress. It would be a most useful piece of work were the special hospitals in London and the provinces to coöperate in compiling collective statistics to help them to speak with authority to life insurance offices and similar bodies.

The PRESIDENT, after congratulating Dr. Jobson Horne upon having condensed in his instructive paper so much useful information into such a limited space, said that the choice of the means of earning a livelihood was a most unfortunate and difficult question. Speaking generally, he always advised parents to select for a deaf child an occupation or a profession in which the sufferer was likely to be eventually the master and not the servant. If deaf it were better to be the commanding officer than the subaltern or private, or to be the judge than the prisoner.

Dr. ALBERT A. GRAY (Glasgow) pointed out that if a dry perforation of the drum of the ear were to be considered a cause for rejection for life insurance valuable business would be turned away by the life offices. He therefore agreed with the remarks bearing upon this point which had been made by Dr. Horne. Oto-sclerosis, in his opinion, should not be a ground for rejection for insurance against accident.

Mr. P. MACLEOD YEARSLEY (London) considered that deafness was often made too much of as a ground for rejection for an insurance against accident, for one had to remember that deaf subjects were more careful than persons with good hearing in the avoidance of street accidents. In the matter of life insurance, in all suppurative disease of the ear it had always been his system to consider the life a good one when there had been no fresh suppuration for at least seven years.

Dr. W. JOBSON HORNE, in reply to Mr. Yearsley, said that he agreed generally with his remarks about insurance against accidents in cases of deafness, but there were accidents other than those occurring in the street in which deafness was conducive. As regards the chronic suppurative cases, it was a matter of common knowledge how difficult it was to obtain reliable data as to when an ear ceased to discharge or to show any signs of activity of the disease.

Mr. YEARSLEY read a paper on

The Value of Ossiculectomy in Chronic Middle-ear Suppuration.

This paper was based upon 70 operations in 65 patients, five of whom underwent the double operation. 23 were males and 42 were females, of ages ranging from 6 to 62 years. All were operated upon for chronic or recurrent discharge with a view to the possible prevention of the radical mastoid operation. The duration of discharge varied from three months to many years. The conditions found in the ear were detailed as to the site of the perforation, state of the ossicles, and the presence of granulations. The malleus was carious in 62·8 per cent., having disappeared in 6·2 per cent., the incus was diseased in 78·5 per cent., and totally destroyed in 18·1 per cent. The method of operation was described briefly, stress being laid upon the necessity for removing the outer attic wall. The results of the operation were detailed in respect of hearing, tinnitus, and discharge. Hearing was improved in 18, unaltered in 8, and made worse in 3, the result being in doubt in 40. In 2 cases tinnitus was improved. Discharge, the condition for which the operation was performed, was cured in at least 30 per cent., and improved in 42·8 per cent. It recurred in 11·4 per cent., and the operation was a failure in 13 cases (18·5 per cent.), 11 of which subsequently required the radical mastoid method. The conclusions were stated as follows: (1) that ossiculectomy offered in selected cases at least 30 per cent. of cures and 42·8 per cent. of improvements; (2) that the operation should include careful removal of the outer attic wall, especially in its posterior part; (3) that the annulus tympanicus should be curetted to prevent the possibility of a false membrane forming; and (4) that the operation was a useful alternative measure to the radical mastoid method, especially as it in no way militated against the success of the latter should the simpler procedure fail.

Dr. FREDERICK SPICER (London) had had bad results, and after his experience had come to the conclusion that the operation was an unjustifiable one in the present day.

Mr. C. E. WEST (London) considered that the limits of usefulness of the operation were very narrow. It was useless in cholesteatoma, and in all cases in infection of bone outside the ossicles and a limited area of the outer attic wall. The percentage of cures even in selected cases was enormously less than that following the radical operation in unselected cases; the damage to the hearing was at least as great as after the radical mastoid operation, and in chronic local attic suppuration the removal of the ossicles was an unnecessary destructive measure, the opening up of the attic and the antrum being sufficient and giving excellent hearing results. The hearing before the operation was above the average in most cases at all suitable for ossiculectomy. The amount of pain following these small intrameatal operations was far greater than after the larger open operations. Moreover, there was special danger attending the operation of ossiculectomy; the risks of facial paralysis and the possibilities of dislocation of the stapes were greater and were real.

Mr. T. MARK HOVELL (London) said that in his experience chronic suppuration in the tympanum was usually associated with a collection of pus or cholesteatomatous matter in the mastoid antrum and the removal of the ossicles could not put an end to the discharge.

Mr. H. J. MARRIAGE (London) did not consider the operation under discussion a satisfactory one. When chronic otorrhœa required an operation on the tympanum extensive disease of the antrum commonly existed, which could not be cleared up by the intratympanic operation. He pointed out that Mr. Yearsley's statistics showed healing in only 30 per cent. of the cases. He asked for information as regards the duration of the treatment before the operation had been carried out, and also whether the successful cases had occurred in patients who had suffered from otorrhœa for a few months or in those with a history of many years. He further inquired on how many occasions Mr. Yearsley had divided the tendon of the stapedius muscle at the time of the ossiculectomy.

The PRESIDENT considered the great disadvantage of ossiculectomy was the difficulty in selecting suitable cases. He quite agreed that it was a desirable operation if one could only hit off the right cases. 30 per cent. or even 40 per cent. of cures was not a particularly satisfactory result.

Dr. HUNTER F. TOD (London), Dr. J. STODDART BARR (Glasgow), and Mr. F. H. WESTMACOTT (Manchester) also took part in the discussion.

Mr. YEARSLEY, in reply, was sorry to find so many dissentients. Very few of his patients had been affected for less than one year. He had tried Neumann's method of injecting prior to the operation in his last two cases, and with good results so far as hæmorrhage was concerned. He divided the stapedius tendon usually after several days. He believed that tenotomy of this tendon was a very useful procedure to improve the hearing when the opposing action of the incus was lost.

Mr. MARK HOVELL read a paper entitled

Some Remarks on the Connexion between Irritation of the Mucous Membrane throughout the Body and Middle Ear Catarrh.

He reminded his listeners that the mucous membrane which lined the tympanum and Eustachian tube was continuous with that which lined the nose and its accessory cavities, and through the naso-pharynx, the pharynx, and the œsophagus was in direct communication with that which lined the stomach and the intestines, yet he was inclined to think that the vast area with which the tympanum was then connected was sometimes forgotten, and that it was not realised how an irritation in one part of the mucous membrane was communicated in a greater or lesser degree over the whole of its surface and must therefore affect the special region which had to be treated. He emphasised the importance of examining the pharynx and the naso-pharynx and of removing the enlarged posterior ends of the inferior turbinated bodies. Pelvic derangements, such as retroversion of the uterus, cervicitis, and erosion of the cervix, had to be thought of in the treatment of rebellious forms of chronic pharyngitis.

The paper was discussed by Dr. J. H. BRYAN (Washington), Dr. SPICER, Dr. JOBSON HORNE, and Dr. M. GOLDSTEIN (St. Louis).

The PRESIDENT congratulated Mr. Hovell in bringing forward some of the common phenomena of life and disease which were often either neglected or forgotten.

Dr. STODDART BARR communicated a paper on Experiments bearing upon the Practicability of Treating Meningitis (Septic and Specific) by Means of Lavage of the Cerebro-spinal Subarachnoid Spaces.

PATHOLOGY.

FRIDAY, JULY 29TH.

President, Mr. S. G. SHATTOCK (London).

Dr. T. ADDIS (Edinburgh) read a paper on

The Pathogenesis of Hereditary Hæmophilia.

He advanced the view that a deficient coagulability of the blood was the only constantly present pathological feature of the disease, and claimed that it alone was sufficient to account for the whole symptomatology of the condition. The theories of blood coagulation as given by Fuld and Morawitz, Loeb, Nolf, and Mellanby were briefly discussed. Mellanby's theory was the only one which was fully confirmed in the experiments undertaken, and was the one by which the facts observed were fully explicable. Twelve cases had been examined from six different hæmophilic stocks. Coagulation times were given, showing that the severity of the symptoms in each case was directly proportional to the degree of diminution of the coagulability of the blood. The methods employed in the investigation into the cause of the defect in coagulation were then described. 1. *Coagulation of normal and hæmophilic blood, plasma, and fibrinogen.* There was great delay in the natural coagulation of hæmophilic blood in any case in which the symptoms were marked. There was a corresponding delay in the coagulation of hæmophilic oxalated plasma and fibrinogen solution by the addition of calcium chloride. Hæmophilic blood, plasma, and fibrinogen solution coagulated quite as readily and quickly as normal blood, plasma, and fibrinogen when thrombin was added. 2. *Experiments with serum.* The effect of the addition of hæmophilic serum to normal and hæmophilic blood, plasma, and fibrinogen, and of normal serum to normal and hæmophilic blood, plasma, and fibrinogen had been determined. The cause of the defect in coagulability in hæmophilic blood was to be looked for in something which hindered the formation of thrombin. 3. *Fibrinogen.* There was no deficiency in the amount of fibrinogen in hæmophilic blood as compared with the amount in normal blood. 4. *Thrombin.* There was no quantitative or qualitative defect in hæmophilic thrombin. 5. *Anti-thrombin.* The amount of anti-thrombin had been estimated by adding small amounts of thrombin to normal and hæmophilic plasma. The minimal quantity of thrombin necessary to produce a certain amount of coagulation was the same for each plasma, and there could therefore have been no excess of anti-thrombin in hæmophilia plasma capable of explaining the delay in its coagulation. 6. *Calcium.* The effect of adding varying quantities of calcium salts to normal and hæmophilic plasma and fibrinogen was relatively the same. No quantity of calcium was found capable of reducing the coagulation time of hæmophilic plasma to the normal. If the delay in the formation of thrombin had been due to either an excess or to too small a quantity of calcium salts, this would not have been the case, and therefore this explanation was negatived. There was no evidence that the diminution of coagulability in hæmophilia was due to any deficiency in the amount of thrombokinase. The fact that thrombokinase derived from hæmophilic blood was as active as normal thrombokinase showed that there was also no qualitative change. There was no deficiency in the amount of prothrombin in hæmophilic blood. No quantitative deficiency in prothrombin could be found. The possibility of the presence of bodies inhibiting the formation of thrombin in hæmophilic blood was next considered. This possibility was excluded by the results of experiments on the effect of the addition of hæmophilic plasma to normal plasma. There was no anti-kinase present. The constituents of hæmophilic plasma after removal by dialysis against water of the fibrinogen, prothrombin, and thrombokinase, had had no retarding effect on coagulation. Numerous experiments on the effect of heat and of acids and alkalies failed to show any distinction in the reaction of hæmophilic and normal plasma to these agencies, and the relative difference in the coagulation rate had not been affected. Dialysis against normal saline solution was also without effect. The conclusion he arrived at was that hæmophilia was due to an inherited qualitative defect in the prothrombin, whereby it was less readily activated than normal prothrombin. The rate of activation of hæmophilic prothrombin was found to be much slower than with normal prothrombin, and this was the only defect found in the hæmophilic blood. Further investigations into the nature of this defect in the prothrombin were still being carried out.

The PRESIDENT having remarked that he was sorry Dr. Addis had not drawn conclusions of what occurred *in vivo* from his experiments *in vitro*, called on

Professor SAHLI (Berne), who said that he wished to make them acquainted with his new researches on hæmophilia. He had first found that the diminution in the coagulating power was the constant character of this enigmatical disease this statement had been confirmed by other authors. As to the cause of the phenomenon, he had found that it was the absence of thrombokinase, and that traces of normal blood or serum could, if added to hæmophilic blood, restore the power of coagulating: this had been confirmed by Moravitz. In a recent paper he had shown that the substance existing in normal blood and wanting in the hæmophilic was affected by heat as thrombokinase ought to be; and in the same paper he had also shown that the difference between normal and hæmophilic blood resided in the blood corpuscles, because normal blood corpuscles had a strong coagulating effect or hæmophilic blood, whereas hæmophilic blood corpuscles had much less. In this way he had more firmly established his theory that hæmophilia was a cellular anomaly both of the blood corpuscles and of the endothelial cells of the vessels Nolf of Liége had independently come to a similar conclusion. He thought that hæmophilia depended upon the absence of thrombozyme in the blood corpuscles and the endothelial cells. Consequently he was sorry he could not concur with Dr. Addis.

Dr. ADDIS replied that his experiments had not shown what Professor Sahli alluded to, and he suggested that the blood corpuscles used might have been enveloped with plasma, and that *that* contained the thrombokinase. On being asked by the President if he had any proofs as to where thrombokinase was formed, he answered that he had not.

Professor SAHLI then stated that his corpuscles had been thoroughly washed in oxalate solution and afterwards in physiological saline. Accordingly the objection was not valid.

Dr. E. E. GLYNN (Liverpool) then read a paper on

Some Observations upon Fatal Cases of Primary Thrombosis in the Pulmonary Artery.

He pointed out that the fatal occlusion on the pulmonary artery by an embolus or thrombus was deeply interesting not only to the physician, the surgeon, and the obstetrician, but also to the pathologist, who was called upon to decide at

the post mortem whether the foreign bodies plugging the pulmonary artery were the result of embolism, thrombosis, or both. The majority of writers were of opinion that the plugs present were almost invariably due to embolism. Some other observers, on the other hand, held that primary thrombosis was not only common, but more common than embolism. It was a curious fact that whilst so many writers had carefully described the macroscopical appearances of clots found in the pulmonary artery, no attention whatever had been paid to their microscopical structure. This was all the more remarkable since, as was well known, the microscopical structure of a thrombus altered with age. The following were the changes produced by age in pulmonary thrombi to which the greatest importance was usually paid. 1. The erythrocytes in a recent thrombus had a very distinct outline, and stained bright red with eosin. Later their outlines disappeared, they fused together, and took a brownish tint with eosin. Later still brownish-yellow hæmosiderin pigment appeared in increasing amount as fine granular deposit, which was soon found inside the cytoplasm of the leucocytes present in the clot. Finally, the surrounding artery wall itself became pigmented, and pigment might even be found in adjacent cartilage. 2. The polymorphonuclear leucocytes which were present even in aseptic thrombi and tended to increase in numbers through emigration, retained their normal appearance and staining capacity, and were destitute of pigment at first. But soon karyorrhexis and karyolysis of the nuclei took place. The margins of the cytoplasm became indistinct, and the cell eventually disappeared. 3. Organisation was proof positive that a thrombus had been *in situ* for some time. The rapidity with which hæmosiderin occurred depended partly upon general conditions such as the presence of hæmolysin in the blood or streptococci, &c., and partly upon local cellular conditions. Although he could make no definite statement as to the exact time pigmentation took to appear, for it must vary with circumstances, it was perfectly clear that the liberation of hæmoglobin from the erythrocytes, its deposit as hæmosiderin, its entrance to the leucocytes and connective tissue from the surrounding artery, was not a question of minutes but of hours, sometimes days, and none of his patients lived more than 30 minutes after the onset of the symptoms. He then passed on to a description of the cases which had been observed by him in the post-mortem room at the Liverpool Royal Infirmary during the years 1902–1909 inclusive, and entered into a consideration of the etiology of the condition—(1) the contact of the blood with abnormal surfaces; (2) slowing and other irregularities of the circulation; and (3) bacterial infection and chemical changes in the blood. Assuming that thrombosis was slow in taking place in the pulmonary artery, how was it that no symptoms were apparently produced? The reasons seemed to be the following: 1. Gradual obliteration of several branches of the pulmonary artery by thrombosis was far less likely to produce symptoms than the sudden obliteration of a much smaller branch by an embolus. 2. The patients were resting in bed; consequently there was no tax upon their circulatory system. 3. It was not customary in surgical cases to make a systematic record of the pulse or respiration, and it was only in the last three patients that he was able to obtain any data. Here he was pleased to find that the mean of the morning and evening pulse-rate showed a definite and permanent acceleration, beginning from the seventh to the eleventh day after the operation. Thus the average pulse-rate of these patients for the three days immediately following the operation was 86, 86, and 82 respectively, compared with the average pulse-rate for three days immediately preceding death, which was 126, 96, and 106 respectively. The charts proved that this acceleration was not due to a rise in temperature. This clinical fact supported the thesis that the patients died from spontaneous thrombosis. Case 8, the only one in which the respirations were regularly recorded, showed a similar increase in the rate from 25 to 31. Of course, this may have been due to the patches of streptococcal pneumonia. It was noteworthy also that Case 6 complained of palpitation two days before death, and Case 8 evidently had an infarction five days before death. The occurrence of small infarcts in three cases in itself suggested primary thrombosis, for it was doubtful whether embolism could produce infarction in the few minutes which elapsed after the supposed impaction. The possibility of rapid and even instant death was admitted by those authors who believed in primary spontaneous thrombosis; still it was rather remarkable that patients should die so suddenly as obtained in his cases. But it must be remembered that thrombosis, when once established, probably progressed with an ever-accelerating velocity, and, as Playfair pointed out, it was only "when some sudden exertion was made, such as rising from bed or the like, calling for an increased supply of blood, which could not pass through the occluded arteries, that fatal symptoms manifested themselves." Several patients died after exertion. Dr. Box's suggestion that the acute symptoms might be due to the sudden displacement of the thrombi which had formed spontaneously in the pulmonary artery or right ventricle was a reasonable one, though in Cases 6 and 8, the only one in which loose thrombi were discovered, the patients lived about 10 and 15 minutes respectively. In conclusion, he believed that spontaneous pulmonary thrombosis was comparatively common—more common than embolism. Eight cases to one of embolism out of some 1200 post mortems was the proportion in one hospital. He believed the condition was often overlooked from neglect to open the pulmonary artery, from neglect to trace out the distribution of the clots *in situ* in properly hardened specimens, and lastly, from neglect to examine them microscopically. Even the association of pulmonary clots with others in the systemic veins did not necessarily prove that the former were embolic. Both might have arisen spontaneously and separately from similar causes. The coiling and twisting of the thrombi upon which stress was laid was in itself no proof of embolism, unless they could be unravelled, or unless sections proved that separate strands of an embolus had been glued together by encapsuling thrombosis. He believed that eddies in the blood might produce a coiled appearance in spontaneous thrombi.

Some lantern slides were then shown demonstrating (1) thrombi in the pulmonary arteries; (2) thrombi showing blood changes and pigmentation; (3) section of the walls of an artery; (4) ingestion of pigment by leucocytes; (5) canalisation of thrombus; (6) organisation of clots and invasion by fibroblasts; (7) infection with streptococci; and (8) charts showing increase in pulse-rate and respiration-rate out of proportion to the temperature.

Dr. J. F. GOODHART (London) said that, although he had seen some cases where the condition was more of the nature of a thrombosis than of an embolism, his impression was that embolism was of much commoner occurrence.

Dr. C. R. BOX (London) said that it was gratifying to find that Dr. Glynn had been able to confirm the occurrence of primary pulmonary thrombosis as a cause of sudden death. In a paper read before the Clinical Society of London, he himself had attempted to show that the suddenness of death in these cases was due to a process of embolism superadded to the pulmonary thrombosis, that portion of the clot which lay in the main pulmonary stem becoming detached from its anchorage in the heart and impacted further up near the bifurcation of the pulmonary artery; that the coiled appearance of the clot in these cases was not always due to blood eddies was borne out by the fact that in one of his own cases the impacted clot bore the impress of the pulmonary semilunar valves. Among other symptoms he mentioned pain, and pointed out that, just as in the case of the veins of the extremities and of the brain, the pain always corresponded to the region affected.

Dr. E. F. BASHFORD (London) drew attention to the light the intravenous injection of emulsions of cancer threw upon the size of the thrombi which might be present ante-mortem without evident signs of their existence. In these experiments it was necessary to inject an emulsion producing immediate signs of pulmonary embolism. In the animals which survived the emboli grew, and in the course of time might be found as thrombi blocking a large part of the pulmonary arterial system before invasion of the lung tissue took place. The same thing occurred naturally during the dissemination of cancer both in man and in animals. Therefore it seemed to him that the extensive thrombosis described by Dr. Glynn and Dr. Box was not incompatible with its ante-mortem occurrence, provided that it had developed gradually, whether it arose from embolism or spontaneously in the vessels.

Dr. GLYNN replied that he was glad to hear the remarks

which had been made, and that he thought primary thrombosis was more common than was generally believed; it was wrong to argue that peripheral thrombosis was the cause of the presence of a thrombus in the pulmonary artery; he failed to see why both could not occur simultaneously. He would like to have Dr. Addis's opinion as to the time taken by the clot to form; he was sure that it was not true that it took a few minutes only.

Dr. ADDIS thereupon stated that if a large amount of thrombokinase were present the clot could form in a few minutes, but with respect to the laminated clot described by Dr. Glynn, he thought it must have taken longer.

Dr. J. A. BRAXTON HICKS (London) next read a paper on

An Investigation of the Effects of Artificial Respiration on the Stillborn.

He said that omitting any discussion on the legal question as to whether the child was "born alive," the best evidence they had at their disposal of stating that the child lived at or about the time of birth was obtained from an examination of the lungs and intestinal tract. The lungs in a child that had respired were pink, mottled, voluminous, crepitant, and floated as a whole or when cut into small pieces. The fœtal lungs were a dull purple brown, were of small volume, non-crepitant, and sank in water. The stomach and intestines contained air and floated after respiration had occurred, whereas they sank if the fœtus had not respired. Between these two conditions of inflation and non-inflation there were certain intermediate conditions (partial atelectasis) and certain exceptions. The first exception was where the infant respired but the lungs were found in the fœtal condition post-mortem. He quoted a case of anencephalic monster and other cases in which this condition was present. The second exception was that in which respiration had not occurred, but appearance suggestive of it had been produced by artificial respiration, a condition to which this paper particularly referred. Three cases were then quoted of stillborn fœtuses on which artificial respiration was performed for one hour, 45 minutes, and 30 minutes respectively, and in which the post-mortem appearances and their response to the hydrostatic tests were in accordance with complete natural respiration. The stomachs and intestines also contained air and floated. Two other cases were then quoted, in one of which artificial respiration was performed for ten minutes and in the other not at all, the lungs of the first case being only partially inflated, those of the second case not inflated at all. Some specimens and a micro-section of the inflated lung were then shown. Though it was admitted that there was no way of distinguishing the partially naturally inflated lung (partial atelectasis) from the partially artificially inflated one, it was disputed that an artificially inflated one resembled a fully normally inflated lung. Thus it was stated that mottling was not present, that considerable force must be exercised to cause air to enter the lungs, that the air only entered the bronchi and bronchioles and not the alveoli, and therefore could be expressed by pressure, the lungs now sinking in water. Now, in the three fully inflated lungs described there was nothing, no force greater than the orthodox artificial midwifery methods were employed for inflation, and pressure did not expel the air from the lungs. The opinion therefore held was that artificially inflated lungs could, and did in certain cases, resemble those that have naturally respired, but that this depended on the length of time artificial respiration had been carried out, and that, from a consideration of the case fully inflated in half an hour and partially inflated in ten minutes, this time was about 20 minutes. If a plea that artificial respiration had been performed was put forward in a case of infanticide to account for appearances of complete respiration, the following things must therefore be proved: (1) That the parturient woman herself could perform artificial respiration (a condition hardly credible), or that someone was there who could perform artificial respiration (midwife, &c.), and who might, of course, be a party to the act of infanticide; (2) that artificial respiration had been performed for a long enough time; and (3) that no other signs of life after birth (i.e., food in stomach, cutaneous changes, &c.) were present. If all these three conditions were fulfilled (an event he considered extremely improbable in a case of true infanticide) then there was no means of saying whether the child had normally respired or whether the appearances were due to artificial inflation.

Dr. J. M. BERNSTEIN (London) said that the whole idea of these observations arose from one case where he had been requested to give an opinion as to whether the child was born alive or not. Although the signs of live-birth were present, he could not be certain that the child had lived, and had been unable to give a definite opinion to the coroner on the matter. Since then Dr. Braxton Hicks had collected some more similar cases, and he thought that such observations ought to be announced. In some specimens complete aeration had been found not to have taken place even in cases a week old.

The PRESIDENT remarked that many years ago he had been interested in the subject and had found that air, thought to be absent, could still be demonstrated by squeezing the lung under water. Had Dr. Braxton Hicks done this with his specimens?

Dr. BRAXTON HICKS replied that what the President alluded to had been done and reported, but that he himself did not wish to destroy his specimens, and therefore had not squeezed them under water.

Dr. G. W. GOODHART (London) read a communication on

Chloroform Necrosis of the Liver.

He said that in rabbits which were anæsthetised with chloroform for from 30 minutes to 2 hours marked changes, varying from fatty degeneration and necrosis of the cells at the centre of the lobules, were found in 70 per cent. of the cases. In animals which received a subcutaneous injection of 0·5 cubic centimetre, similar but more marked results were obtained. With a smaller dose, 0·2 cubic centimetre, the same change was produced in a much smaller percentage of cases. In animals which survived the smaller doses, no such change was produced by repeating the dose.

The PRESIDENT remarked that there were many interesting points in connexion with the paper. He would have liked to know what the histological appearances of the necrotic area were: What was the nature of the fatty change? Was it an infiltration or a degeneration? He thought that the matter would have been an easy one to decide upon, since an increase or diminution in size of the whole organ could have been observed without difficulty.

Dr. J. F. GOODHART said that since it had been mentioned that the changes were confined to the neighbourhood of the central vein he would like to ask if they partook at all of the condition of the nutmeg liver.

Dr. GLYNN asked if the pathological changes resembled those which were met with in the human being?

Dr. BASHFORD remarked that Dr. Goodhart had touched upon only a small part of what was really a much larger subject. He wanted to know if changes had been noted in other tissues. He mentioned similar experiments which had been carried out with ether, where changes had been observed in the kidneys as well as in the liver.

Dr. GOODHART replied that the fatty change was of the nature of an infiltration; the appearance of the big liver might be like that of a nutmeg liver, but that in the acute cases there had been no evidence of pressure atrophy. He admitted that he had only touched a fringe of the subject; he had not worked with ether, which had been reported as not producing any change in the liver. In some of his cases there had been fatty changes in the kidneys and in a very few the heart had been similarly affected.

Dr. R. A. CHISHOLM (London) read a paper on

The Blood in Malignant Disease.

He said that the object of the research which formed the subject of this preliminary communication was to discover the effect produced on the oxygen capacity and volume of the blood in rats by the presence of an implanted sarcomatous tumour. The estimations were made by Welcker's method. Tabulated results were shown on the screen, and the conclusions drawn from the experiments were that the volume of the blood may be increased and the oxygen capacity decreased in the tumour rats as compared with normal rats.

Dr. A. E. BOYCOTT (London) remarked that one interesting point was the reaction of the hæmoglobin-forming tissues to the growth of the tumour. There were reasons to expect that they would object to its presence. As a matter of fact, the results were indeterminate. Thus the rats were found to have too little or too much hæmoglobin according as the

tumonr were oonsidered as forming part of them or not. This showed the fallacy of estimating the amount of hæmoglobin in the circnlation in certain conditions, as in chlorosis, for instance.

Dr. C. PRICE-JONES (London) read a paper on

Alterations in the Size of the Red Blood Corpuscles,

and gave a description of the methods for estimating variations of measurement in the diameter of red cells. He further gave an account of the relation which existed between the diameter of red cells, the high colour index, and the formation of metrocytes in the bone marrow as shown by observations on the effects of hæmorrhage and of the subcutaneous administration of phenylhydrazine on rabbits.

Dr. H. BECKTON (London) next showed a most interesting series of lantern slides to demonstrate that Alltman's granules (fnchsinophile granules) were present in normal cells, in inflammatory conditions, and in the cells of innocent new growths, but that they were absent in the cells of malignant growths. In the case of mouse tumours also it was found that the majority had no granules. He emphasised the fact that the presence or absence of granules was a point of practical importance when it was a question of diagnosis as between sarcoma and an inflammatory condition, for instance.

Mr. GORDON R. WARD (London) read a paper on

Polychromasia and the Pathology of Hæmatoma.

He said that in one of the most recent text-books on diseases of the blood the following statement could be found: "If blood, the erythrocytes of which are free from polychromasia, be defibrinated and kept in a sterile tube for four or five days and then re-examined, polychromasia will be found in many cells." He was not concerned with disputing this statement, but with criticising the experiment upon which it was based and the deduction drawn therefrom—viz., that polychromasia is a change degenerative in nature. Defibrination is so gross a tampering with a tissue of such peculiar delicacy that it was impossible to disregard its influence. It was therefore basing argument on false analogy to deduce the degenerative nature of *intra vitam* polychromasia from a consideration of changes produced by so damaging a process. When it was considered that in addition to this the blood was kept *in vitro* for some days, the invalidation of the deduction quoted was only too plain. What did the experiment prove? Only that if red blood corpuscles were kept for some days under conditions likely to prove prejudicial to vitality some of them would show an alteration of chemical constitution which might be demonstrated as "polychromasia." They were thus bound to observe that this change could not depend only on the surroundings, for these were the same for all the corpuscles, while only some became polychromatophile. Where, then, lay the deciding factor? Presumably in the corpuscles themselves; no other explanation appeared possible. The conclusion, therefore, was that some of these corpuscles were potentially polychromatophile even before being subjected to experiment, or, to put it another way, that even in normal blood polychromasia might be demonstrated under suitable conditions. There was nothing, however, to suggest that the essential biochemical difference so demonstrated was in the nature of a degeneration. With such considerations in his mind he had examined the blood in hæmatomata following accidental and surgical injuries. In these the blood had been removed from the circulation but not from the body; the living test-tube experiment which was dealt with in text-books of physiology offered a close analogy, and, as in this case, the blood was found not to be clotted. Corpnscles under these conditions would naturally be deprived of the opportunity of exercising their normal functions—they wonld undergo changes from disease, atrophy, and finally death. As the conditions were the same for all corpuscles, changes affecting all were looked for. But again, polychromasia, when present, affected only a few corpuscles. The inference drawn, therefore, was that neither under the conditions of the first experiment nor of the more natural ones of the second did the death of a corpuscle *per se* lead to a polychromatic reaction. Did the reaction depend on the age of the corpuscle? Apparently not, since it was not found in fresh-drawn normal blood. It might be argued that cells about to become polychromatophile were removed from the circulation, but it was known that this did not take place even when blood destruction was at its greatest—as in pernicious anæmia. If, on the other hand, polychromasia was due to the youth of a cell, it ought to be found in normal bone marrow, which was not the case. The fact that it was found in the young of certain animals was much more easily explained by supposing a congenital variation as its origin. The full development of the adult hæmopoietic organs was not reached at the moment of birth; what more natural than that signs of a slightly differing activity should be found in the young. Polychromasia was potentially present in normal blood, and might be demonstrated if the blood were first treated in a particular way e.g., by defibrination, &c., as in the first experiment, or by deprivation of normal surroundings, as in the second. It was noteworthy that the more unnatural conditions always rendered it demonstrable, the natural only occasionally, usually after 10 or 12 days. In pathological conditions the potentiality was increased as the erythroblastic activity reverted to a more primitive type—e.g., in regeneration; or, in other cases, those conditions—e.g., of toxæmia—acted, as did the defibrination, by rendering it more easily demonstrable. Polychromasia should be interpreted accordingly. To sum up, he suggested as a working hypothesis that even in normal blood the corpuscles, as they showed differences in size, in hæmoglobin content, in isotonicity, showed another difference known as polychromasia; that this difference might be aggravated by conditions inimical to normal hæmogenesis, and might be rendered more easily demonstrable when the corpuscles were subjected to unnatural conditions. The further suggestion was made that normal adult hæmogenesis produced this difference in a mimimal degree, so that the incidence of other factors was necessary to its demonstration, and that it was to be expected in the blood stream in demonstrable degree when the marrow was of primitive type either by reversion or lack of development. If this hypothesis were employed, considerations of the significance of polychromasia from a clinical point of view should be much simplified. As regarded the changes noted in all corpuscles in hæmatoma they were as follows: (1) The blood was fluid, sometimes viscid, never coagulated; (2) on standing the corpuscles separated out; (3) rouleaux formation was absent or very defective; (4) the leucocytes showed fragmentation of the nucleus—in some cases they were increased and in some were engulfing red corpuscles; (5) crenation was absent; (6) fragmentation was not present, but was very easily produced; (7) loss of elasticity was most pronounced, and for this reason the examination of spread slides was only possible if the hæmatomata were opened early; (8) hæmoglobinæmia was absent; (9) the intensity of staining reaction as contrasted with normal blood was impaired; and (10) these changes were apt to be accentuated in the older cases. He hoped at a later day that he would have the opportunity of examining a large number of cases and of making a more detailed and comprehensive report on them.

Dr. BOYCOTT said that he wished to protest against the statement quoted by Mr. Ward from the latest text-book on the subject. He believed it was an acknowledged fact that polychromasia only occurred in the process of regeneration of the bone marrow.

Mr. WARD replied that he thought regeneration might be a primitive condition. In toxic condition one might get a regeneration, but that did not alter the fact that the change was not a degeneration.

Dr. BOYCOTT read a paper on

Experiments on Soap Anæmia.

He stated that since the discovery of ether-soluble hæmolysins in bothriocephalus some importance had been attached to oleic acid and its soaps in the causation of the anæmias associated with bothriocephalus and ankylostoma and of idiopathic pernicious anæmia. In particular, Faust had described how animals might be made anæmic by the administration of these substances. Rabbits inoculated subcutaneously repeatedly with sodium or potassium oleate were found to have less than the normal amount of hæmoglobin as determincd by Welcker's method. They showed, however, no signs of active blood regeneration and there was no evidence of excessive blood destruction; the anæmia, therefore, was, at any rate in part, due to deficient formation rather than to excessive destruction. Rabbits and rats fed on oleic acid showed no loss of total hæmoglobin.

PHARMACOLOGY AND THERAPEUTICS.

FRIDAY, JULY 29TH.

President, Professor A. R. CUSHNY (London).

Dr. H. H. DALE (London) read a paper on

The Active Principles of Ergot.

Recounting the history of our knowledge of the drug, he said that later work had led us away from the sound observations of earlier workers. Thirty years ago Buchheim stated that the active principle of the drug belonged to the class of septic or putrid substances, while almost at the same time Tauret isolated an alkaloid in crystalline form, and a second in amorphous form, which he regarded as a physical modification. He (the speaker) and his colleagues found that the active principles were two: (1) the specific alkaloid ergotoxin, corresponding nearly to the "amorphous ergotinin" of Tauret, to which the characteristic gangrene and other toxic symptoms of ergot were due; (2) the amines, which also arose during putrefaction and which were produced by the splitting off of CO_2 from tyrosine or from histidine. He pointed out that careful clinical observation and experiment were necessary to decide whether the specific therapeutic effects were due to the alkaloid ergotoxin or the amines from the amino-acids, and in the latter case to determine which was the important one. If ergotoxin played a necessary part in the desired effect, then ergot alone could give us what was wanted. If the amines alone sufficed, then ergot had no place in the Pharmacopœia, for these bases could be more readily obtained from other sources.

Professor HANS MEYER (Vienna) reported some recent important observations upon

The Action of Calcium

carried out in his laboratory. The assumption that oxalic acid poisoning was due to the withdrawal of calcium from the body had recently been proved by Dr. Januschke. Both the cardiac depression and the general toxic symptoms of oxalate poisoning could be relieved by the administration of calcium, or of its physiological equivalent strontium, but not of barium. Many of the symptoms of oxalate poisoning would appear to be due to an increased irritability of the sympathetic nervous system and of the organs supplied thereby—for example, the dilator of the pupil, the submaxillary gland, the arteries, and the inhibitory mechanism of the bladder. The autonomous system was similarly affected and the cardiac vagus and chorda tympani responded to a small fraction of the usual dose of pilocarpine. The administration of calcium did away with this hyperirritability. Animals to whom calcium had been given did not give such inflammatory exudates in response to stimulation as normally occurred. Thus the usual pleural or pericardial exudates which resulted in guinea-pigs poisoned with diphtheria toxin or dogs poisoned with iodine or thiosinamin did not occur. This he attributed to a change in the vessel wall. He could not account for it by any mere increase in the coagulability.

Professor P. G. UNNA (Hamburg) read a paper entitled

New Facts concerning Chrysarobin.

He pointed out that it had long been known that in certain parts of the body the oxidation of chrysarobin took place strongly, in others the change was slow and weak, and he recounted experiments carried out by him which showed that the action of the remedy was not due, as had been widely held, to its oxidation to chrysophanic acid. Yet it was certain that some change in the substance chrysarobin must take place else we should fail to account for the remarkable variations in its efficacy as a treatment of psoriasis in different localities of the body. Nor would the process of oxidation of the substance alone account for the difference. There remained the third possibility that the final product of oxidation was the active substance. This active substance was not chrysophanic acid but a substance, oxychrysarobin, hitherto undescribed. The change was brought about by the presence in certain parts of the skin of oleic acid. A totally different substance was formed by the oxidation of chrysarobin in the presence of alkalies. The indication for treatment was to convert the chrysarobin into oxychrysarobin by the combination of chrysarobin and oleates of lead. After a year's experience of the treatment he was able to recommend it as an especcially quick and thorough treatment of psoriasis.

Dr. J. H. FORTESCUE-BRICKDALE (Bristol) read a paper upon

The Comparative Therapeutic Values of the Organic and Inorganic Compounds of Certain Elementary Bodies,

and mentioned the halogen elements iodine and bromine, arsenic, phosphorus, and iron. In the case of the iodides and bromides, he showed tables in which was calculated the amount of the halogen given in the daily dose of many of the new organic compounds and compared with that of the potassium salt. With few exceptions the amount was very much smaller. The organic halogen compounds were only non-toxic because of the small amount of the element which they yielded to the organism. In the action of atoxyl on trypanosomes, on the other hand, a new pharmaco-dynamic process was involved, and the organically combined element had a value which differed materially from that of the simple inorganic anhydride. No similar advantage, however, could be claimed for it in the treatment of syphilis, chorea, or severe anæmia. In these cases its action is confined to the splitting off of inorganic arsenic. The absorption of iron probably always took place in an ionised or partly ionised condition. All iron compounds in the stomach were converted into a loosely combined albuminous compound. It was only in their irritant action on the gastric and intestinal mucosa that the inorganic salts were at any real disadvantage. Some, though not all, of the inorganic salts were possessed of a harmful astringency.

Mr. NINIAN BRUCE (Edinburgh) read a paper upon the Action of Local Irritants, in which he analysed the part played by the nervous system.

Professor FAUST (Würzburg) described the production of experimental anæmia with special reference to the probable rôle of oleic acid in the pathogenesis of bothriocephalus anæmia.

Mr. P. P. LAIDLAW (London) showed tracings illustrating the Action of Cotarnine and Hydrastine; Professor W. E. DIXON (Cambridge) read a note upon the Action of South African Boxwood; Dr. H. CRICHTON MILLER (San Remo) described the combined method of the Treatment of Morphomania; and Mr. A. J. MATHISON (London) read a note upon the Treatment of Lobar Pneumonia.

PHYSIOLOGY.

FRIDAY, JULY 29TH.

President, Professor WILLIAM H. THOMPSON (Dublin).

A discussion of much interest took place regarding

The Mechanism of the Gaseous Interchange between the Air in the Lungs and the Blood.

Dr. AUGUST KROGH (Copenhagen), who spoke in English, gave a full account of his aerotonometers for the determinations of the tensions of gases in blood and other liquids. He demonstrated the apparatus, the principle of which consists in allowing a jet of blood to play upon a bubble of alveolar air of known composition. The bubble is then drawn up in the capillary graduated tube of the aerotonometer and analysed, whence the tension of any given gas in the blood can be deduced. By means of this exact method Dr. Krogh has obtained results which enable a more positive opinion to be given on the much disputed point regarding the power of the pulmonary epithelium to actively secrete oxygen into the venous blood, as the experiments of both Bohr and Haldane rendered probable. Dr. Krogh drew attention to his published curves of the tensions of oxygen and CO_2 in alveolar air and in pulmonary blood, and emphasised the point that the process of gas exchange in the lungs could be fully accounted for by the theory of simple physical diffusion. Moreover, he considered the single sheet of alveolar epithelium, on mere morphological grounds, to be unadapted for actively pushing the oxygen through into the blood.

The PRESIDENT said he wished to express the thanks of the members to Dr. Krogh for coming all the way from Copenhagen to enlighten them on the subject which his researches had done so much to elucidate.

Dr. J. S. HALDANE (Oxford) spoke of the great interest with which Dr. Krogh's investigations, which were models of what such experiments should be and had been carried out with very perfect methods, had been followed in this country. His own conclusions were on the whole at variance with those of Dr. Krogh, so that he came as a somewhat hostile critic, not from any want of admiration, but from conviction. His own later results obtained by the CO-method of Haldane and Lorrain Smith, which he had

used from the beginning throughout his investigations, had convinced him that *normally* the processes were such as could he explained by the laws of the physical diffusion of gases. Thus far he entirely agreed with Dr. Krogh. When, however, a *physiological stimulus* was applied—e.g., whenever there was urgent need of oxygen, Dr. Haldane found evidence of secretory activity.

Professor E. H. STARLING (London) strongly supported Dr. Krogh's views and criticised Dr. Haldane's ideas on the part played hy a physiological stimulus, attributing the adjustment rather to the wonderful sensitiveness of the respiratory centre, on which Dr. Haldane had done so much work. He maintained that it was an abnormal condition of things when one-half to two-thirds of the oxygen of the blood was displaced hy CO, as in Dr. Haldane's experiments, and that it could not he termed a "physiological stimulus."

Dr. HALDANE, in reply, said that the earlier conclusions from observations made in conjunction with Professor Lorrain Smith had been calculated on the basis of Hüfner's curve of dissociation of oxyhæmoglohin, which was now known to he inaccurate. With regard to Professor Starling's contention that man had not heen evolved to deal with CO, he quite agreed that it was an artificial stimulus, hut he thought a very valuable one, since it produced want of oxygen in the hlood. He believed the same stimulus came into play with all muscular work. He compared the lung epithelium to that of the kidney, which could be affected hy stimuli, causing diuresis, and said that it seemed almost impossible to come to a definite conclusion about a matter of such great importance and interest except by an extended written criticism.

Dr. G. A. BUCKMASTER (London) considered the high values found by Dr. Haldane and Professor Lorrain Smith, which gave an average figure no less than ten times that which was commonly accepted for the tension of oxygen in arterial hlood, were so much in excess of determinations made with aerotonometers, that it would he hetter to suspend an opinion as to whether the pulmonary epithelium could actively secrete oxygen into the blood from the alveolar air. The power possessed hy animals of adapting themselves to diminished oxygen tensions at high levels of 14,000 or 16,000 feet might in part he explained, not by the mechanism of secretion alone hut hy the actual increase in the hæmoglobin content of the blood. The values he obtained with Dr. C. Slater and Mr. C. T. Dent during a five days' stay on Mont Blanc 15 years ago showed that the increase of pigment would augment the percentage of oxygen capacity of a volume of blood from 17·8 to 22·5.

Dr. KROGH, in replying, said that he had used every possihle method which might obviate errors. The metaholic processes in the blood itself, involving the consumption of from 10 to 50 cuhic centimetres of oxygen per kilogramme an hour, which he had observed to take place in the arterial hlood of rahhits at hody temperature, did not take place with sufficient intensity to affect appreciahly the determinations of CO_2 and O_2 tensions by means of his tonometers; he ohtained identical results by simultaneously employing two microtonometers which the hlood reached at different rates. Moreover, he found that just as the affinity of the blood of different animals for oxygen varied, so it did for carhon monoxide, and the hæmoglobin of different animals did not necessarily possess the same relative affinity for oxygen and carhon monoxide. He thought, therefore, that too much faith should not be placed in these colorimetric determinations of the oxygen capacity of the blood, based on the assumption that it followed the same laws inside the hody as it did in shed blood. Dr. Krogh had proved that it did not. Just as Dr. Haldane had shown that the affinity of hlood for carhon monoxide might vary from one individual to another, so Dr. Krogh though it might vary in the same individual from time to time. He considered that experiments should he carried out simultaneously by the carbon monoxide method of Haldane and Smith and his own tonometric method before the uncertainty now existing could be cleared up. Calculations based on the data of his experiments supported ahundantly his contention that the mechanism of gaseous interchange between the alveoli and the hlood was a purely physical one.

Dr. M. ROSS TAYLOR (Glasgow) then read a paper on

The Excretion of Creatin in Diabetes,

and discussed the possihle factors concerned in the increased creatin output which he had ohserved to be associated with this disease.

Dr. C. G. DOUGLAS (Oxford) communicated the results of his work on

The Artificial Production of Cheyne-Stokes Breathing and the Factors which Cause its Occurrence.

He showed tracings obtained with Mackenzie's polygraph at different sea levels. By breathing forcibly for one minute true apnœa was induced, followed by periods of Cheyne-Stokes breathing. At normal altitudes these periods did not exceed 7–8 in number. This type of breathing could be accounted for by supposing that the forced breathing washed out the CO_2 from the lungs inducing apnœa. The oxygen tension falling gradually, he showed by plotted curves how a point would be reached at which sufficient lactic acid would he produced, due to lack of oxygen, to act as a stimulus to the respiratory centre, the CO_2 tension remaining still too low to act as an excitant. With every breath the O_2 tension would rush up and the CO_2 tension would gradually creep up until the breathing hecame normal. At high altitudes the same experiments were made in presence of a diminished oxygen tension, and it was found that the CO_2 not being able to rise, practically permanent periodic Cheyne-Stokes breathing occurred—42 periods occurring at 11,000 feet. An opportunity was thus ohtained for a full study of the gases in the alveolar air, and they were apparently such as to account for the periodicity. Dr. Douglas then gave a demonstration on himself of Cheyne-Stokes respiration hy hreathing through a long tuhe, a good method for ohtaining a large number of periods.

Dr. F. W. EDRIDGE-GREEN (London) described in detail a large number of suhjective and entoptic phenomena connected with

Visual Sensations arising from Excitation of the Yellow Spot.

He drew attention to the various appearances in the field of vision due to peculiarities of the macula and fovea centralis and in particular to certain currents which may he seen entoptically that cannot be due to the circulation in the blood-vessels of the retina. These currents may be observed hy a variety of methods, such as looking through yellow-green glasses when the eye is somewhat fatigued, or by looking at a rotating disc composed of black and white sectors and noting the moment when a fine flicker picture is most marked; the field of vision then hecomes dark red, in which a number of interlacing currents directed from the periphery to the centre appear. Any interpretation of these whirling currents, which were seen hy Helmholtz when repeating some earlier experiments made hy Vierordt with intermittent light, the speaker considered presented the greatest difficulties on any hypothesis hitherto advanced, but were easily intelligihle on his own theory of vision. These whirling currents are due to an altered distrihution of visual purple or rhodopsin in the perceptive rod and cone layer of the retina. He regarded the cones as the only percipient retinal structures. The rods, on the other hand, were only concerned with the secretion and distribution of the visual purple, which was diffused from these into the layer of liquid surrounding the outer segments of the cones. Light then decomposed the visual purple, which was photo-chemically sensitive, and the decomposition-products stimulating the cones thereby set up a visual impulse. The whirling currents, which could he demonstrated entoptically, were in reality currents of visual purple flowing into the external fovea of the yellow spot.

Dr. EDRIDGE-GREEN also gave a demonstration of his

Spectrometer for mapping out Colour Sensations,

an instrument which gives pure colours the exact wavelengths of which can be directly ascertained. Tested with this apparatus the range of colour perception of any given individual is much more readily determined than with Holmgren's coloured wools. Individuals examined may vary in either direction from the normal hexachromic type where six colour patches of the visible spectrum are recognised.

PSYCHOLOGICAL MEDICINE AND NEUROLOGY.

FRIDAY, JULY 29TH.

President, Dr. THEOPHILUS B. HYSLOP (London).

Dr. R. BÁRÁNY (Vienna) read a paper on

The Vestibular Apparatus and the Cerebellum.

He gave a demonstration of two methods of examination relating to the diagnosis of cerehellar diseases which he had

lately described. The first investigated the equilibrium of the body, the second pertained to the pointing movements of the extremities during vestibular irritation. He distinguished between spontaneous disturbance of equilibrium and disturbance of equilibrium experimentally produced. The tests were made in a similar manner to Romberg's test, with eyes closed and feet placed together. He had detected the following law in this connexion. If a man had by reason of any disease of the labyrinth a strong rotary nystagmus to the right, in assuming the position for Romberg's test he would fall to the left; this meant that he would fall in the plane of the nystagmus. If while maintaining the same position the head was turned 90° to the left, the patient fell backward; if the head were turned 90° to the right he fell forward. The experimental disturbance of equilibrium could be produced in every normal individual by eliciting a vestibular nystagmus through turning, or syringing an ear. By turning ten times to the left with the head bent 90° forward, or by syringing the left ear with cold water, the patient being in Romberg's position, rotary nystagmus to the right was produced. In cerebellar disease he had found that there was no connexion between any existent spontaneous nystagmus and the direction of falling. The patient with a nystagmus to the right fell also to the right, whilst the influence of the position of the head upon the direction of the fall was absent. He had latterly tested the experimental nystagmus and its influence upon the act of falling in a number of cerebellar cases. He found that syringing the left ear with cold water produced nystagmus to the right, but nevertheless the patient fell forward and not to the left. Turning the head 90° to the left did not make him fall backward, but he still fell forward. By this means he had lately diagnosed a tumour of the vermis of the cerebellum, which was verified post mortem. He offered as an explanation the possibility of the fibres of the cerebellar lateral tract and the fibres of the vestibular nerve being connected in the cortex of the cerebellum, as illustrated by Cajal. In the "pointing experiments" the patient closed his eyes and stretched out his arm to touch with the forefinger an object held in front of him; the hand was then withdrawn and the patient was asked to point again. If a normal individual was turned ten times to the right a vestibular nystagmus to the left occurred, and he would now have a tendency to point to the right of the examiner's object. This was probably due to a vestibular innervation of the arm muscles; it must arise from the cortex of the cerebellar hemispheres, and he related two cases of cerebellar abscess in support of this hypothesis. He found that turning had no effect on a patient in pointing with closed eyes to the tip of his nose. No fault was made, which was, he thought, due to the effect of the vestibular innervation being corrected by the cerebral cortex, and that the path of connexion might be the brachium conjunctivum, which travelled from the cerebellar cortex through the red nucleus to the cerebral cortex. This supposition was borne out by a clinical case of hemiathetosis, where the brachium conjunctivum was regarded as interrupted, and which caused the patient to make the same faults in pointing to his nose as to the examiner's object.

Dr. ALEXANDER BRUCE (Edinburgh) said that Dr. Bárány's investigations had given otologists and neurologists a new basis for diagnosis, and the tests described by him might be usefully applied to the nystagmus of disseminated sclerosis, which was frequently the first indication of the disease.

Dr. A. S. BARNES (Birmingham) instanced a case of cerebral (posterior parietal) tumour with symptoms characteristic of lateral cerebellar tumour as showing the necessity for the adoption of fresh tests to indicate the position of disease in conditions where equilibration was disturbed.

The PRESIDENT said that he had seen many cases of giddiness, nystagmus, and loss of coördination which might have pointed to vestibular or cerebellar disease, but had proved to be due to cortical irritative lesions or implications of cranial nerves at the base of the brain.

Dr. D. G. THOMSON (Norwich) read a paper on

A Post-graduate Curriculum and Diploma in Psychological Medicine.

He urged that the time had come for the establishment of a curriculum and a diploma for this special department of medical practice, which should receive recognition by the various universities and other qualifying bodies. The subject had already been discussed in a paper read by him before the Medico-Psychological Association in May, 1908, and had met with a cordial reception. It was remarkable that while various special branches of medicine had such curricula and diplomas there were none for psychiatry, although some of the qualifying bodies included mental diseases among the subjects of examination. For instance, the Universities of London and Durham permitted the holders of their M.B. degree to proceed to the doctorate in psychological medicine; the University of Edinburgh and some other universities made attendance on a course of lectures in that subject compulsory for the M.B. degree; and the Medico-Psychological Association had instituted an examination and certificate in psychological medicine. This did not, however, suffice for a young medical man who wished to equip himself with the problems of the pathology and treatment of mental disease and make it his life's work. With the constantly increasing number and extent of subjects demanded of the medical student it was impossible for him to obtain more than a *résumé* of a special subject until after he was qualified. Teaching authorities had already recognised this as regards public health and other specialties; in the first-named the law even demanded it and therefore post-graduate curricula in public health and in tropical medicine were provided at the medical schools. But under present conditions a young graduate entering on the treatment of insanity, the most difficult of all the specialties, received his appointment without proper training. Great progress had been, and was being, made in asylums both in scientific research and in medical treatment, but much more ought to be done by asylum medical officers in the practical application of the new sciences of bacteriology, hæmatology, and biochemistry. It might be said that the difficulty in obtaining assistant medical officers was already sufficiently great, but in his opinion the adoption of the proposals now made might even lead to an increase in the supply of candidates. Committees of visitors might fear the increase of expense which research work and an increased medical staff would involve, but they should be educated to an appreciation of the advantages which the patients would derive from the improved system. The desirability of a post-graduate curriculum and diploma had been before the educational committee of the Medico-Psychological Association, and its subcommittee had reported strongly recommending the same. This was approved by the Association, and the President was authorised to send a letter on the subject to the universities and medical schools of Great Britain and Ireland. It was suggested that one year should be the period for post-graduate study, and that provisionally the subjects of instruction should be divided into compulsory and optional—the compulsory subjects to include (1) anatomy, physiology and pathology of the nervous system; (2) psychology, normal and morbid; (3) clinical pathology; (4) clinical neurology; and (5) psychiatry, systematic, clinical, and medico-legal. For the optional subjects, only one of which was to be required, experimental psychology, bio-chemistry, bacteriology, comparative anatomy and physiology of the nervous system, and eugenics were suggested. To this letter a gratifying response had already been received. The Faculty of Medicine of the University of Edinburgh and of the Victoria University, Manchester, had recommended their respective Senates to adopt the recommendations, and regulations for a curriculum and diploma in psychiatry had been approved, whilst the Universities of Cambridge and Durham had nearly completed their arrangements. He then proposed a resolution to the effect that the meeting strongly approved of and recommended the institution of a post-graduate course or curriculum and a diploma in psychiatry, and further, that this resolution be brought before the Council of the British Medical Association.—This was seconded by Mr. JAMES STEWART (London) and carried unanimously.

Dr. R. H. COLE (London) spoke of the state of post-graduate study as it existed at present in this special branch of medicine in London. Occasional lectures were delivered and clinical demonstrations were given, but no definite course comprising the whole ground of psychiatry was available for the qualified medical man. He had to visit different asylums, hospitals, and laboratories to obtain his knowledge. The certificate of the Medico-Psychological Association had not carried the weight that it deserved in the competition for an appointment. He considered that a university diploma, involving a recognised course of study, would lead to far-reaching beneficial results both as regards the better training of the asylum medical officer and the more scientific treatment of the insane.

Dr. E. S. PASMORE (Croydon) referred to the want of knowledge of the subject of insanity generally exhibited by the average medical practitioner. With regard to the proposed post-graduate course and diploma, he doubted the wisdom of insisting on so much neurology and cognate sciences. He had lately recommended the appointment of a pathological chemist to the asylum of which he was superintendent. The statutory work demanded from asylum medical officers encroached so much on their time as to interfere with research work.

Mr. H. G. SHORE (London) referred to the fact that general practitioners saw melancholics in the early stages and did not sufficiently realise their potential suicidal tendencies.

Dr. T. SEYMOUR TUKE (Chiswick), after expressing approval of the proposals embodied in the paper, said that in his opinion the insane did not benefit by the existing conditions whereby knowledge of neurology seemed in some instances preferred to that of actual clinical mental disorders. The two subjects should go hand in hand and be required of everyone having the care of the insane or being consulted by others on their behalf. He hoped that in the examinations for the proposed diploma the preponderance of psychology and neurology was more apparent than real, for a thorough knowledge of mental diseases by the candidate was essential.

The PRESIDENT criticised the attitude of the University of London, which originally made mental physiology compulsory in its higher degrees and had now varied the subject and made it optional. He also deprecated the action of the London County Council in the apathy it had displayed in shelving the matter of the Maudsley Bequest for the establishment of a mental hospital with a psychiatric school to be attached thereto. It was the duty of the profession to make this need for instruction felt in the interests of the insane which might lead to action by the governing bodies concerned.

Dr. BRUCE showed a series of lantern slides illustrating a case of

Multiple Neuromata of the Spinal Cord.

In this case a sclerosis of the adventitia of the vessels of the spinal cord was associated with multiple (amputation) neuromata in the substance of the cord. The specimens were obtained from a patient who had been in the Longmore Hospital for Incurables, Edinburgh, and had died at the age of 30 years. Her illness had commenced apparently about the age of 7 years, with "water in the head." About the age of 10 years weakness of the lower extremities began to develop, followed by muscular wasting and loss of the knee-jerks. The weakness gradually extended upwards to the trunk and upper extremities, and the patient ultimately became bed-ridden. Pathological examination of the cord showed that the condition had apparently begun as a sclerosis of the membranes in the neighbourhood of the points of emergence of the anterior and posterior roots, from which points it had entered the substance of the cord by the lymphatic system of the adventitia of the vessels, and had extended along these vessels irregularly as far as their ultimate terminations, producing a great thickening of the outer wall, with a connective tissue. In addition, the lower portion of the cord, and to a lesser extent the cervical region, showed numerous microscopic tumours, nodular or spindle-shaped or irregular, composed of spindle-shaped cells associated with medullated nerve-fibres.

Dr. EDWIN L. ASH (London) read a paper on

The Psychological Treatment of Certain Functional Conditions.

He said that the condition of hypnotic sleep afforded great facilities for psychological experiments, but its action was apt to be uncertain. He confirmed the statements made by numerous observers to the effect that suggestion therapeutics could be successfully practised without the induction of hypnotic sleep. It was remarkable to find how pain and hyperæsthesia of special senses could be alleviated by a simple system of treatment by suggestion, in the application of which a patient was conscious of all that was being done, and, moreover, retained perfect liberty of thought and action. With regard to the actual application of suggestion in treatment, the practical technique to be followed must be varied according to circumstances. In its simplest form suggestion might be brought to bear on a patient by placing him in a comfortable chair, telling him to close his eyes and to relax every muscle as far as possible; all distracting noises should be avoided and the patient instructed to fix his attention solely and earnestly on what was being said to him by the physician, who, in a quiet persistent voice, enumerated the particular symptoms for which relief was sought, and confidently gave reasons why these would shortly disappear, and assurances that they would undoubtedly do so. Functional diseases particularly lent themselves to treatment by suggestion, because they appeared to be invariably dependent on a mental factor, especially those very common neuroses which came under the headings of neurasthenia and hysteria. As the leading factor in the treatment of these two conditions he had found suggestion to be more reliable in its effects than any other principle, and he had seen many cases improve quickly under its influence. Suggestion was remarkably successful in the functional incontinence of urine so commonly met with in children and adolescents, and he related two cases recently under his observation. He had had successful results in cases of the morphine habit; others had reported good results from the use of suggestion in cases of alcoholism, but he had not himself undertaken the treatment of alcoholism by this means. In mental disturbance, not amounting to actual insanity, he had found the treatment give good results. Even auditory hallucinations, as well as dominant ideas and obsessions, yielded to direct suggestion. Cases of depression might require prolonged treatment, but were often recovered from under its influence. Other morbid conditions in which suggestion was beneficial were sleeplessness when not due to painful organic disease or to circulating toxins, headaches, and neuralgic pains of a functional nature, and some cases of dyspepsia and palpitation.

Dr. W. A. JOLLY (Edinburgh) read a paper on

The Knee-jerk and Simple Reflexes.

His research was carried out in the laboratory of the University of Edinburgh with the coöperation of Professor E. A. Schäfer, and was undertaken in order—(1) to record the interval of time elapsing between a tap on the patellar tendon and the beginning of the electrical variation indicating activity of the quadriceps muscle; and (2) to compare this interval with the delay occurring in the case of reflex action of the muscles of the thigh in response to mechanical stimulation of the skin of the foot. The knee-jerk was timed in the human subject, in the rabbit, intact and decerebrate, and in the decapitate and "spinal" cat; and comparison had been made in the decapitate and "spinal" cat with the homonymous flexion reflex of the hind limb and the heteronymous extension reflex. The time of the human knee-jerk, as determined in three subjects, ranged from 18·6 to 23·7 thousandths of a second (σ). In the intact rabbit the time varied from 5·2 to 6·6σ, in the decerebrate rabbit from 6 to 7·8σ, in the "spinal" cat from 5·3 to 7·9σ, and in the decapitate cat from 6·2 to 12·4σ. Experiments on the "spinal" cat where the knee-jerk and homonymous reflexes were elicited alternately gave a mean of 6·85σ and 12·77σ respectively. The averages obtained in a series of observations on a decapitate cat were: knee-jerk, 8·49σ; homonymous reflex, 16·75σ. The heteronymous reflex was studied in the "spinal" cat, and the times obtained ranged from 11·9σ to 19·9σ. The delay was found to be long soon after the cord was cut. It progressively diminished until three weeks after section the times of homonymous and heteronymous reflexes were closely alike. The delay in the knee-jerk was found to be more variable where the decapitate preparation was used than in the case of the "spinal" animal. To measure the latency of muscular contraction in decapitate preparations, after the knee-jerk had been measured the anterior crural nerve was exposed and cut 2 centimetres above the muscle. The following figures were obtained in two experiments—knee-jerk, 12·4σ, and 10·5σ; latency on nerve stimulation, 2·2σ and 2·7σ. Here the latency of the jerk exceeded that of the muscle stimulated through its nerve by 10·2σ and 7·8σ respectively. The time for a simple reflex, such as flexion of the thigh, was found to be roughly twice as long as for the knee-jerk.

RADIOLOGY AND MEDICAL ELECTRICITY.

FRIDAY, JULY 29TH.

President, Dr. J. MACKENZIE DAVIDSON (London).

Dr. G. ALLPRESS SIMMONS (London) read a paper on

The Constitution and Organisation of the X Ray Department of a General Hospital.

He said that when X ray work was commenced in general hospitals it was for the most part conducted by men who, without possessing medical qualifications, had acquired a

knowledge of the use of X ray apparatus. As examples of this he described the first beginnings of such work at St. Mary's Hospital and St. George's Hospital, and afterwards proceeded to show how the necessity that the radiographer should be medically qualified gradually dawned upon the governing boards of the hospitals. He then described the initiation of the X ray department of St. George's Hospital as being largely due to the representation of the physician to the skin department, Dr. Wilfred S. Fox, who, in conjunction with Dr. Simmons, thought out its original design and equipment. A ward on the entresol floor of the hospital was selected for the purpose. Plans of this ward in its original condition and again after its conversion into an X ray and electrical department were shown, and a description was given of the various pieces of electrical and X ray apparatus and their distribution in the department. Coming now to the staff of the department and their duties, he explained the procedure by which the medical and surgical staff were enabled to make use of the services of the X ray department; he also spoke strongly of the necessity for the records and reports being drawn up in proper form and carefully preserved so as to be available for use at any subsequent time. The paper concluded with a brief sketch of the daily routine of the X ray department.

Dr. W. S. LAZARUS-BARLOW (London) read a paper on

Radiation and Biological Processes,

in which he epitomised the work carried out on the subject in the cancer research laboratories at the Middlesex Hospital during the past five years. He referred to the effects on a photographic plate in the dark (skotographic effects) produced by various animal substances and showed that certain of them were due to the production of minute traces of ammonia, continuing for an almost indefinite length of time. Skotographic substances, certain chemical substances (ammonia, formalin), X rays, and radium produced changes in the development of the fertilised ova of ascaris megalocephala which had many points in common; in his opinion these effects could hardly be termed chemical in the ordinary sense of the term. He also referred to experiments with X rays and radium upon silkworms, and said that the results were in the main similar to those obtained with ova and indicated that radiation was dual in its action, partly accelerating and favouring development and partly retarding and hindering it.

Mr. ALFRED E. BARCLAY (Manchester) read a paper on

The Normal and Pathological Stomach.

He said that his paper was based on the examination of about 350 cases by the bismuth method during the last four years. Many of these cases had been examined many times, either at Ancoats Hospital, the Manchester Royal Infirmary, or at his rooms in conjunction with his partner, Dr. W. J. S. Bythell. In his opinion the diagnosis of gastric conditions could not be obtained from a radiograph or from a single observation, but only from the piecing together of the results of a series of observations. Examinations were best conducted in the upright position, and the operator must be efficiently protected as the examinations were necessarily prolonged and the electric currents were very powerful. The normal stomach was a tubular organ and there was no physiological division of the sac. The tonic action of the gastric muscle gave a more or less fixed level for the upper border of the gastric contents. The shape of the air shadow showed the presence or absence of food in the stomach. With a full stomach there was a transverse straight line below the air shadow, whereas in the empty stomach the lower border of the air shadow was convex downwards. If the stomach was atonic and all the contents had gravitated downwards, the air shadow was as in an empty normal stomach. The first mouthfuls of the bismuth food were watched from the œsophagus through the cardiac orifice and down to the lowest part of the stomach, and the manner in which the food passed down showed whether the gastric walls were in contact or kept apart by other food in the stomach. Spasmodic conditions of the walls caused temporary obstruction to the passage of the food downwards. The rate at which the food left the stomach was varied by many factors, but a bismuth meal should have left the stomach in five hours. When all the food passed straight to the lowest part and formed a transverse shadow well below the umbilicus it was suggestive of atony, but one of the fallacies was that the rest of the stomach might be full of ordinary food through which the bismuth food rapidly gravitated. That the lowest part of the stomach was below the umbilicus was no proof of atony, for a perfectly normal stomach was sometimes displaced downwards in general visceroptosis. The tonic action of the stomach was influenced by the patient's sensations, being diminished by distaste for food and by sudden fear. Nausea also caused diminution in tone, while in the act of vomiting the stomach contracted in an upward direction. Chronic pyloric obstruction, 42 cases of which had been observed by Dr. Barclay, gave rise to retention of food, and the fact of a full stomach was always suggested by the presence of a fluid line below the air shadow, which could be seen rippling and splashing when the patient was shaken. The bismuth food sank through the retained food in large drops and outlined the lowest part only. Peristalsis was usually excessive. The proof of pyloric obstruction was that the stomach still contained some of the bismuth meal longer than five hours in spite of the presence of good peristalsis; observations must consequently be made from time to time to see when the food left the stomach. If it was empty in 10 hours the patient could possibly lead a comfortable life with careful dieting, but if there was still food in the stomach after 24 hours, as frequently occurred in hospital practice, the condition called for surgical interference. Bilocular conditions of the stomach might be either spasmodic or organic, and the organic hour-glass conditions were always complicated by a marked spasmodic element. Functional and organic cases might be distinguished from one another by means of abdominal massage. With regard to the recognition of carcinoma of the stomach, Dr. Barclay observed 41 cases of this disease in which the diagnosis was verified by operation or by the subsequent history of the case. As new growths threw no shadow that could be distinguished it was necessary to rely on displacements of the bismuth food. Aerophagy or air-swallowing was occasionally associated with visceroptosis. These patients swallowed air with their food and were troubled with eructations. In some extreme cases the diaphragm was displaced upwards by the large quantity of air in the fundus. In duodenal ulcer the picture of the stomach was quite normal with the exception that peristalsis was more violent than usual, the food left the stomach in an abnormally short space of time, and there was frequently a separate bolus of food in the duodenum.

Professor WENCKEBACH (Holland) showed a very complete

Stand for X Ray Work.

It was so arranged that the observer had every movement at his command without rising from his seat. It could be employed for demonstrating to a class and for making accurate measurements of the heart and other parts. It was suited for use in the consulting-room as well as in a hospital.

Dr. A. HOWARD PIRIE (London) read a paper on

The Successful Treatment of Hyperidrosis by X Rays.

He said that the armpit was the part most frequently affected. In the cases which he had treated the patient began to perspire after breakfast, and his clothes in the region of the axilla were soon soaked through by the perspiration, so that they had to be changed at least once a day and sometimes oftener. In the ordinary case the perspiration was made worse by heat, but Dr. Pirie described three cases in which it was increased by cold, and he referred to this class as hyperidrosis frigidi. The treatment was by a measured dose of X rays applied once a month for four months, after which every case either ceased to perspire or the amount of perspiration was reduced to less than normal. Six cases were described, in four of which the patients were medical men, and in every instance the result was absolutely perfect. The permanency of the recovery has lasted in one case for three and a half years, in two cases for 11 months, and in the others from three to nine months.

Dr. ALFRED C. JORDAN (London) read a paper entitled

Types of Phthisis from the Radiographer's Point of View.

He said that X ray examination sometimes revealed definite lesions in the lungs after tubercle bacilli had been found in the sputum but before the ordinary physical signs had made their appearance. In examining the chest for pulmonary tuberculosis the cardiac shadow was first noted. In this disease the heart was often small and placed vertically in the thorax. The diaphragm was usually raised on the affected side and its range of movement was reduced. Tuberculosis of the lungs might be divided roughly into two

classes, apical cases and fibroid cases, an apical lesion showing impairment of transradiancy at one or both apices, with a more or less defined, though irregular, margin separating the consolidated from the normal lung. A tuberculous cavity was seen as an irregular clear area surrounded by a dark area of congested lung. Methods had been suggested for the purpose of distinguishing between a congestive tuberculous lesion of the apex and a healed cicatrix, but they were unreliable. Normally there was a certain amount of opacity at the root of the lungs, consisting of a band of shadow approximately parallel with the margins of the heart, from which band shadows radiated into the clear pulmonary area. Linear shadows accompanied by mottling indicated fibroid disease; the extent of the mottling increased as the disease advanced; the mottled areas might coalesce, producing blotches. It was not uncommon to find the apical and the fibroid type of pulmonary tuberculosis combined. In examining several cases diagnosed as bronchiectasis Dr. Jordan had found them to be of two kinds—namely (1) cases in which the lungs appeared to be radiographically normal, the correct diagnosis being septic bronchitis, and not genuine bronchiectasis; and (2) cases which showed the appearance typical of fibroid phthisis, including many with definite clinical evidence of bronchiectatic cavities. In bronchiectasis the tubular cavities were so densely surrounded by fibrosed and congested lung that the net appearance was one of increased opacity, the cavities being invisible to the X ray examination. In old fibrosis the greater part of the lung was opaque, and the heart was usually drawn towards the opaque side. In emphysema the barrel shape of the chest was represented by the position of ribs. The expanded lungs were more transradiant than normal, and tuberculous foci stood out in relief. The presence of clinically diagnosed emphysema, especially when accompanied by bronchitis, often made it impossible to determine whether tuberculous disease existed or not. The diaphragm was depressed on both sides in emphysema, and the cardiac shadow was usually vertical and long. In pleural effusion careful examination should be made of both apices, early tuberculous lesions being often found. The patient should be examined in the vertical position. The lung was never quite clear above an effusion of considerable size. Cases of pneumothorax and hydro- or pyo-pneumothorax should be closely examined for tuberculous disease. An X ray examination frequently cleared up a doubtful diagnosis in cases of pneumonia, abscess of the lung, new growths, and many other pathological conditions.

STATE MEDICINE.

FRIDAY, JULY 29TH.

President, The Right Hon. Lord ILKESTON (London).

Dr. JAMES KERR (London) read a paper on

Provision for Medical Treatment of School Children,

in which he dealt with the subject as it affected urban populations. He pointed out that although all sorts of defects and disorders existed among school children, none were very numerous at school ages beyond a few great groups which included dental cases; eye cases; aural defects, enlarged tonsils, or adenoids, and nasal obstructions; tuberculous or pre-tuberculous conditions, and ringworm. These groups included 95 per cent. of the school cases. The medical treatment of the tuberculous class of case was of a secondary importance compared with the necessity of existence in altered conditions of a hygienic and stimulating environment, but it was evident that for the group of dental, visual, aural, and ringworm cases some general effort would have to be made to bring the means of effective treatment within the reach of all. The London County Council paid 2*s.* per head for every child treated at certain specified hospitals, in many cases guaranteeing a minimum number. It also paid £50 per annum to medical men per half-day per week for the attendance of a clinical assistant. The Council laid a charge of about 4*s.* on each parent, and remitted this for those in destitute circumstances according to a wage scale. He maintained that this was all new work, and that the proportion which had previously found its way into the hands of the general practitioner as remunerative was infinitesimal. He admitted, however, that a possible objection to the scheme was that there was being reared a race who in adult life would be hospital habitués. Referring to the provisional scheme of the British Medical Association as one in which the child, having been seen by the school doctor, was seen again by another doctor, who might later treat it or pronounce whether it should be treated at the public expense, he was doubtful if it was ever likely to come into the field of practical politics.

Professor HENRY R. KENWOOD (London) discussed the question from the standpoint of county areas comprising rural and small urban districts. He considered that it was inexpedient even to attempt to introduce any uniform scheme of medical treatment, because local circumstances and conditions must largely determine local policy. Whatever scheme was adopted, its working efficiency would be exceptionally taxed during the first year or two, because of the arrears of treatment which had to be wiped out. Although the machinery for coping with disease and defective children would always be in motion, every decade would see it working at less and less pressure. He agreed with Dr. Kerr that the principal defects to be dealt with were those of vision and hearing, ringworm, and the conservative treatment of the teeth. As a general rule the local medical practitioner was not prepared to undertake to test vision, and he looked forward to the appointment of part-time ophthalmologists to prescribe spectacles, the education authority contracting for their supply, for which whole or part payment in one sum or instalments would, where practicable, be recovered from the parents. He supported the principle of Dr. S. Barwise's scheme of contributory insurance which had been experimentally initiated in Derbyshire. He did not think that the proposal which had been made to subsidise voluntary hospitals out of the education rate was destined to meet with general approval under the existing scheme of medical relief, though it looked as if the provision of medical treatment throughout the country might lead towards the nationalisation of medical service. It might be that medical inspection would educate public opinion upon the present and ultimate value of conserving the physical health of the children, and that more parents would in time be found to make the necessary pecuniary sacrifice for their children, but it appeared likely that in respect of the majority of elementary school children an increasing proportion of the cost of all medical treatment demanded might have to be borne by the education authority, and a small and diminishing part by the charitable public or the Poor-law authorities, until the day came when the whole cost would be thrown on the State. Those who cared for the future of the country would rather that this should happen than that much of the work should be inefficiently performed.

Dr. A. E. R. WEAVER (Abertillery) referred to the difficulty there was in prevailing upon the parents of children to obtain satisfactory medical treatment.

Mr. WILLIAM HODGSON (Crewe) protested most strenuously against the reflections which had been made against the general practitioner, and expressed the opinion that the nationalisation of the medical service had been prematurely announced. It was not fair to assume that the Poor-law had broken down. It was their duty to insist that in the first instance existing means of treatment were made use of before resorting to new and untried methods. It would be a serious matter to provide new hospitals, for, after all, clinics were only hospitals under a new name. They must go slow in the question of the medical treatment of school children as well as in that of a State medical service.

Mr. CYRIL JACKSON, chairman of the London County Council Education Committee, defended the scheme of medical treatment which had been adopted by the London County Council. He considered that the small sum which they would have to spend on any scheme would be money well laid out. The experience in London had been that the parents did take their children to the general practitioner, whose interests were being best served by convincing the parents that defects should be remedied. He agreed with Professor Kenwood that legal action should be taken to enforce treatment.

Dr. ARTHUR DRURY (Halifax) said that if the general practitioner was not fit to undertake the treatment of the ailments which were revealed by medical inspection he was not fit to be on the Medical Register. There was a vast amount of work done at the present time by the general practitioner which was not paid for, and that was why the London County Council thought it was being done cheaply. He deprecated the establishment of a body of medical men or women to undertake work which ought to be done by the general practitioner.

Dr. H. COOPER PATTIN (Norwich) gave an account of the method adopted in Norwich for the medical treatment of school children, which included the appointment of a whole-time school dentist and the provision of the gratuitous treatment of ringworm in necessitous cases. He hoped that some cases of other diseases might be treated at the hospital on terms satisfactory to the medical staff. He agreed with Dr. Kerr that the British Medical Association was becoming too reactionary.

Dr. W. G. SAVAGE (Somerset) agreed with Dr. Hodgson that they must not go too fast. In Somerset a whole-time oculist had been appointed on the staff of assistant school medical officers, who examined all the eye cases in the county. Spectacles were provided by the county council at a cost of 2*s.* 6*d.*, and he had obtained permission to prosecute those parents who, though well able to afford it, would not provide them. He dwelt upon the importance of the work of after-care committees.

Mr. E. H. T. NASH (Wimbledon) considered that the whole work of treatment should be carried out by the general practitioner, who should be adequately paid. He pointed out that the memorandum of the Board of Education distinctly stated that children found defective should be referred to the general practitioner.

Dr. H. MEREDITH RICHARDS (Croydon) would not divorce inspection from treatment—the two should be carried out by the same person. He considered that State interference was justified because the physical condition of the next generation was as important as their mental condition.

Dr. KERR, replying on the discussion, said that in his opinion there was no future for the Poor-law in the treatment of school children. He disagreed with Dr. Richards as to the treatment of children being nndertaken by the same person who examined them, though he would not object to a school medical officer treating children who had been examined by another medical officer.

Sir WILLIAM COLLINS, M.P., opened a discussion on

The Reform of Death Certification,

in which he particularly emphasised the unsatisfactory condition of the present system of death certification and of coroners' law. The difficulties in getting any alterations made were largely due to the number of different Government offices which had to deal with the subject. He pointed out that there was very inadequate machinery for bringing about any inquiry into the cause of deaths upon which an inqnest was not legally reqnired, and said that still-born children were unknown to the law. He then referred to the great difference there was in the number of uncertified deaths in various parts of the kingdom, as shown by the fact that in London 1·5 per cent. were uncertified, whereas in Inverness-shire the percentage was 45. With regard to the qualification of a coroner, he considered it would be necessary to walk with great wariness, though there was no question that he should have some knowledge of the law of evidence. He advocated the appointment of a medical investigator into the causes of death. Although the medical profession to a certain extent were suspect in Parliament, yet the Legislature was never more anxious than at the present time to listen to the last word of science, if it could only be assured that the latest word was really the last. He pointed out that under the existing state of the law a coroner could only hold a post-mortem examination when an inquest was held, whereas there were many instances in which if a post-mortem examination were made an inquest would be unnecessary.

Dr. R. FARQUHARSON (London) said it was quite possible for De Quincey's phrase, "murder considered as a fine art," to be accelerated by the existing lax methods of death certification. It was impossible, however, to effect any reform unless public opinion demanded it. The only way to secure reform was to go on pegging away inside Parliament and outside. He expressed the opinion that one drawback to the popularisation of cremation was the loose method of death registration.

Dr. T. PARKER SMITH (Worthing) said that as a general practitioner he verified the fact of death in all those instances in which he gave a death certificate. While considering it wrong that a jury should be ruled by a coroner who was not a member of the legal profession, he deplored the looseness of many verdicts of coroners' juries.

Mr. THOMAS JACKSON (Thornton Heath) spoke as a medical coroner of 30 years' standing, and differed from Sir William Collins as to the qualifications which should be possessed by a coroner. In all inquests the question to be decided was a medical one, so that a medical man was the best person to hold the office. He protested that in Sir William Collins's Bill it was provided that a medical man could not be a coroner unless he was also a barrister or a solicitor, while a barrister or a solicitor could be appointed a coroner without being a medical man. He pointed out that the law of evidence in a coroner's court differed very materially from that of a magistrate's court. He considered that if the Government cast upon medical men extra duties they should be paid for them, and if the fact of death were required to be certified adequate payment should be made.

Dr. DRURY hoped that Sir William Collins would insert in his Bill some clause which would assert the principle of the payment of a fee for death certification. He referred to the unsatisfactory manner of dealing with stillborn deaths, and protested against the improper use made of death certificates in the register offices in connexion with the sale by the registrars of copies of the medical certificate for insurance purposes.

Dr. J. C. MCWALTER (Dublin) referred to an instance in which a death was certified as having taken place and insurance money was paid over, whereas the person certified as dead was still alive. He considered it would be a distinct hardship upon the general practitioner to insist upon his verifying the fact of death without any prospect of receiving a fee for the service.

Mr. D. COTES-PREEDY (London), as a member of the medical profession and a member of the Bar, raised the question as to the evidence given before coroners. At present much of it was hearsay and was not legal evidence in any court of justice. The power of coroners to commit for trial for murder should be abolished. If an inquest was a medical inquiry then the coroner should be a medical man; if it was a legal inquiry, then a knowledge of the law was desirable and only legal evidence should be admitted.

Dr. A. H. BYGOTT (Barking) urged that there shonld be much more coöperation between the Public Health Department and the coroner's office.

Dr. ROBERT MILNE, medical officer of Dr. Barnardo's Homes, read a paper entitled,

A Defence of the Home Treatment and Prevention of Scarlet Fever,

in which he described the method he had adopted for many years in the treatment of scarlet fever. During the first four days of the disease, beginning at the earliest possible moment, he had pure eucalyptus oil gently rnbbed in morning and evening all over the body of the patient, from the crown of the head to the soles of the feet. Afterwards this was repeated once a day until the tenth day of the disease. The tonsils were swabbed with 1 in 10 carbolic oil every two hours for the first 24 hours, rarely longer. Among the advantages claimed for the treatment were that, when commenced early, secondary infection never occurred and complications were unknown, isolation was unnecessary, and there was no need for any after disinfection. He emphasised the need for great care being taken in carrying out the treatment and for beginning it early, for should secondary infection occur, which appeared so apt to attack the weakened tonsils, then complications of any kind might arise. He did not advocate the closing of isolation hospitals, but making them health-giving centres for failing children before they became seriously ill.

Mr. NASH said that he had recently had the opportunity of seeing some of the cases referred to by Dr. Milne, and it certainly undermined all their ideas when they saw a case of scarlet fever in the peeling stage in the ward of a general hospital without any restriction as to contact with the other patients.

Dr. JOHN BROWN (Bacup) congratulated Dr. Milne upon his boldness in bringing forward his method of treating scarlet fever patients in their own homes. After an experience of nearly 30 years he himself had found that a second case in the same house rarely occurred when the method of treatment adopted was by the inunction of carbolised oil daily with a warm bath each morning, and the burning of sulphur twice or three times daily. The advantages of this form of treatment were that the patient's skin was less irritable and he slept better, early peeling resulted, the duration of the illness was lessened, and there were rarely any complications.

Mr. H. BEALE COLLINS (Kingston-on-Thames) had also

seen Dr. Milne's cases, and was impressed with the method in the same manner that Mr. Nash had been. He pointed out, however, that scarlet fever at present seemed to show very slight infectivity, and he found that in Kingston, where there was no isolation hospital, the disease rate of scarlet fever was much lower than that in the adjoining towns of Richmond and Wimbledon where there were large isolation hospitals.

Dr. McWALTER said that the cost of providing efficient isolation hospital accommodation for scarlet fever in the three kingdoms would be £3,000,000, and they would have done a good work if they could show that this amount could be saved. Many medical men had come to the conclusion that the hospital treatment of scarlet fever had not been to the credit of the medical profession.

Mr. F. E. FREMANTLE (Hertfordshire) read a paper on

The Influence of Part-time Medical Officers of Health upon the Public Health,

in which he expressed the opinion that part-time medical officers of health had in the past played a most important part in the advancement of public health; that their special clinical experience, their personal intimacy with patients, and their comparative financial independence gave them exceptional opportunities for securing acceptance of their views; and that the interests of public health would be best promoted by securing a better education of all medical men in public health work than by making any rule to separate preventive from curative work in the activities of the medical profession.

TROPICAL MEDICINE.

FRIDAY, JULY 29TH.

President, Dr. F. M. SANDWITH (London).

A paper by Dr. ALDO CASTELLANI (Colombo) entitled,

Observations on Tropical Broncho-oidiosis,

was read in his absence by one of the secretaries. In his paper Dr. Castellani cited a type of bronchitis in Ceylon due to an oidium which could be cultivated from the expectoration. There were two forms—one mild, the other severe.

Professor FÜLLEBORN (Hamburg) gave a demonstration on

The Development and Morphology of Micro-filaria,

illustrated with the help of the epidiascope. The various forms of staining for micro-filaria were discussed, and it was claimed that Professor Fülleborn's method succeeded in showing structural differences between the various forms of micro-filaria. A description was given of the methods adopted for preparing specimens, and a large number of Professor Fülleborn's preparations were shown on the illuminated screen. He described, also, the means by which the micro-filaria gained entrance into the human system.

The demonstration was greatly appreciated by the members of the section, and after the paper had been discussed by Dr. G. C. LOW (London) and Dr. C. W. DANIELS (London), a vote of thanks was passed by acclamation to Professor Fülleborn for his address. The President of the Association, Mr. Butlin, was present during the demonstration and afterwards added his thanks to those of the section for the very interesting communication given by Professor Fülleborn.

Lieutenant-Colonel C. BIRT, R.A.M.C., then read a paper on

Phlebotomus Fever,

in which he described the disease in its clinical aspects as observed at Malta. He showed on the screen a number of enlarged temperature charts characteristic of the course of the malady. A comparison was given of the other continued fevers of Malta and their seasonal incidence. The "phlebotomus, or three days' fever," was transmitted by a small insect, the owl midge—Phlebotomus papatasii. The incubation period was from five to seven days. The specific organism had not yet been discovered. It was believed to be ultramicroscopic, and it was said to be able to pass through a porcelain filter. The disease could be transmitted artificially from man to man by inoculation of the blood of a patient into a healthy individual. Some account was given of the human experiments made in this direction on certain members of the Malta garrison, who voluntarily submitted themselves for the purpose. The malady was said to be somewhat widely distributed throughout the Mediterranean region.

Another paper on the same subject was read by Dr. L. P. PHILLIPS (Cairo), who showed that the disease occurred in Egypt, its diagnosis from dengue and influenza being somewhat difficult.

In the discussion which followed Dr. R. ROW (Bombay) and the PRESIDENT took part.

A paper was also read by Dr. PHILLIPS on

Typhoid Fever in Egypt,

in which he proved that the disease was not uncommon in children in that country.

Dr. LOUIS W. SAMBON (London) then read a paper on the

Etiology of Pellagra.

He first of all gave evidence controverting the arguments advanced in favour of the malady being due to maize, sound or unsound. He alluded to the wide distribution of the disease and its occurrence in places where maize was neither cultivated nor eaten. For some years he had had the conviction that the malady was due to a parasitic infection transmitted by some insect. Recently, as director of an expedition sent out from this country to Italy to investigate the disease, he had convinced himself of the soundness of this theory. He placed importance on the fact that pellagra was absent from towns, and that it was confined chiefly to agricultural districts. It recurred annually in the same localities, and its geographical distribution coincided with that of the sand-fly (Simulium). The sand-fly increased greatly in numbers in spring and autumn, at which times also the manifestations of pellagra regularly recurred. The identically same conditions were found in the areas where pellagra had long been endemic—viz., a wooded and hilly country with narrow valleys through which flowed swift running streams, while sand-flies were present in large numbers. He had found cases in districts not presenting these features, but on inquiry he found that the infected family, or families, had moved into the locality from an infected area where all the conditions just mentioned prevailed. Some photographs of pellagra patients were shown by Dr. Sambon. Unfortunately, owing to the lateness of the hour, and there being other papers to be read, it was not found possible to permit Dr. Sambon to complete the reading of his paper, a time limit having been fixed for each reader. There were many, however, who greatly regretted that they could not hear the whole of Dr. Sambon's conclusions. There was practically no discussion, owing to the lack of time available for it, but Dr. CLAUDE H. LAVINDER of the United States Public Health and Marine Hospital Service, who had been for a portion of the time in Italy with Dr. Sambon during his inquiry, was called upon by the President to speak. In the few observations which Dr. Lavinder made he said that he had been much impressed with Dr. Sambon's work in Italy, but it was too soon as yet to arrive at a conclusion as to the etiology of pellagra. Much work remained to be done before the sand-fly theory could be generally accepted by the profession. He hoped that Dr. Sambon would before long be in a position to demonstrate step by step the truth of his hypothesis.

Dr. ANDREW BALFOUR (Khartoum) then read an abstract of his paper on

The Question of Water-supply in the Tropics as Illustrated by the Supply for Khartoum.

This thoughtful paper suffered somewhat from the condensation process necessitated by the lateness of the hour at which it was read.

Dr. BALFOUR also read, in the absence of the author, an abstract of a paper on

Human Botriomycosis,

by Captain R. G. Archibald, R.A.M.C. (Khartoum).

The next contribution was one by Major G. H. FINK, I.M.S., on

Dysentery.

The last item on the agenda for the day was a paper by Dr. F. C. MADDEN (Cairo) on

The Incidence of Bilharziosis in Egypt and its Clinical Manifestations.

Owing to the protracted length of the meeting Dr. Madden had to content himself with demonstrating on the illuminated screen some 39 photographic slides illustrating his cases and showing the various phases of the disease, along with the pathological conditions met with in such instances.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 10, 1910.

Our Risk in Cholera on the Continent.

WE have become accustomed in this country to hear that cholera is again epidemic in European Russia. For the last four years in succession the disease has been widely prevalent in that unfortunate country. The epidemic of 1910 is, however, the most serious that has occurred since 1892, when the malady, which in that year slew more than 150,000 Russians, spread over Europe, extending ultimately in 1903 to our own shores. In the present year, according to the *Journal de St. Petersbourg*, up to August 13th no fewer than 112,987 cases have been reported in Russia, of which 50,286 have had a fatal termination. Discussing these numbers, the special correspondent of a London newspaper, writing from Russia, asserts that these official figures are altogether untrustworthy, and that the death-roll from cholera this year is already nearer 100,000 than 50,000. That the epidemic has assumed alarming proportions is shown by the fact that the returns give 23,944 cholera cases and 10,723 deaths as having occurred in the seven days ended August 13th, but the last weekly returns show 6423 fresh cases and 3254 deaths in the 24 provinces, an encouraging abatement. But most of the grain ports in the Black Sea are infected, and in the populous mining districts of Southern Russia, as well as in the Caucasus, the disease is raging with marked severity.

The danger to this country from Russia is regarded by epidemiologists as greatest when cholera invades the Baltic ports. Already St. Petersburg, Cronstadt, Riga, and Reval are involved, and within the last few weeks the arrival of cholera-infected ships from the Baltic have been reported at certain Swedish, Norwegian, and Dutch ports. Fortunately, the meteorological conditions of the past summer have not been very favourable for the spread of cholera in Northern Europe, and with the advancing autumn the danger may be expected to diminish. It has, however, to be remembered that last year cholera was carried as late as September from St. Petersburg by ship to Rotterdam, where it succeeded in gaining a footing for a time. From Russia during the present year the infection has been conveyed by travellers to Potsdam and Spandau in Germany, and into the Austrian province of Galicia, but in none of these instances did it spread. Quite recently cases have been reported in Vienna and at Pressburg, and the disease has spread across the Russian frontier into the Turkish province of Erzerum. Much alarm has been caused during the month of August by the occurrence of a cholera outbreak in Italy on the western shore of the Adriatic, in Bari, Foggia, and the neighbourhood. It appears that a band of 50 Russian gipsies arrived by ship from a Russian Black Sea port at Brindisi and travelled northwards along the Italian coast to Trani where they are said to have washed their soiled linen at the public fountains. Shortly after this the disease broke out in Trani and in the adjacent towns and villages. Within two weeks of the first announcement of the outbreak about 350 cases had been reported, and of these 215 had proved fatal. A panic followed the official recognition of the epidemic in the province of Apulia, notably at Bari, Foggia and Trani, a town of upwards of 30,000 inhabitants, from which many of the people have fled in fear of their lives. In the remaining provinces of the kingdom the sanitary conditions are good, and there are no signs of the disease spreading. There is seemingly little direct danger to this country from the existence of cholera in South-East Italy. As has been said, it is to the Baltic that we must pay attention when cholera is spreading in Russia.

Our comparatively extensive coast-line, numerous ports and far-reaching multifarious trade make conditions for these islands which would be very dangerous were it not for our admirable sanitary service. At all the points of possible entrance organisation is ready to check the invader. The respective Local Government Boards have issued warning circulars to all port sanitary authorities, while should any case evade this cordon local means would be ample to deal with it, and any such panic as is reported from Apulia could never occur. There is, we admit, a possibility of the conveyance of the disease by ship to our own shores, but we are informed that at no time before have our port sanitary authorities been so well prepared to deal with imported infection as they are at the present moment; and even if an infected person or persons managed to elude the vigilance of the port officers or effect an entrance into the country through an insufficiently guarded gate, there is little likelihood that much harm would result. So long as our water-supplies are securely guarded against contamination, so long as our means for excrement disposal are efficient, and so long as general sanitation is maintained at a high level, this country has little to fear from epidemic cholera. The best protection against the spread of the disease is a high standard of sanitation, and it is to a neglect of this that Russia owes her present unhappy and unenviable position. Sanitary administration in that country is woefully neglected, and even in St. Petersburg itself the water-supply and drainage are in a scandalous condition. Added to this, the common people, for want of education, are ignorant and superstitious in many instances declining to aid in the carrying out of measures devised for their own protection. In the rural districts the old belief has been revived that the medical men are for their own ends spreading the cholera infection, and as a consequence the lives of practitioners and nurses are often placed in jeopardy by the mob. There is a scarcity of medical men in Russia, and in the invaded localities difficulty is experienced in finding doctors to undertake duty. A considerable number of the medical profession in Russia are Jews, but owing to hatred of that race some of the municipalities, even in cases of dire necessity, refuse to employ them. The sanitary state of Russia must be regarded as a menace to the health of Europe, and we fear that this will

continue until appropriate measures are adopted for removing the deplorable conditions in which many of the Russian people, especially of the poorer classes, live.

The Antics of Sportsmen: A Psychological Note.

THE psychological aspect of common every-day action is always interesting, because it affords a clue to the inner mental processes which precede the action; of the meaning of these processes we should otherwise have no trace. To such an extent, indeed, is action the exponent of the inner mind that it is often the only key available for arriving at the solution of questions involving responsibility; and the proper study of action may show that conduct which otherwise seems ridiculous or unnecessary is really of a purposive and useful nature. Further, there are deep-down morbid perversions which are only shown up by conduct, simple examination of the mental state generally failing to indicate their presence. Professor FREUD of Vienna has clearly pointed out the value of what he terms "complexes" in the investigation of mental states, these "complexes" being, roughly speaking, the forgotten remnants of mental states which, coming perhaps by accident into play, influence action in a way which is at first difficult to explain, but may ultimately be traced to the power of the latent processes over voluntary action.

Examples of action which appears futile and affected, and which is the result of unconscious cerebration, are very conspicuous in this sport-loving country among those engaged in games. The antics in question are usually of the greatest service to the player, and while for the most part they are made unconsciously they may be very amusing to the looker-on. Nowhere is this more conspicuous than in the cricket-field, and it is best seen among bowlers, though many a batsman has also peculiarities which are well known to his admirers. Every fast bowler is likely to have his own particular run, and sometimes the dancing steps indulged in are really ludicrous to watch, but they have a meaning which it is worth while to appreciate, the true significance of which gives interest to what at first sight looks an absurdity or an affectation. The complicated proceedings of the fast bowler with a long run and a high delivery are examples of FREUD'S "complex" and are connotative of latent organisation of energy, the result of earlier voluntary acts which have become reflex. These exhibitions of useful, but now unconscious, reflex activity arise in this way. The fast bowler after a run sufficiently long and rapid to develop his full motive force has to stop suddenly and change his leg energy largely to an arm energy. He has to throw all his bodily weight into the transformation, and, inasmuch as he must not go beyond the crease, he comes to learn by experience how best to take his steps so as to obtain the greatest effort and velocity at a given place. And so at last he acquires little arts of pacing, a skip here, a short step or jump there, a straight run in a third place, all of which ultimately settle down into a definite group of movements, and become the "style" or "action" by which he is known. Henceforth it is unnecessary for him to trouble himself with the preliminaries of his delivery. He measures out, generally with his eye, a certain number of paces behind the wicket knowing that his organised "complex" will most certainly land him at the desired spot with the full velocity at the right moment. Assured of this all his attention may be devoted to the length or spin of the ball he is about to deliver. One fast bowler in the Surrey team has a very peculiar run: he marks off about 20 yards behind the wicket, then, after running 5 yards, he gives a little skip, then he runs 10 yards and gives another little skip, after which he finishes the run and delivers the ball. Another bowler in the Worcestershire team makes a series of short steps, looking at a distance like quick taps on the ground, at the commencement of his run, but he lands with unerring certainty at the point beyond the limits of which he must not go. These deposited complexes are wonderfully true in their result; if left to themselves they rarely betray the confidence of the bowler who trusts in them. Now and then the coördinated elements of the run are upset and the bowler delivers a "no-ball," but in comparison with the number of balls bowled this is a very rare occurrence. The perfected complex is arrived at by practice, and this can easily be seen by comparing the difficulty caused by the run to the long jumper with the facility acquired by the fast bowler. Each has at a given place, the one with both legs behind a line, the other with one leg behind a line, to rapidly alter his action. The bowler's run becomes so mechanical that he never thinks of it while bowling—if he were forced so to think he could not bowl. The long jumper, whose course of practice (at any rate in this country) is of the smallest by comparison, has his take-off always in his mind, and in competitions often owes his failures to this fact. There were once two well-known long-jumpers at the same university who took curious runs, and many may know to whom reference is being made. In practice these two men were always successful in taking-off correctly, but in public competitions they failed because, in their anxiety to toe the line accurately, they devoted attention to the run instead of leaving it to their formed "complex," with the result that they failed to win because, literally, of misdirected energy.

FREUD'S complex is, of course, an economy of effort, allowing the performer to develop purposive action in other directions because of freedom from care within a certain circuit. Examples of this might be given from every sport, and where the reason has gone out of the action it degenerates into a superstition. Among batsmen, one noted cricketer always would rearrange the bails before settling down to his work; another could not play an innings unless wearing a particular cap. The professional golfer is, as a rule, free from obtrusive antics, but he has his own settled complexes, which show themselves in stance, swing, and muscular coördination or "strength." Many amateur golfers are full of queer habits, and purposeless as these may be now, they were acquired in a just belief in their utility. The good motorman must have a "complex" of the necessary mechanical movements for driving and turning his car, so that in the dark or in a sudden emergency he can, without having to attend to it, adapt his levers to exigencies; and in the same way the good shot gets his

barrel on the intended line at once without having to think where the trigger is or to what exact part of his shoulder he shall press the stock. There is so much mental strain, in short, that were it not for these mechanical self-acting "complexes" accuracy in sport would be impossible and fatigue too great to permit pleasure.

The Liability of Hospital Authorities for the Acts of their Staff.

WE have received an interesting epitome of the legal decisions bearing upon the question of the liability of the hospital to its patients when an accident arising out of the alleged negligence of surgeons or nurses has taken place. The summary has been compiled by Mr. DIGBY COTES-PREEDY, a member of the medical profession and of the bar, and is, in fact, "a dissertation approved for the degree of LL.M. in the University of Cambridge." That only two cases bearing directly upon this important topic should have come recently before the English High Court of Justice is a matter of congratulation for our hospitals. This immunity may to some extent be due to the charitable nature of the work which is done, but it must also be ascribed in a larger degree to an absence of those accidents which are proverbially to be expected in the best regulated families. At any rate, when untoward things happen they have very generally failed to be attributed to negligence. The enunciation of the law by English judges has been supplemented by Mr. COTES-PREEDY from American law reports and amplified by dicta which, if not binding upon our courts, may be cited in them as propositions for respectful consideration. Those accustomed to the atmosphere of ceaseless vigilance and unrelaxing precaution pervading our operating theatres may feel no surprise that accidents importing blame to those concerned rarely happen, and still more rarely lead to litigation, but the cases to which we now proceed to refer in detail should be borne in mind by the governing bodies of hospitals and by surgeons for several reasons. The most important of these is that the non-liability of those who were made defendants in these cases was due to the essential fact that the persons whose acts were alleged to be negligent were not the servants of the hospitals. There was employment of these persons in a sense, but the service was not such as to render their employers—i.e., the hospitals—responsible for what occurred. Conceivable variations of the conditions of employment might have cast the liability upon those upon whom the plaintiffs desired that it should rest. Mr. COTES-PREEDY'S thesis does not consider the liability of any individual member of the staff of a hospital but only that of the hospital, and the question of the responsibility of the surgeon in his private practice for the acts of nurses is also outside its scope. It will be borne in mind, however, that if a patient sues for damages for alleged injury he selects as defendant a person or a body who will be both legally liable and financially able to pay the compensation which he seeks, and that he does not usually bring his action against a nurse if the alleged act of negligence is hers, because, presumably, her means a insufficient for his purpose. The liability of the employer principal, to speak generally, arises if a servant or age acting within the scope of his authority, but without expr command, commits a "tort," unless the servant or age was, in fact, acting "in fraud of" his employer or princip If the wrongdoer is not a servant or agent it must be prov that the defendant caused the act to be done before he c be made responsible.

Probably the facts of both the cases to which we ha referred as being especially of interest to hospitals will recalled by those who study the incidents of their p fession as recorded in the daily or medical newspapers, a we note in passing that the act of alleged negligence in ea of these, as well as in two of the American cases referred t was of the same character—namely, the allowing of h water bottles to come in contact with the limbs of an ans thetised patient. The point, however, to which we c attention does not concern the acts through which t patients were injured, but only the legal situation aris out of the everyday relations inseparable from medic and surgical work. In the first case[1] the defendan were the committee of an association formed to p vide duly qualified nurses to attend on the sick within certain district. The nurses were selected by the associati and received salaries from it, and they were supplied by gratuitously to poor patients and for payment to those better position, but the object of the association w not profit. By the rules of the association a superi tendent exercised certain supervision over the nurses, b when engaged in her duties with a patient the nurse w bound to obey the instructions of the physician or surgeon attendance, and was not to absent herself from duty witho the permission of the patient's friends. At the conclusion the engagement of a nurse the person engaging her was ask to report on her general conduct in a printed form suppli by the association and marked "to be filled in by t employer." The patient, Mrs. HALL, was burned in t manner indicated above, two nurses having been supplied the association at the request of her medical adviser. S having brought an action with her husband against t association, obtained a verdict to the effect that she had be injured by the nurses' negligence and that the associati had undertaken to nurse her through the agency of t nurses as its servants. The latter finding was reversed the Court of Appeal on the ground that it involved inference of law, and the Court, drawing a differe inference from that of the jury, deprived the plaint of her verdict and entered judgment for the defendan The association contended that it did not contract to nur the patient, but only to supply duly qualified nurses, a the Master of the Rolls, in accepting this view, said that the defendants had undertaken to nurse the patient th would then have been responsible for a failure on the pa of those through whom they nursed her to use due ca If, on the other hand, they only undertook to supply co petent nurses, as he found they did upon the true constru tion of the rules mentioned and the other documents

[1] Hall and Wife *v.* Lees and Others (1904), 2 K.B. 602.

ıe case, then, if they exercised ordinary care and skill in ıe selection of the nurses supplied, their responsibility was ; an end. They were not responsible for the nurses' failure) exercise due care and skill.

In the other case referred to[2] the defendants were the)vernors of St. Bartholomew's Hospital, and the plaintiff as a medical man who had been treated in the hospital, ıe injnries claimed for being alleged to be due to the laintiff's left arm being burned by contact with a hot-ater tin, and by his right being allowed to hang down so ıat it was bruised by the surgeon or some other person ressing against it. At the trial Mr. Justice GRANTHAM :fnsed to allow the case to go to the jury on the ground ıat the operation was under the control of the surgeon and ıat the governors were not responsible for his action or)r the negligence of their staff, even if it were proved that ıere had been negligence; and this view was upheld by ıe Court of Appeal. When conducting for the plaintiff an)peal against this decision counsel admitted that the :lations of master and servant did not exist between ıe governors of a hospital and the honorary staff; ıd the law with regard to the liability of the)rmer may be summarised as follows from the judg-ent of Lord Justice FARWELL, from which Mr. OTES-PREEDY quotes substantial extracts. Briefly, it as laid down by his lordship that a public body is able for the negligence of its servants in the same ay as private individuals would be liable in like rcumstances, the first question being whether any of ıe persons present when the alleged acts of negligence)ok place were servants of the defendants. The surgeon, ıæsthetist, and other members of the medical staff were)t servants, but professional men employed to exercise ıeir profession to the best of their abilities according to ıeir discretion, but not under the orders of the governors in :ercising it, or bound to obey their directions. The duty of ıe governors was limited to bringing to bear reasonable skill ıd care in the selection of their medical staff. The nurses ıd carriers were upon a somewhat different footing, being :rvants for general purposes of the governors of the hospital, ıt not for the purposes of examinations and operations)nducted by the surgical staff. They might be servants of ıe governors if and so long as they were under their orders, ıt this relation must cease when the door of the operating ıeatre closed upon them and when they came under the :ders of the operating surgeon.

With regard to the question of contract between the ospital and its patient Lord Justice FARWELL observed: The contract of the hospital is not to nurse during the peration, but to supply nurses and others in whose selection ıey have taken due care." And we call attention to this :atement of the position because a case which occurred in ıe United States[3] is brought to onr attention by Mr. COTES-REEDY in which the act causing the injury to the patient 'as that of a nurse who had only completed ninc months of :aining, the full course being two years. In acceding to the pplication of the plaintiff, who had been nonsuited, for a ew trial, the New York Court of Appeal pointed out that it was for the jury to say whether "in furnishing this careless pupil of limited experience" the defendants fulfilled their "contract obligation to the plaintiff, and that the plaintiff was entitled to damages if owing to a breach of that contract she had been injured." The principles upon which the law is based will therefore be seen to be in no way obscure, and it will be observed that the immunity of the hospitals from liability in respect of those regrettable cases against which all concerned strive with ceaseless care to protect their patients, depends upon conditions which not only conduce to safeguard the governing bodies but which at the same time preserve the proper relations of the professional staff of the hospital towards its governors and its nurses. The surgical and medical staff of the voluntary hospital are not the servants of its governors, nor are the medical officers employed by a public authority the servants of that authority in the eye of the law.[4] The condition of the nurse is one of service in a limited degree, and a definition laid down by Lord BRAMWELL may be cited as applicable, that "a servant is a person subject to the command of his master as to the manner in which he shall do his work." The position in which the hospital stands is that of undertaking towards its patients that they shall receive treatment and nursing from persons carefully chosen as being competent to perform their respective functions; this is the position to be preserved.

[2] Hillyer *v.* Governors of St. Bartholomew's Hospital (1909), 2 K.B. 820.
[3] Ward *v.* St. Vincent's Hospital, New York, 39 App. Div. Rep. 624.

[4] Rylands *v.* Fletcher (1868), L.R. 3 H.L. 330.

Annotations.

"Ne quid nimis."

A DIPLOMA IN PSYCHOLOGICAL MEDICINE.

WITH the increase of specialism, which is a necessary feature of the practice of medicine to-day, the question arises as to the desirability of a post-graduate curriculum and a diploma in any special department under consideration. For some years the aspirant to an appointment in the public health service has found it necessary to supplement his medical qualification by a diploma issued by one of the universities or examining bodies. To obtain such a diploma the candidate has been required to undergo a recognised course of study involving a practical knowledge of hygiene. There can be little doubt that a diploma has proved of utility in the domain of public health, and a similar distinguishing mark is now advocated in the interests of the asylum medical service. It has received the support of the Medico-Psychological Association, which has for some years granted a certificate after examination to medical officers of asylums. The matter has also been under discussion in the Section of Psychological Medicine and Neurology at the recent annual meeting of the British Medical Association, when a resolution was carried approving of the institution of a diploma. The study of insanity, or what is now frequently termed psychiatry, has lately received great impetus with the assistance of modern methods of research. Laboratories are being provided in connexion with our asylums which have already been productive of good work in the etiology and pathology of mental diseases. This work must in time assuredly bear fruit in the more exact and individual treatment of the insane on scientific lines. The teaching of insanity, which was formerly quite neglected, has, during the past decade or more, been satisfactorily

carried out in our schools. It has included clinical demonstrations in asylums, so that every student should have some acquaintance with the subject when he becomes qualified and should be able to deal with a case in practice. But for the man who elects to undertake the care and treatment of the insane as his life's work, either in this country or in the colonies, it would seem reasonable that he should have the opportunity of perfecting himself by a post-graduate course, and of acquiring a diploma as evidence of training. It is suggested that at least one year should be spent by the candidate as a clinical assistant or junior medical officer in an institution, and that he should attend lectures and receive practical instruction in the anatomy, physiology, and pathology of the nervous system, physiological psychology, clinical pathology and neurology, and psychiatry and medical jurisprudence, together with some optional subject such as eugenics, experimental psychology, biochemistry, or bacteriology. We understand that, in response to the movement, the University of Edinburgh and the Victoria University, Manchester, are each instituting a post-graduate course and diploma in psychological medicine, and that the Universities of Cambridge and Durham and other bodies have almost completed their arrangements in the same direction. We note that the Royal College of Physicians of London, after full discussion, has relegated the matter to a committee for report.[1] We may add that the University of London, which until recent years had included mental physiology as a compulsory subject for its highest degrees in medicine and surgery, now treats the subject as an optional one for its Doctorate in Medicine. As regards the metropolis, it is a matter for sincere regret that the proposed London County Council Mental Hospital, with an attached laboratory, as suggested by Dr. Henry Maudsley with his munificent offer, has not yet made further progress. It would realise an ideal for the better post-graduate teaching of insanity and training of asylum medical officers which we heartily commend, and would form a central school to provide the instruction necessary for the examination for a diploma in psychological medicine.

A NEW AND INTERESTING LARYNGEAL OPERATION FOR "ROARING" IN HORSES.

AT a meeting of the Midland Counties Veterinary Medical Association held in Birmingham on August 10th Professor F. Hobday gave a description, preceded by a practical demonstration on two equine patients, of a very interesting laryngeal operation which has been devised for the relief of that troublesome condition so commonly met with in horses known by both veterinarians and sporting men alike as "roaring." Common amongst all classes of horse, especially racehorses and hunters, "roaring" is a defect which diminishes their value very considerably both as regards utility and prospects of sale; in fact, the difference between the same horse when "sound" in wind and after the animal has become even only slightly affected as a "whistler" or a "roarer" often amounts to considerably more than £100. In addition to the objectionable noise produced, an affected hunter or racehorse loses pace, and if forced to proceed will show signs of dyspnœa and even fall down. Surgical examination of the larynx during life demonstrates clearly a paralysis of the left vocal cord, and post-mortem examination shows a very marked atrophy of the laryngeal muscles on the left side; in fact, in chronic cases the muscle tissue completely disappears from certain portions. The sequel to the imperfect closure of the laryngeal orifice is that the paralysed vocal cord (and probably the sound one as well) acts as a foreign body during the accelerated respiration, and the two, by their mechanical obstruction and vibration, give rise to the objectionable sound. The theory that the right vocal cord, which is not paralysed (owing to th fact that the whole mechanism is thrown out of gear is equally concerned in the production of the noise is no advanced by Professor Hobday, and it is mainly upon thi that he bases his observations and claims the right of bein able to term the operation a "new" one. The removal c the paralysed left vocal cord has been attempted by man operators, and the one which causes the least troublesom sequelæ was first performed by a distinguished Germa veterinarian, Professor Günther of Hanover. He obtaine adhesion between the paralysed vocal cord and the arytenoi cartilage by the very ingenious method of stripping th ventricle, the raw surfaces thus produced uniting firmly b granulation. To do this he obtained entrance into the laryn through an incision involving the crico-thyroid ligamen and, in addition, either the thyroid or the cricoid cartilage. and often one or more tracheal rings. So far as can be gathere the right side was always severely let alone. Dr. Williams, th professor of surgery in Cornell University Veterinary Schoo from whom Professor Hobday acknowledges much help an encouragement, first demonstrated the operation of strippin the left ventricle in England last September, using a saw t cut through the thyroid cartilage. Professor Hobday ha however, by his present method of operating so improve upon the original idea that no cartilage whatever is no injured. He claims for this that some of the greatest dra backs to the success of the operation, the dangers of stenosi and granulation tissue, are now absolutely done away wit and he also advocates the stripping of *both* ventricles. Th surgical sequelæ, as illustrated by specimens at th Birmingham meeting, are that the vocal cords are pe manently held back out of the lumen of the larynx, th orifice being thus dilated to its fullest possible extent. I fact, as he himself expressed it, the operator may be said t make an extra tracheal ring, or to practically fix within th larynx a natural tracheotomy tube. The theory appears to b a sound one, but the lecturer refused to commit himself to an absolute statement, the reason given being that although h had operated personally upon nearly 200 patients without single mishap or death, so many had been done within th past six months. He preferred to await the test of the forth coming hunting season, and promised the members presen that they should, at a later date, have literal statistics of th results. In the meantime he read a number of letters fro owners whose horses had been operated upon, most of thes being very gratifying. The results will be watched wit considerable interest, not only in the veterinary but also i the medical world.

QUININE AS A LOCAL ANÆSTHETIC.

THE value of quinine as a local anæsthetic has hardly a yet been fully recognised in this country, but in America i is used extensively. Any salt of quinine appears to be useful and the efficacy of the drug seems to be enhanced by it association with the hydrochloride of urea, and some manu facturers make a salt which is said to be a double hydro chloride of quinine and urea. In the August number of th *American Journal of Surgery* Dr. A. E. Hertzler of Kansa City, Missouri, has given a fuller account than we hav seen elsewhere of the action and use of quinine as a loca anæsthetic, and the following is the gist of his teaching When a soluble salt of quinine is injected into th tissues a coagulable exudation forms, beginning a fe minutes after the injection and becoming complete after 2 or 48 hours. The skin is thickened and has a reddish colour but it is not tender, so that the change is hardly inflam matory. The exudation is not organised into fibrous tissue but is absorbed after a week or two. It is important therefore, to bear in mind the fact that the skin become reddened after injection and that this is no evidence o

[1] THE LANCET, March 12th, 1910, p. 729.

inflammation. If the skin is injected and at once incised much of the quinine solution escapes into the wound and very little exudation occurs, and the anæsthesia is of short duration, though even then it may last a few hours. In these circumstances the wound heals as if no local anæsthetic had been used; therefore, this is the method to be adopted when a short duration of anæsthesia will suffice and prompt healing of the wound is desired. When, however, primary union is not possible and a more prolonged anæsthesia is wished for it is important that the tissues should not be incised at once; in fact, not until the infiltration has formed, for when this infiltration has occurred the anæsthesia may last several days. For the mucous membrane a 10 per cent. solution may be applied upon pledgets of cotton wool. If the quinine is used for injection, solutions from ½ to 1 per cent. should be employed. It may be used either for infiltration or for "nerve blocking." After the injection the operation may begin at once if only temporary anæsthesia is needed, or after half an hour or more if a more prolonged anæsthesia is desired.

THE WORKHOUSE INFIRMARY AND THE RECEPTION OF URGENT CASES.

A somewhat unusual incident occurred at Devizes recently in connexion with the admission of a sick tramp to the workhouse infirmary. A medical man, Dr. A. Vivian Trow, appears to have responded promptly to a summons and to have found a tramp lying very ill in the roadway, with a sympathetic crowd round him. He was informed by the man himself that he had taken arsenic, and as the symptoms were consistent with this explanation and the spasms were severe he decided that the best course in the patient's interest was to remove him at once to the workhouse infirmary in order that suitable treatment might be employed. Accordingly, with the assistance of a clergyman, Canon Gardner, who allowed the man to be moved into his garden, a stretcher was obtained, and he was placed upon it. Dr. Trow went in advance on his bicycle, but on reaching the workhouse unfortunately failed to attract attention at the door of the master's house. According to a letter which he wrote afterwards in explanation of his action to the chairman of the house committee he rang twice, waited four or five minutes, and then proceeded through the workhouse kitchen to the infirmary and requested the head nurse to prepare a bed. This was done and the man was placed in it under Dr. Trow's supervision, as he had been brought there before Dr. Trow could leave the premises in order to inform the medical officer. At this stage the master arrived and expressed surprise, which no doubt he felt, at finding an inmate admitted to the workhouse and installed in it without his knowledge. Dr. Trow in the letter referred to, complained that the master's manner was offensive, but the master at the meeting of the board of guardians at which the incident was discussed denied this, and maintained that he should have been informed and his consent obtained before the tramp was introduced into the institution. In this assertion the master was no doubt technically correct; it was very unfortunate that he did not learn earlier that his presence was required. Moreover, when he addressed the board on the subject, it appeared that the tramp had not taken arsenic at all, but had recovered in due course from the effects of a severe bout of beer-drinking combined with sundry doses of gin. This laid Dr. Trow open to criticism on the part of the guardians, and for this reason the apparently trivial circumstances are worth noting. Dr. Trow acted with despatch and humanity, it seems to us, in a difficult position. If the man had died or had had his life saved with difficulty in the infirmary Dr. Trow would have been praised; no doubt if death had supervened, as it might have done, whether it were due to arsenic or to alcohol, and if the story had come out at an inquest, the guardians and the master would have endured with equanimity credit for their readiness to waive ceremony and to dispense with red tape in the cause of humanity. As the case turned out, numerous letters in the *Wiltshire Times*, including one from Mr. G. S. A. Waylen, the medical officer of the workhouse, have since attested to the public the difficult position in which a medical man is placed who has to decide rapidly and to do what is best for his patient in circumstances of urgency. The correspondence referred to shows the high opinion entertained by his colleagues for the active sympathy and zeal evinced by Dr. Trow, and it also raises the question of what the medical man's duty is when such occasions arise as that described. We may suggest with regard to this aspect of the subject that the exceptional character of the incident in question was due to the failure of a bell to attract attention. Even if this mischance were to occur again it should not be very difficult, as a rule, to ascertain whether the medical officer in charge of the infirmary is present in the workhouse, or whether the master or matron is to be found by someone sent in search of them. Naturally, someone in authority must be consulted if it can be done without undue delay. An institution for the treatment of the sick and injured, whether it be a voluntary hospital or a workhouse infirmary, must have its regulations as to the admission of inmates, and a medical man not connected with it can hardly claim a right to have patients placed in its beds on his sole authority. From whatever motives of humanity he may act or however disinterested he may be in the course he desires to take, he is obliged to consider the position of others as well as his own. This, no doubt, Dr. Trow was prepared to do when he rang the bell to summon the master of the Devizes workhouse, and he did in fact give the earliest possible notice of what he had done to the medical officer of the infirmary. Whether a bell did not ring or a workhouse porter was not at his post on one particular occasion we need not inquire or conjecture, for the precise chain of incidents is not likely to be repeated. The medical man acted, as members of the medical profession must act, according to his discretion and with a full sense of his responsibility towards a patient thrust upon him by chance, and it is to be regretted that unneeded prominence should have been assigned locally to the technical irregularity of a humane deed.

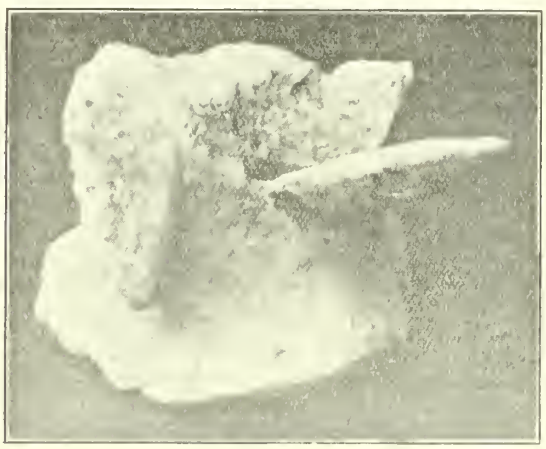
AORTIC REGURGITATION IN INFANCY.

In another column we publish an interesting communication by Mr. W. Ansley-Young on a case of aortic regurgitation in an infant. The child was aged 18 months and was extremely pale. The physical signs are duly described, but, as Mr. Ansley-Young remarks, the most interesting question is the cause of the lesion. The mother, aged 28 years, gave a history of two attacks of rheumatism, the first having occurred six years before the child was brought for examination and the second two and a half years before. Did this child contract an endocarditis in utero as a result of the rheumatic virus in the mother, or was the case one of congenital morbus cordis in which the aortic valves were malformed or deficient? An attack of rheumatic fever in the mother during pregnancy or a strong tendency to rheumatism in the parents may possibly be a cause of fœtal endocarditis, and either the aortic or mitral valves may be affected. The endocarditis is nearly always of the chronic or sclerotic variety; very rarely indeed is it of the warty or verrucose form. When the aortic orifice is affected frequently all trace of the segments disappears, leaving a stiff membranous diaphragm perforated

by an oval or rounded orifice. In the various forms of congenital heart disease, when there is some defect of development, the valves of the right side of the heart are more frequently affected than those of the left side, but when there is an error of development of the aortic valves the condition found is similar to that just described as caused by endocarditis, and from a pathological examination only it might be very difficult to arrive at a conclusion as to the exact etiology of the lesion. In the case described by Mr. Ansley-Young there was a history of rheumatic fever in the mother, and therefore the conclusion would be justifiable that the aortic lesion was caused by fœtal endocarditis.

A PREHISTORIC SPINAL INJURY.

"NOT long since, in the course of an excursion in the neighbourhood of Arles-sur-Rhone, in the South of France," writes Dr. A. S. Gubb from Aix-les-Bains, "I was taken to see some prehistoric tombs that had recently been unearthed. One of them had contained no less than a hundred skeletal remains, among them a human vertebra in which was firmly implanted a flint arrow or spear head. As will be seen from the accompanying photograph, it pierced the body of the vertebra from the front and then became detached from the shaft of the arrow or spear. The bone is



somewhat disintegrated, but it would appear to be a dorsal vertebra. M. Lacaze Duthiers, professor at the Arles College, informs me that several of these tombs have been discovered in the neighbourhood, all of them in the commune of Fontvieille. They all open to the west and, speaking generally, they comprise an underground gallery dug out of the soft tertiary or Helvetian mollasse (the shell-bearing stone of Fontvieille) with instruments that have not left any trace on the well-finished walls to show what sort of tools were used for the purpose. The walls incline inwards above so as to reduce the space to be covered in, and this space is filled by large slabs of stone of the same nature as the walls, and the same as was employed for the 'covered alleys' and dolmens. This roof is just beneath the surface of the ground and must have been surmounted by a tumulus, remains of which are, in one instance, still visible. One of them (the one at Bounias) indeed presents remains of a cromlech. With regard to the age of the specimen (which has been deposited in the museum at Arles) the numerous flint arrow and spear heads, polished hard stone axes, rabbits' tibias finely pointed, serpentine and other stone beads, a gold and pearl plaquette, fragments of pottery, and a bronze dagger-blade appear to authorise the assumption that the men of unknown race who built these tombs by hewing out the stone on plateaux at that time surrounded by water and who, though they made use of polished stone tools, were acquainted with bronze, belonged to the extreme end of the neolithic age, or possibly the commencement of the bronze period."

SEAWEED IN DISEASE OF THE THYROID GLAND.

Dr. Reid Hunt and Dr. Atherton Seidell, in a paper printed in the *Journal of Pharmacology and Experimental Therapeutics* for August, Washington, believe they have found in bladderwrack (Fucus vesiculosus) an iodine compound which may properly be called thyreotropic—that is, a compound which increases the activity of the thyroid in doses far smaller than any other iodine compounds with which they have experimented can do. The plan of the experiments was to determine the smallest amounts of various iodine compounds which when given to animals caused distinct changes in their resistance to aceto-nitrile and also to determine the maximum effect which could be obtained. If the hypothesis that certain compounds are thyreotropic is correct, then these compounds may be expected to cause a change in the resistance in much smaller doses in terms of their iodine content than the other compounds. If, further, iodine compounds affect the resistance of animals to aceto-nitrile only through the thyroid gland, then it may be anticipated that the maximum effect of one compound would differ markedly from that of others. The experiments appear to be in accord with the hypothesis in both respects. The results are thus summarised: 1. The iodine of bladderwrack has a specific thyreotropic action; it is from 80 to 200 times as active as that of any other iodine compound studied (with the exception of the thyroid). 2. It is possible to distinguish, by means of physiological tests, between the iodine of the thyroid and that of bladderwrack and between the latter and that of other iodine compounds. 3. It is possible to obtain more marked physiological effects with mixtures of iodine compounds than with the latter alone.

MALTA FEVER IN UGANDA.

FOR some years a mysterious epidemic malady has been prevalent in some parts of the Uganda Protectorate, and has been regarded variously as beri-beri, dengue, or possibly kala-azar. While the Sleeping Sickness Commission of the Royal Society was passing in 1908 through Kampalu, the native capital of the country, their attention was called to the disease, locally known as "muhinyo," by Sir Apolo Kagwa, K.C.M.G., Prime Minister of Uganda, and as a result it was decided to make some investigation into the nature of the epidemic malady, Colonel Sir David Bruce (director of the Commission) and Dr. A. D. P. Hodges (principal medical officer of the Protectorate) proceeding to Masuka, which is situated on the borders of the Ankole Province, from which "muhinyo" has been chiefly reported. By arrangement with the Prime Minister and a local chief some 50 invalids were brought together for examination. The result of this inquiry has been recently published in the Proceedings of the Royal Society by Colonel Sir David Bruce and Captain A. E. Hammerton, Captain H. R. Bateman, R.A.M.C., and Captain F. P. Mackie, I.M.S., members of the Sleeping Sickness Commission. After detailed clinical and bacteriological investigation the diagnosis was reduced to a "continued fever," either enteric or Malta fever. Agglutination tests with cultures of bacillus typhosus and micrococcus melitensis were applied to the blood of several patients, the results being negative with the former but positive with the latter in fairly high dilutions. The spleen in two cases was punctured, and from this material cultures were procured and the organism found was indistinguishable from micrococcus melitensis, the

cultural characters differing in no way from those of that organism. Subcultures injected into a monkey caused illness, and when the agglutinating power of its blood was tested with a strain of micrococcus melitensis from Malta positive results were obtained in dilutions of 1 in 200. Conversely, a rabbit inoculated with the Malta strain had its blood tested with the "muhinyo" organism, when the results were positive in dilutions of 1 in 200. It was thus established that the microbe obtained from the spleen of "muhinyo" patients and that from cases of Malta fever were identical. The people among whom "muhinyo" had raged for some years comprised two tribes, the first being one of the lowest class, morally and socially, in Uganda. They are dirty in their habits and persons, living in rude grass huts which they share with their domestic animals, including goats. A few of the better-off persons in the tribe keep cows, but goats' milk is largely consumed by all. The members of the second tribe are of a higher type: they are more prosperous and use the first tribe as their serfs. They keep both cattle and goats, consuming the milk of both animals. The flesh of goats, partially cooked, is eaten by both tribes. Our readers may remember that the Malta Fever Commission in 1905 found that the drinking of goats' milk was the means by which the disease was conveyed to man in Malta, and that 50 per cent. of the goats in the island were affected in some way or other by the malady, 10 per cent. actually excreting micrococcus melitensis in their milk. The condition of the Ankole goats was, therefore, inquired into, and for this purpose by the directions of Sir Apolo Kagwa a flock of 24 goats was collected within the infected area and brought to the investigators. The blood of three of these animals gave a positive reaction when tested with a strain of the micrococcus melitensis from Malta, as also with the "muhinyo" organism obtained from the Ankole patients. Further, micrococcus melitensis was isolated from the tissues of two of the goats. It seems, therefore, clear that the Uganda disease called "muhinyo" is in reality Malta fever and that goats also suffer from the malady and act as a "reservoir" of the virus. There can be no doubt that, as in Malta, the infection in Uganda is spread by consumption of milk from infected goats.

BLEACHED FLOUR.

AN interesting review of the circumstances which led step by step to the modern processes of bleaching flour appears in a bulletin (No. 68) recently issued from the Hygienic Laboratory, Washington, by Dr. Worth Hale, assistant pharmacologist in the laboratory. It is shown that in the old days of grinding the wheat between stones the resulting flour was stored "for the purpose of ageing it." Incidentally, the flour lost during this time a part of its natural yellow colour. At first public feeling appeared to be against the introduction of flour whitened by even a natural process, but with the introduction of roller-milled flour a demand gradually arose for the whitest possible flour. Storage, however, was an uncertain and a costly method, and soon the idea of bleaching rapidly by chemical agents was put into practice. The first process was introduced in 1898, when ozone was employed. It was soon shown, however, that the bleaching effect was not due to ozone, but to certain oxides of nitrogen. Later, a process was patented in which nitrogen peroxide was produced by means of the flaming electric arc in air. Another method consists in employing the same agent obtained from nitrosyl chloride. Dr. Worth Hale has made a number of interesting experiments with bleached and unbleached flour, and his conclusions agree with those of Professor Halliburton, who does not hesitate to condemn the practice of bleaching flour by nitrous acid on the ground that it renders the gluten indigestible and may give even poisonous properties to the loaf. Dr. Worth Hale says that his results show the artificial bleaching of flour to have a deleterious action because of the lessened digestibility of the gluten of such flour, and possibly also because of the presence of definitely toxic substances, although these, it must be admitted, are present, even in over-treated flour, in only minute amounts. Independently of these points, also, the bleaching process may produce harmful results on account of the presence in flour bleached by such processes of small amounts of the nitrites. This action is exerted in two ways—by a decrease in the rate of protein digestion and by changing other medicinal substances which may be taken at the same time into markedly toxic agents, or by decreasing their normal action, or possibly through the chemical change, altering entirely their therapeutic effects. That the nitrites may enter the stomach from other sources does not alter the fact that they act deleteriously, and that their ingestion should be decreased as much as possible.

ANTWERP SCIENTIFIC EXHIBITION.

AN international scientific exhibition will be held in Antwerp from Sept. 17th to 25th next, on the occasion of the Fourteenth Flemish Congress of Natural and Medical Science. The exhibits will be classified in four principal sections, viz. :—

Section 1. Physico-chemical Sciences: Including new apparatus and inventions, laboratory installations, lanterns, microscopes, and the scientific applications of photography; collections of chemical productions, geological specimens, and crystals.

Section 2. Biological Science: Apparatus for experimental research and demonstration, zoological and botanical collections, fossils, microscopical preparations, and micro-photographs.

Section 3. Medical Science: Experimental apparatus, pathological specimens, radiograms, surgical instruments and appliances; operation-room, sanatorium, and hospital furniture; electro-medical and X ray apparatus.

Section 4. Scientific books and reviews.

The aim of the promoters is to make a complete collection of all that has contributed to recent advances in the theoretical and applied sciences, and they appeal to all scientists for their coöperation and assistance, which can best be given by intrusting to the officials for the purpose and period of the exhibition any suitable instruments, apparatus, or specimens they may possess. Particulars will be supplied by Dr. G. Van der Gucht, Cuylitsstraat, 11, Antwerp.

THE TREATMENT OF PROLAPSE OF THE RECTUM.

THE extreme form of prolapse of the rectum, or, as it is sometimes called, procidentia recti, does not respond well to most methods of treatment, and from time to time new operations have been devised to cure this condition. Several attempts were made to prevent the descent of the bowel by operations intended to narrow the lower portion of the gut, but it cannot be said that any great degree of success followed them. T. R. Fowler endeavoured to suspend the rectum by sutures carried round the coccyx. J. P. Tuttle suspended the bowel by drawing a portion of it through an opening just in front of the coccyx. Jeanneal in 1889 endeavoured to give the rectum complete rest by making an artificial anus in the left iliac region, but he drew up the sigmoid and rectum from below into the wound, and it is probable that the success he obtained was due to the fixation of the bowel to the abdominal wall. Verneuil was the first intentionally through an abdominal wound to draw the bowel up and to fasten it. This operation has been called colopexy or sigmoidopexy, and several variations of it have been employed. The intestine at first was stitched to the parietal peritoneum, but there is certainly a risk of the adhesions stretching. Others raise a peritoneal flap and stitch the

bowel to the underlying fascia. In THE LANCET of to-day we publish an account, written by Mr. Leslie W. Dryland of Kettering, of an operation for the cure of prolapse of the rectum which consists in attaching the upper part of the sigmoid to the iliac fossa, a flap of peritoneum having been previously raised above and external to the external iliac vessels. He has performed the operation in one case with a satisfactory result. The novelty of the method consists in the site of the attachment. These various operations of sigmoidopexy have all given good results in a large proportion of the 50 cases which have been recorded. The risk in the operation is small and the benefit appears to have been very great. So far as we are aware, no evil results have followed any of these operations, and they are deserving of trial in cases where simpler methods have failed. It is somewhat difficult to decide whether the modification suggested by Mr. Dryland is an improvement or not on the previous methods of practice, but it appears to be sound in principle.

THE EXPERIMENTAL STUDY OF HEREDITY.

THE report of the committee of the British Association, consisting of Mr. Francis Darwin (chairman), Mr. A. G. Tansley (secretary), Professor Bateson, and Professor Keeble, shows that the grant of £30 allotted at Winnipeg for this committee has been used at Cambridge in connexion with the researches carried on by Miss E. R. Saunders, Miss Wheldale, and Mr. R. H. Compton. Miss Saunders's work in connexion with Mendelism is well known. Her study of the inheritance of double flowers in stocks, wallflowers, hollyhocks, carnations, meconopsis, petunia, and other genera has been continued. Experiments on the inheritance of other characteristics have also been undertaken in various plants, but in the case of stocks it is hoped that from this year's results a material addition to the records of the last three years will be obtained, and that then it will be possible to give a full account of the work on the very complex problem which is here involved. In the cases of the other plants named, most of which are biennial, the experiments have necessarily been lengthy, but the work of four seasons will shortly have reached a point at which a definite statement can be made. Miss Wheldale is conducting experiments on the chemistry of pigmentation in plants, in continuation of her work already published. Mr. Compton is investigating the occurrence of sterility in the crosses between cultivated peas and a wild form brought from Palestine by Mr. Arthur Sutton. He is also conducting various other breeding experiments. The amount of work on heredity that is being carried out with regard to plants nowadays is very significant.

THE ANÆSTHETICS COMMITTEE OF THE BRITISH ASSOCIATION.

AMONG the reports presented at the recent meeting of the British Association is one from the Committee on Anæsthetics which has, of course, special interest for medical men. The report contains no purely clinical contributions, such as that which we published last year,[1] but the work which is being carried on, having both an experimental and a clinical side, seems likely to provide results of a highly important character from the purely practical point of view. From the experimental point of view the committee may well claim to have already achieved very considerable results. The well-known work of Dr. A. D. Waller upon percentage administration of chloroform and that of Dr. G. A. Buckmaster and Dr. J. A. Gardner upon the blood content of chloroform during inhalation and after death is being continued by the committee which includes these gentlemen. The importance which accurate results as regards amounts of chloroform recoverable from the body after death might assume in determining the cause of death in cases where this takes place during or shortly after operation needs no demonstration. Perhaps the most promising experiments, however, dealt with in the present report were those which were made to show the effect of chloroform when combined with air or with oxygen in deficient and in excessive quantity. Here we have very definite confirmation given to the clinical view that oxygen is of service in diminishing risk from chloroform. Using blood pressure and respiration as indications, these experiments bring out very clearly the value of oxygen. The smaller the amount of oxygen the greater is the depressing tendency of the chloroform and the larger the proportion of oxygen the less is this tendency. The experiments provide many strong indications for the continuous use of oxygen with chloroform during long or severe operations when this anæsthetic is employed for such purposes. We notice one point, in an appendix by Dr. Waller, wherein our own opinion would not coincide with that of the writer, and possibly his clinical *confrères* also are not in agreement with him. We allude to his opinion that the administration of chloroform can be rendered as safe as that of ether. In the laboratory this has perhaps been demonstrated, though we would be prepared to deny even this if the test were applied of performing serious operations upon two sets of animals anæsthetised with the two different drugs. In the operating theatre any such contention is at present, we believe, not to be maintained.

[1] THE LANCET, July 3rd, 1909.

THE organising committee of the International Congress of Tuberculosis to be held in Rome next year has fixed the date of the meeting for Sept. 24th to the 30th. The President of the Congress will be Professor Guido Baccelli, and the general secretary Professor v. Ascoli of Rome.

HOSPITAL SATURDAY FUND.—A meeting of the workpeople of Sir W. G. Armstrong, Whitworth, and Co., Limited, was held about a week ago in the dining-room at the Manchester works, to consider the question of forming a branch of the Hospital Saturday and Convalescent Fund. The Lord Mayor was present, and said they all knew that they had in Manchester "one of the finest infirmaries and some of the most up-to-date hospitals in the world, and that the Royal Infirmary would eventually minister to 600 patients. It was entirely for the benefit of the working man." He went on to say that the infirmary alone required £12,000 a year additional income. The income of the Fund this year was £7441, exceeding that of last year by £569. Perhaps, considering the depression in trade, that was "not wholly disappointing," but it was to be hoped that next year it might be five or six times that amount. The Lord Mayor said that a few days before he had been present at the centenary celebrations of a working men's society where they had invested no less than £14,000,000. A penny a week from the thousands engaged in their trade would be a godsend to the hospitals. The spirit of the men is good, and it seems as if it was only necessary to have the case of the hospitals put fairly before them to ensure a hearty response, for a resolution was unanimously passed to the effect that "a branch be formed and that they do all in their power to further the interests of the institutions." If this were done at all the works, great and small, in the area ministered to by the Manchester hospitals, it would help the funds very considerably and do much to ensure the efficient rendering of the services which they were intended to give, and the knowledge that the mite of each one contributed to this great end would give a feeling of satisfaction in that they were givers as well as receivers.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 77 of the largest English towns 7906 births and 3940 deaths were registered during the week ending Sept. 3rd. The annual rate of mortality in these towns, which had increased from 10·7 to 12·1 per 1000 during the four preceding weeks, was again 12·1 last week. During the first nine weeks of the current quarter the annual death-rate in these towns averaged only 11·4 per 1000, and in London during the same period the death-rate, calculated on the probably over-estimated population, did not exceed 10·5 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 2·6 in Hornsey, 4·3 in Smethwick, 4·7 in Leyton, and 4·9 in Bournemouth; the rates in the rest of the towns ranged upwards to 20·4 in Grimsby and in Sunderland, 24·7 in Birkenhead, and 25·0 in Tynemouth. In London last week the reported death-rate did not exceed 10·8 per 1000. The 3940 deaths registered last week in the 77 towns showed an increase of 10 upon the low number in the previous week, and included 703 which were referred to the principal epidemic diseases, against numbers which had increased from 347 to 720 in the four preceding weeks; of these 703 deaths, 527 resulted from diarrhœa, 68 from measles, 57 from whooping-cough, 18 from scarlet fever, 17 from enteric fever, and 16 from diphtheria, but not one from small-pox. The mean annual rate of mortality from these diseases in the 77 towns last week was equal to 2·2 per 1000, against 1·5 and 2·2 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Willesden, Croydon, Walthamstow, Southampton, Halifax, or in nine other smaller towns; the annual death-rates therefrom ranged upwards, however, to 6·6 in Preston, 6·7 in Bootle, 6·8 in Birkenhead, and 7·1 in Hull. The deaths attributed to diarrhœa in the 77 towns, which had risen from 115 to 516 during the previous four weeks, further rose to 527 last week; the highest annual rates from this cause during the week were 5·2 in Preston, 5·3 in Burnley, 5·9 in Bootle, 6·3 in Hull, and 6·4 in Birkenhead. The 68 fatal cases of measles showed a slight decline from the number in the previous week, and caused an annual rate of 2·9 in Oldham. The 57 deaths from whooping-cough showed a further decline from the numbers in recent weeks, and was the lowest number recorded in any week of this year; the highest recorded rates from this disease during the week under notice were 1·6 in Rotherham and in Gateshead and 2·1 in Grimsby. The 18 fatal cases of scarlet fever showed a slight decline from the number in the previous week, and included 5 in London, 3 in Liverpool, and 2 each in West Ham, Coventry, and Manchester. The deaths from enteric fever numbered 17, against numbers declining from 15 to 7 in the four previous weeks; 3 deaths were returned in London and 2 in Portsmouth. The 16 fatal cases of diphtheria showed a considerable decline from the numbers in recent weeks, and were fewer than in any previous week of this year; 5 deaths were recorded in London. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been 1490, 1423, and 1447 in the three preceding weeks, rose to 1455 at the end of the week under notice; 183 new cases of this disease were admitted to these hospitals during the week, against 163, 143, and 159 in the three preceding weeks. The 1005 deaths from all causes in London last week included 115 which were referred to pneumonia and other diseases of the respiratory system, showing a decline from the numbers recorded in the two previous weeks, and were 8 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 33, or 0·8 per cent., of the deaths registered during the week in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Bristol, Bradford, Newcastle-upon-Tyne, Nottingham, and in 53 other smaller towns; the 33 uncertified causes of death in the 77 towns included 6 in Liverpool, 4 in Stoke-upon-Trent, 3 in Birmingham, and 3 in Sheffield.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 779 births and 483 deaths were registered during the week ending Sept. 3rd. The annual rate of mortality in these towns, which had been equal to 13·3 and 13·6 per 1000 in the two preceding weeks, declined to 13·3 in the week under notice. During the first nine weeks of the current quarter the death-rate in these towns averaged 12·7 per 1000, and exceeded by 1·3 the mean rate during the same period in the 77 largest English towns. The annual death-rates in the week under notice in these eight Scotch towns ranged from 7·2 in Leith and 9·3 in Aberdeen to 16·8 in Perth and 20·2 in Dundee. The 483 deaths from all causes in the eight towns last week showed a decrease of 9 from the number in the previous week, and included 93 which were referred to the principal epidemic diseases, against numbers rising from 44 to 83 in the four preceding weeks; of these 93 deaths, 68 resulted from diarrhœa, 10 from whooping-cough, 7 from diphtheria, 5 from scarlet fever, and 3 from enteric fever, but not one from small-pox or from measles. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 2·6 per 1000, against 2·2 from the same diseases in the 77 English towns. The deaths in the eight towns attributed to diarrhœa, which had increased from 20 to 63 during the five preceding weeks, further rose to 68 last week, of which 41 occurred in Glasgow, 8 in Paisley, 7 in Dundee, 6 in Greenock, and 4 in Aberdeen. Of the 10 fatal cases of whooping-cough, which slightly exceeded the numbers in recent weeks, 6 were recorded in Glasgow and 2 in Greenock. The deaths from diphtheria, which had been 6 in each of the two preceding weeks, were 7 last week, and included 3 in Glasgow and 2 in Edinburgh. Of the 5 deaths from scarlet fever 3 occurred in Glasgow and 1 each in Edinburgh and Dundee. The 3 deaths from enteric fever were registered in Glasgow, Aberdeen, and Perth. The deaths referred to diseases of the respiratory system in the eight towns, which had been 39 and 49 in the two preceding weeks, declined to 47 last week, and were 2 in excess of the number recorded in the corresponding week of last year. The causes of 13, or 2·7 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 655 births and 335 deaths were registered during the week ending Sept. 3rd. The mean annual rate of mortality in these towns, which had increased from 15·3 to 17·1 in the four preceding weeks, declined to 15·2 in the week under notice. During the first nine weeks of the current quarter the annual death-rate in these Irish towns averaged 16·1 per 1000; the mean rate during the same period did not exceed 11·4 in the 77 largest English towns and 12·7 in the eight principal Scotch towns. The annual death-rate during last week was equal to 14·9 in Dublin, 16·1 in Belfast, 13·0 in Cork, 14·4 in Londonderry, 17·8 in Limerick, and 13·6 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 14·8 per 1000. The 335 deaths from all causes in the 22 town districts last week showed a decrease of 42 upon the low number returned in the previous week, and included 47 which were referred to the principal epidemic diseases, against 53 and 74 in the two previous weeks; these 47 deaths were equal to an annual rate of 2·1 per 1000; the rate last week from the same diseases was 2·2 per 1000 in the 77 English towns, and 2·6 in the eight Scotch towns. The 47 deaths from these epidemic diseases in the Irish towns last week included 39 from diarrhœa, 4 from whooping-cough, 2 from enteric fever, 1 from scarlet fever, and 1 from diphtheria, but not one from small-pox or from measles. The deaths attributed to diarrhœa in the 22 towns, which had increased from 9 to 54 in the five previous weeks, declined to 39 last week, of which 16 occurred in Belfast, 12 in Dublin, and 5 in Londonderry. The 4 deaths from whooping-cough and the fatal cases of scarlet fever and diphtheria were recorded in Dublin. The 2 deaths from enteric fever were registered in Dublin and Londonderry. The deaths in the 22 towns last week included 40 which were referred to pneumonia and other diseases of the respiratory system, against 42 and 50 in the two preceding weeks. The causes of 14, or 4·2 per cent. of the deaths registered last week in the Irish towns were not certified; in the 77 English

towns the proportion of uncertified deaths last week did not exceed 0·8 per cent., while it was equal to 2·7 in the eight Scotch towns.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeon: S. H. Birt to the *Balmoral Castle*, on commissioning. Surgeon: R. J. G. Parnell to the *Balmoral Castle*, on commissioning.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel John C. Culling, from the Royal Army Medical Corps, to be Colonel, vice D. O'Sullivan, retired.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel William Heffernan retires on retired pay.

Captain Leonard Bousfield, from the Seconded List, is restored to the establishment.

Colonel M. W. O'Keefe, from Rawal Pindi, has arrived home and taken over his duties as Inspector of Medical Services. Colonel R. H. S. Sawyer has been appointed Administrative Medical Officer, Dublin District. An exchange on the roster for service abroad has been approved between Lieutenant-Colonel C. T. Blackwell and Lieutenant-Colonel R. H. Hall. Lieutenant-Colonel H. M. Sloggett has been selected for increased rate of pay under Article 317 of the Royal Warrant. Major C. K Morgan, from Dundalk, has been selected for appointment as Instructor at the Royal Army Medical Corps School of Instruction at Aldershot in succession to Major C. C. Fleming, D.S.O., and has been ordered to join on Sept. 7th. Major E. G. Browne, Dublin, will embark for India about Oct. 5th next for duty in the Northern Command. Major G. B. Carter, on return to duty from sick leave, has been appointed to the Irish Command and posted to the Dublin District. Captain M. Sinclair, from Sialkot, has been posted to Cork. Captain W. Mitchell has been transferred from Ambala to the Station Hospital at Subathu. Captain F. A. McCammon has been granted leave of absence for six months. An exchange on the roster for service abroad has been approved by the War Office between Captain P. H. Henderson and Captain R. Rutherford. Captain A. W. Gibson has been placed under orders for a tour of service at Gibraltar. Captain B. B. Burke, from Devonport, has embarked for West Africa. Captain H. W. Russell, on termination of his course of instruction at the Royal Army Medical College, London, has joined London District for duty. Captain E. J. H. Luxmore has been appointed Staff-Surgeon to Meerut Cantonment. Captain C. R. Millar, Cork, has been placed under orders for service in West Africa and will embark early in October next. Captain W. Riach has been appointed specialist in Ophthalmology to the Queen Alexandra Military Hospital, Millbank. Captain F. Ashe, from Colchester, has been selected for service in India, and has been appointed to the Southern Command, embarking on the *Dongola* from Southampton on Sept. 21st. Captain L. F. F. Winslow has been transferred from Bradford to Lichfield. Captain A. C. Vidal, from Bloemfontein, has taken up duty at Pretoria. Lieutenant H. W. Carson has been transferred from Nowshera to Peshawar Station Hospital. Lieutenant A G. Jones from Bulford Camp, has joined at Tidworth, Salisbury Plain. Lieutenant F. J. Stuart has been appointed a specialist in Dermatology and Venereal Diseases to the 7th (Meerut) Division. Lieutenant E. T. Gaunt has been appointed on probation and posted to the Military Hospital at Shorncliffe Lieutenant H. H Leeson has been selected for service with the Egyptian Army, embarking on Sept. 7th.

INDIAN MEDICAL SERVICE.

Captains to be Majors: Thomas Shepherd Novis and Herbert Joseph Richard Twigg. Lieutenants to be Captains: Robert Henry Bott, Edmund Brodie Munro, William Edward Rees Williams, Sorabji Jamasji Bhathena, Frederick O'Dowde Fawcett, Joseph Frain James, Hugh William Acton, Vivian Bartley Green-Armytage, Arthur Norman Dickson, Alexander Glover Coullie, Alexander James Hutchison Russell, Robert Ernest Wright, Dewan Hakumat Rai, William Hunter Riddell, Frederic Allan Barker, Arthur Waltham Howlett, Arnold Newall Thomas, and Francis Shingleton Smith.

Captain William Malcolm Thomson has resigned.

Surgeon-General J. G. MacNeece, British Service, has been appointed Principal Medical Officer, 8th (Lucknow) Division. Colonel C. F. Willis has been appointed to officiate as Deputy Principal Medical Officer, His Majesty's Forces in India, during the absence on leave of Colonel D. ffrench-Mullen. Colonel A. M. Crofts, C.I.E., principal medical officer of the Jullundur Brigade, has been granted eight months' leave of absence from India. Lieutenant-Colonel W. H. B. Robinson, agency surgeon, Bengal, has been appointed as Residency Surgeon, Jaipur. The services of Lieutenant-Surgeon C. M. Thompson have been placed permanently at the disposal of the Government of India by H.E. the Commander-in-Chief. Lieutenant-Colonel E. A. W. Hall, civil surgeon of Dacca, has been granted three months' privilege leave. The Chief Commissioner of the Central Provinces has appointed Major W. H. Kenrick, civil surgeon of Nimar, to the Executive and Medical Charge of the Khandwa District Jail. Major H. J. Walton has been granted two months' extension of his leave. Major A. Fenton has been appointed to officiate as Civil Surgeon of Mandalay, vice Lieutenant-Colonel R. H. Castor, granted leave. Major S. A. Harriss has been appointed Sanitary Commissioner of Burma in place of Major C. E. Williams. Major W. R. Battye has been appointed Residency Surgeon at Mewar. The services of Major D. H. McD. Graves have been replaced at the disposal of H.E. the Commander-in-Chief by the Government of India. Major C. R. Bakhale has been granted six weeks' privilege leave, and Major S. Hunts seven months' combined leave. Major A. N. Fleming and Major C. E. Williams, Bombay, have arrived home on leave. Captain H. Ross, Assistant Plague Medical Officer at Jullundur, has been posted for duty under the Government of India in the Home Department. Captain A. S Leslie has been appointed Superintendent of the Insein Central Jail in place of Captain H. H. G. Knapp, transferred. Captain C. E. Southon, District Plague Medical Officer at Ludhiana, has been granted 20 months' combined and study leave. Captain G. S. Husband has been appointed a Specialist in the Prevention of Disease. Captain E. C. Hudson has been selected to act as Health Officer of Simla, vice Captain H. M. Mackenzie, appointed to officiate as Professor of Physiology at the Medical College, Calcutta. Captain W. J. Frazer has been appointed Civil Surgeon of Chanda, Central Provinces. Captain A. Cameron has joined for temporary duty in connexion with plague prevention in the Punjab. Captain L. J. M. Deas has been posted as Medical Officer in Charge of the Mewar Bhil Corps. Captain L. Reynolds has been appointed to act as Principal of the Lawrence Military Asylum, Sanawar. Captain N. S. Wells, Captain G. M. Millar, and Captain V. O. Beit, Bombay, have arrived home on leave from India.

A committee comprising Surgeon-General C. P. Lukis, Director-General, I.M.S., as president; Lieutenant-Colonel William A. Morris, R.A.M.C., Lieutenant-Colonel Charles M. Moore, I.M.S., and Major Jay Gould, I.M.S., as members, and Major Bruce Seton, I.M.S., as secretary, has been appointed to consider the possible conversion of the present regimental hospital system of the Indian Medical Service into a station hospital system, somewhat on the lines of that existing in the case of the British Army.

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st London (City of London) Field Ambulance: Eardley Lancelot Holland to be Lieutenant.

Attached to Units other than Medical Units.—Lieutenant Thomas H. Livingstone to be Captain.

The Territorial Decoration has been conferred upon the undermentioned officers: Major Henry Christopher Lamport, attached to the 2nd West Lancashire Brigade, Royal Field Artillery; Major William Alfred Dingle, attached to the 1st London Divisional Engineers, Royal Engineers; and Major John Ritchie, attached to the 8th (The Argyllshire) Battalion, Princess Louise's (Argyll and Sutherland Highlanders).

TERRITORIAL FORCE RESERVE.

Royal Army Medical Corps.

Captain Thomas Mahon Morton, from the List of Officers attached to Units other than Medical Units, to be Captain, with precedence as in the Territorial Force.

BATTLE-FIELD EXERCISES FOR THE ROYAL ARMY MEDICAL CORPS: HUMOURS OF MEDICAL MANŒUVRES.

The Royal Army Medical Corps has recently had an

unusual opportunity of showing its readiness for active service and of rehearsing the removal of wounded men from the battle-field under circumstances of as much realism as was practicable in peace time. During the August military manœuvres on Salisbury Plain and elsewhere in that neighbourhood the operations on the 22nd, 23rd, and 24th of the month provided the incidents necessary for the purpose, under the direction of Major-General Sir Henry Rawlinson. An invader was supposed to have landed in Dorset and to have sent a small force (the White army) in a northerly direction. The defending force (the Brown army) consisting of 3rd Division troops to represent a division under General Drummond, was to supply the casualties. This force encountered a portion of the invaders on August 22nd, and on the following day the two armies fought a battle at Yarnbury in Wiltshire. The enemy was represented by a very small force, but each man carried 150 rounds of blank ammunition so as to be able to keep up an intense fire. Labels indicating a great variety of wounds were at suitable periods attached to the uniform of a proper proportion of men of the Brown army, who thereupon fell and remained on the field until removed by the regimental stretcher-bearers. The labels directed whether the men in each case were to be removed "sitting" or "lying," or whether they might walk to the ambulance. The stretcher-bearers rendered first-aid, taking the field dressing which every soldier carries and applying it in such a manner as would be required for the wound described on the label. The bearer divisions of the field ambulances then took charge of the men, carrying them to the horsed ambulances and dressing stations. They were then conveyed to the tent divisions of the field ambulances near Shrewton and Winterbourne Stoke, the next stage being removal to the clearing hospital at Tidworth Park. The battle resulted in the defeat of the White army, which retreated to Codford. The men of the Brown army who became casualties numbered 33 on August 22nd and about 1840 on the 23rd, on which day the last convoy of wounded arrived at Tidworth about 10 P.M.; on August 24th there was a further list of casualties. This simulation of physical injury naturally presented some features more or less humorous, according to the point of view of the person concerned. A soldier labelled as severely wounded was quite pleased at being carried on a stretcher by the bearer division for several miles on a hot day, with the prospect of a comfortable repast at his journey's end; on the other hand, it was rather tantalising when the patient was told at the hospital that the treatment of the internal injuries mentioned or implied in his label made it necessary to withhold all food and drink for some time. For the purpose of these manœuvres three field ambulences were mobilised. Each field ambulance was provided with 10 large wagons for conveying the sick and wounded, each wagon having accommodation for 12 patients who can sit up or for less than half of that number in the recumbent posture. Besides these 30 wagons there were also water carts, kitchens, and soup boilers on wheels. The *personnel* of each field ambulance included 192 officers and men of the Royal Army Medical Corps, and 59 of the Army Service Corps, giving the medical force a total strength of 753. Two of the ambulances proceeded towards the scene of the battle, while the third one remained in reserve. Every officer and soldier who became a casualty was sent back to quarters after receiving attention at the hospitals. Major-General Sir Henry Rawlinson, the director of the medical manœuvres, has already issued some preliminary comments on them. He said that the movement of a field ambulance to a flank within view of the enemy might, and did, partially disclose to the enemy the intention of the divisional commander. He also praised the heartiness with which all ranks coöperated in making the situation as realistic as possible.

REGULATIONS OF THE TERRITORIAL FORCE AS TO DISABILITY THROUGH MILITARY DUTY.

The *Broad Arrow* of Sept. 2nd states that in the revised regulations of the Territorial Force it is provided that a sum not exceeding 3*s.* 6*d.* a day may be granted for a period not exceeding six months to a non-commissioned officer or man who is injured in and through the performance of military duty, and rendered incapable of resuming his trade or calling The injury will he at once reported to the General Officer Commanding-in-Chief, who will, if he considers it necessary, after perusal of the medical evidence, direct an officer of the Royal Army Medical Corps to report on the case unless the injured man is in a civil hospital. In the latter event the injured man should be directed to furnish a medical certificate from the hospital authorities as to the nature of his injuries. This gratuity may be paid under the same conditions to a Territorial who is incapacitated by illness proved to the satisfaction of the Director-General of the Army Medical Service to have been contracted in and through the performance of military duty, but no claim will be allowed which is not preferred within 12 months of the termination of the military duty in question. If the gratuity is claimed on account of an injury the application will be forwarded for the decision of the General Officer Commanding-in-Chief; if on account of illness, it will be sent to the War Office; in all cases it will be accompanied by (1) the proceedings of the board (if any) which reported on the case, or if no board has assembled, a statement setting forth in detail the circumstances in which the disability was contracted; and (2) by a certificate showing the period during which the non-commissioned officer or man was unable to follow his trade or calling.

Correspondence.

"Audi alteram partem."

BLACKWATER FEVER.

To the Editor of THE LANCET.

SIR,—Dr. J. E. Frere's notes and comments in THE LANCET of June 18th, p. 1716, on the second case of blackwater fever described by him are apt to create the impression that doctors in Burma are not yet aware of the existence of the disease in this country, and that in the treatment and prophylaxis of malaria large irregular doses are prescribed in a haphazard way. As far back as 1899 I drew attention to the fact that the disease existed in Burma. In that year I had my first case, a Ghurkha Sepoy, belonging to the Military Police Battalion at Myitkyina, whibh is the headquarters of a very malarial district in Upper Burma. This case was described by me in an article on "Blackwater Fever in Burma" on pp. 328–331 of the *Indian Medical Gazette* of September, 1907. I also drew attention to the fact that cases had occurred and been recognised in certain other districts of the province. During 1908–09 I made further investigation in the Myitkyina district, where four more cases occurred in the battalion. These cases were officially reported, and on inquiry I found that the disease was well known to the native Kachins, who spoke of it as "ngak," and diagnosed it in two cases that occurred in the headquarters Military Police Hospital. I have reason to believe that there is now very little, if any, ignorance on the part of medical men in Burma as to the existence of the disease in certain parts of the province. At least a dozen subassistant surgeons working under me in the Myitkyina district were shown cases and were trained to diagnose the disease. Some of these medical subordinates are now working in other districts, but they are wide awake and on the look out for cases wherever they go. I feel sure that they would not have been guilty of diagnosing the civil servants' malarial attacks, with bloody urine, as "malaria affecting the kidneys." The fact that Dr. Frere's patient was a civil servant in Burma leads one to infer that his medical attendant was a Government civil surgeon, and it is not conceivable how a medical officer holding such a responsible appointment could have made such an erroneous diagnosis when one knows that blackwater fever has attracted so much attention, and so much has recently been written on the subject in THE LANCET, the *Journal of Tropical Medicine*, the *Indian Medical Gazette* and *Indian Public Health*, which are all supplied at Government expense to each civil surgeon in the province. Captain S. R. Christophers, I.M.S., and Dr. C. A. Bentley's memoir on "Blackwater Fever" was published by Government in 1909 and a copy supplied to each civil surgeon. The subject was also discussed at the Bombay Medical Congress in 1909, and the Transactions of the Congress have been published. Dr. A. G. Newell, editor of *Indian Public Health*, published his book on "Blackwater Fever" in 1909, and this has probably had a wide circulation in India and Burma.

As regards quinine administration in Burma, it may be safely asserted that 30-grain doses of the sulphate are not prescribed. So far as I am aware, 10 grains thrice daily is the usual practice, the doses recommended by Major Leonard Rogers, I.M.S., in his book "Fevers in the Tropics." I am aware of the fact that opinions still differ as to the dosage of quinine. For instance, at the recent Imperial Malaria Conference held at Simla in October, 1909, Major C. Donovan, I.M.S., stated that he usually employed 30 grains of the sulphate for a dose, or 20 grains of the hydrochloride, or 10 grains of the acid hydrochloride. Major James, I.M.S., on the other hand, favoured the "fractional method" of treatment and made some very valuable suggestions with reference to "problems relating to the use of quinine." He has brought ample evidence to prove that there is a great deal yet to be learnt as regards the proper dosage of quinine in cases of malaria. He has pointed out very emphatically that the matter is very complex, the success of the drug depending upon a number of factors about which we know little or nothing at present. The time of administration is all-important, because we know that the drug is immediately fatal to only one stage of the parasite—namely, to that stage which follows sporulation. It would take up too much of your valuable space to quote the many unsolved problems suggested by Major James, whose valuable contribution should be in the hands of all medical men interested in the subject of malaria and blackwater fever.

In regard to the quinine prophylaxis of malaria, different methods have been adopted. Major James recommends a small dose every evening, but admits that good results can be attained by other methods, as was obtained by Colonel G. F. W. Braide, I.M.S., in the Punjab jails, where 15 grains were given once a week to each prisoner. The following figures show the results obtained in 1908 by me in the Myitkyina Military Police Battalion, the average strength in each year being a little over 1400 men. Admissions for malarial fever at headquarters and the eight permanent outposts:—

	Indoor.	Outdoor.	Total.
1906	1602	3372	4974
1907	1693	2714	4407
1908	328	200	528

Ten grains of quinine sulphate dissolved in acid sulph. dil. and water were given by the mouth on two successive days, commencing from May and ending in December. During this year there were four cases of blackwater fever, the notes of which will be sent for separate publication.

What Dr. Frere says about small regular doses of quinine being used in Africa is not borne out by the observations recently made by a correspondent (Surg.-Lieut.-Col. I.M.S., Retd.) on pp. 29 and 30 of the *Journal of Tropical Medicine and Hygiene*, dated Jan. 15th, 1910. He says: "Although I made scores of inquiries I failed to meet anyone using quinine as a prophylactic who took more than 5 grains of the remedy daily. Very few took as much, the majority contenting themselves with 3 grains a day or with only occasional doses of 10 grains or so whenever they feel run down; others again took 15 grains once or twice a week, and so on. Several men, from indifference or inertia, frequently omitted to take any quinine whatever for days together, while a few professed to have no faith in its protective power and did not take it at all. No wonder that under such circumstances quinine prophylaxis of malaria on the West Coast of Africa has been a failure, and that deaths from blackwater fever still are, as in the past, of constant occurrence." This emphasises the fact that the problems suggested by Major James should receive careful and early consideration, but there will probably be no uniformity of practice amongst medical men in the quinine prophylaxis and treatment of malaria till such time as the points raised by him are satisfactorily settled.

I must apologise for the length of this letter, but I trust that I have succeeded in showing that the question of blackwater fever and the correct treatment and prophylaxis of malaria are receiving careful attention in India and Burma. It sometimes happens that patients have their own ideas on treatment, and very likely the civil servant from Burma was one of these. The statements made by such patients are apt inadvertently to cause unmerited reflections of ignorance or neglect on the part of their medical attendants.

I am, Sir, yours faithfully,

LAWRENCE G. FINK, M.B., C.M. Edin.,
July 21st, 1910. Civil Surgeon, Myaungmya, Lower Burma.

THE CAUSATION OF DIFFUSE LIPOMA OF THE NECK.

To the Editor of THE LANCET.

SIR,—I shall be much obliged if you will kindly assist me in an inquiry which I have at present in hand. Your readers are doubtless well familiar with the condition of diffuse lipoma of the neck and other regions, which we have been accustomed of late (following, I think, the lead of Mr. Morrant Baker) to associate with beer-drinking. Has this condition come under observation in any of the domestic animals? I have at present two good examples of it in asses, and I am told that others may be found if looked for. The condition should be sought, if I am not mistaken, in castrated males which have been well fed.

If any of your readers can refer me to anything which has been written on the subject or to examples which they have themselves observed I shall be much obliged. Some may possibly remember that in my recent paper before the British Medical Association I made especial reference to this region in connexion with paleogenetic speculations.

I am, Sir, yours faithfully,

Haslemere, Sept. 4th, 1910. JONATHAN HUTCHINSON.

THE OUTBREAK OF CEREBRO-SPINAL MENINGITIS IN LEICESTERSHIRE.

To the Editor of THE LANCET.

SIR,—As this outbreak of cerebro-spinal meningitis has caused much writing in the press and sundry statements have been attributed to the Local Government Board inspector, I would ask those who are interested in the question to await the publication of the full notes. These will be published by me, so far as my cases are concerned, when I am able to add the report of the examinations by the several bacteriologists who have the matter in hand.

I am, Sir, yours faithfully,

GUY C. B. ATKINSON.

Long Clawson, Melton Mowbray, Sept. 6th, 1910.

THE TREATMENT OF RINGWORM.

To the Editor of THE LANCET.

SIR,—I was agreeably surprised to read Dr. J. Mackinnon's letter *re* action of formalin 40 per cent. solution on ringworm. Dr. Mackinnon does not specify if he used formalin with such success in ringworm of the head. Its use he appears to limit to tinea corporis, which most medical men admit sometimes yields to the domestic remedy ink. In my practice I have found formalin very deadly to fleas as well as to flies.

I am, Sir, yours faithfully,

SANDY MACPHERSON.

THE JAPAN-BRITISH EXHIBITION: AWARDS.

To the Editor of THE LANCET.

SIR,—On July 9th the name of our firm appeared in the List of Awards as the only recipients of the Grand Prix for disinfectants, and we duly announced that fact by an advertisement in the columns of your journal. We now learn (eight weeks after the original publication of the list) that within the last few days a similar distinction has been conferred upon another firm of manufacturers, making our statement erroneous as at the present time. We now ask the courtesy of your columns to correct our statement, which was, of course, made in good faith and in no sense intended to mislead. Yours &c.,

For JEYES' SANITARY COMPOUNDS CO., LIMITED,
WM. PLANNER, Secretary.

Cannon-street, E.C., Sept. 3rd, 1910.

ON THE NOTIFICATION OF CONSUMPTION.

To the Editor of THE LANCET.

SIR,—I see that in THE LANCET of August 20th a correspondent, Dr. J. Cunningham Bowie, comments upon a letter from me which you published in your issue of August 6th, and says that he would feel much obliged by my replying to three questions which he propounds at the close of his communication. Before stating these he points out, apparently as a ground of complaint against me, that I have not disproved a single fact or controverted a single statement in

r. R. Farquharson's article, and that I have evaded the issue
/ appealing to authority in order to gain further knowledge.
would have been presumption in me, a layman, to do
herwise, and I would point out that Dr. Farquharson's
ticle, upon which I was commenting, consisted to a very
rge extent of the citation of authority. The question at
sue, which I did not intend to evade, is one upon which
inions and "authorities" differ, and the differences of
edical opinion and medical authority, to which laymen
ust largely look for guidance, naturally impress a layman
no ventures to try to form an opinion and to ascertain
here the right course most probably lies. The authorities
nich Dr. Bowie says I set up happened to be to
nd in a preceding issue of THE LANCET, that
July 16th, wherein I had read some of the papers
d speeches upon the occasion of the conference at
linburgh on the prevention of tuberculosis, because
a layman I take some interest in medical proposals
fecting the laity. I referred in particular to what Pro-
ssor Sims Woodhead had, in fact, said, because Dr.
rquharson seemed to me to have applied to it an interpre-
tion wholly unwarranted, and I cited certain observations
Dr. W. Leslie Mackenzie because they contained contradic-
ns, derived from actual experience of fact, of that which
. Farquharson predicted speculatively and as if no experi-
ce of fact existed for our guidance. I might have referred to
pers read on the same occasion and in the same issue
THE LANCET by Dr. E. W. Hope, Dr. H. Scurfield,
. A. K. Chalmers, Mr. T. J. Stafford, and Dr. A. M.
illiamson as more or less relevant to the subject of Dr.
rquharson's article, but did not do so. I refer to them
w because they seem to me to indicate the lines upon
nich the compulsory notification of tuberculosis, if
opted, would be sought to be made of public utility, and
cause they therefore may help to supply answers to
estions with which Dr. Bowie apparently seeks to puzzle
already puzzled layman. To these questions I personally
n only reply tentatively and generally with the prefatory
servation that each of them includes more than one inquiry,
d that more definite answers should be obtainable from
ch authorities as the gentlemen whose names I have given
ove.

Dr. Bowie asks: 1. "If compulsory notification of con-
nption implies the subsequent control and supervision of
e subject, how is this to be carried out, and what are the
ecial regulations the consumptive must comply with and
serve in public and private life?" As I understand it, the
ntrol and supervision to be exercised will depend largely
on circumstances, and particularly upon whether the
ient voluntarily or otherwise finds himself subject to
nditions under which control and supervision can be
ercised, but that in circumstances where control may be
ssible to a very limited degree only there will be
ilable instruction and advice, accompanied possibly by
ne kind of supervision and some measure of assistance in
carrying out of such instruction and advice. I cannot
ige Dr. Bowie by drawing up regulations for the public
d private life of the consumptive which either "must"
should be observed. 2. "What action would the
horities take in the case of a consumptive who was
der the care of a private medical practitioner, and
o at the same time was able and desirous to follow
business and supervise same; or in the case of
person in private life?" In reply to this I would
ard the suggestion that the authorities in all cases
uld take such action as under the advice of their medical
cers they might deem desirable in the public interest,
d that this in the cases indicated would involve little or no
erference on their part, according to circumstances. After
the compulsory notification of disease is no new thing,
d Dr. Bowie might have asked the same question not very
ny years ago, substituting "a scarlet fever patient" for
consumptive" and might have received a like answer.
the case of scarlet fever notification was desired with a
w to the protection of the public, and it is acted upon
h as little inconvenience as possible to those not likely to
anger the public. The object in the case of tuberculosis,
I understand it, is pretty much the same—viz., to protect
public, but less directly, against the undesirable preva-
ce of a disease, and particularly to do so by obtaining
ly information as to its existence with a view to dealing
h it in its initial stages. Notification followed by control
or supervision exists in other matters besides infectious
disease, generally with a view to the assistance of those
who otherwise could not take care of themselves, and
without any great inconvenience to those whose position
renders control and supervision unnecessary. 3. "When
would the authorities cease to control and supervise the
consumptive?" I am afraid I do not understand the
question, nor was I aware that there was any proposal
in existence that any control or supervision exercised
should be temporary. I imagine that either or both would
be continued, having regard to the circumstances, as long as
the need for them existed in a sufficient degree to justify
their continuance. Again, the gentlemen whose names I
have given above, and many others, could, I feel sure,
answer the question better than I can.

In conclusion (1) it appears to be the opinion of a large number of medical men, who must be our advisers in such matters, that tuberculosis is prevalent, that its prevalence is undesirable, and that it can be rendered less prevalent by the removal of causes, by the treatment of cases at early stages and by other steps which they recommend, and which cannot be taken on any effective scale without the intervention of public authorities, local and otherwise; and (2) in order to facilitate that intervention certain medical men and others, rightly or wrongly, ask that where tuberculosis exists the public authorities, local and otherwise, should receive information of its existence as a matter of legal compulsion applied to all classes in the state.

I have ventured to suggest that this demand (2) is not unreasonable if effective measures are to be taken and if the problem of the diminution of tuberculosis is to be fully understood by those concerned in its possible prevention or cure, and I endeavoured in my previous letter to point out that the terrors of compulsory notification had been exaggerated by Dr. Faquharson, doing this by reference to one of his authorities, Professor Sims Woodhead, and to Dr. Leslie Mackenzie. I do not know why Dr. Bowie should complain of my appealing to authority, or how otherwise he thinks I ought to have disproved or controverted Dr. Farquharson's statements, but at all events I disclaim any desire or power to do so personally. I regret that Dr. Bowie should see any resemblance between myself and Jacob in a not very creditable episode of his career, but hope that he did not mean unkindly a reference that I do not fully understand. After all, he might have compared me to Habakkuk, or Balaam's ass, and I am glad that he did not extend his biblical illustrations farther.

I am, Sir, yours faithfully,

Sept. 3rd, 1910. FORENSICUS.

THE BRUSSELS UNIVERSAL EXHIBITION.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(*Continued from p. 590.*)

The British Chemical Section.

ON the one occasion when the British section at an important international exhibition has been really well organised the whole show was relentlessly swept away by a fierce conflagration. Some years ago all France was convulsed because one of the guardians at the Louvre was discovered frying a chop on a small coke stove used for cooking. In varied terms and with much eloquence public speakers and writers pointed out that if the attendants were going to cook chops near the pictures the risk of fire would be increased and the safety of one of the world's greatest collections seriously jeopardised. But at the Brussels Exhibition it was not a guardian's chop that was cooked near art and scientific treasures; it was elaborate dinners for many thousands and thousands of people. Then these people were not satisfied with eating, most of them smoked and threw the burning ends of their cigars and cigarettes on the dry plank floors just outside the doors of the exhibition. No smoking was allowed inside, but there were verandahs or terraces which formed part of the main buildings that were burnt down, and here people were smoking all the time. Smoking should not be allowed in the main buildings at exhibitions, and here the fire is said to have originated close to the post-office. This post-office was at the end nearest to the old Brussels or Kermesse side of the great

terrace, facing the monumental fountain and the principal tramway station. On one side of the post-office were the offices of the exhibition directors, on the other side lavatories, and all along the great terrace several restaurants. This meant much smoking in a lath-and-plaster building, where light inflammable materials abounded. The portion of the Belgian section nearest to the post-office was devoted to lace, clothing, and light fabrics. Ladies' underclothing made of satin or silk, elaborately embroidered with flowers and other coloured designs, fitting with glove-like tightness on lay figures, attracted large crowds. The most amusing exhibit in this section was that of a manufacturer of corsets and underclothing. This ingenious individual put up two life-size anatomical drawings to illustrate how tight-lacing displaced the internal organs; it was obvious that the effect shown by his lay figures could not be reproduced in life unless the wearer of the corsets pulled the laces with vigour and forgot all about the anatomical pictures. Indeed, it does seem that more attention should be paid to the development of fashions that tend to injure the health of the wearers. There were a good many such exhibits, and of all the things destroyed perhaps the clothes can best be spared. The illustrative lessons can be and should be reproduced.

Immediately beyond this portion of the Belgian Exhibition stood the British Section, where everything was unmercifully burnt up. As the flames rushed in from the Belgian section the first to be attacked were the chemical exhibits, and in the front was the very remarkable collection bearing the familiar name of Burroughs, Wellcome, and Co. Their little tabloids, however, had no chance, and their serums dried up in an instant. The rare salts from their research laboratory, such as emodin, that must have taken so much labour to prepare, the substances extracted with a view to the physiological standardising of drugs from leaves and common flowers, such as olive and red clover, &c., all blended in a few moments and were converted into mere ash. Things common or rare shared the same fate. Now the chemical exhibits were, on the whole, so remarkable that a special and carefully prepared catalogue was issued by an editorial subcommittee of the Chemical Industries Committee, which had for its president Sir Boverton Redwood. This publication, however, is not merely a catalogue. It contains short essays which sum up the actual technical position of the chief branches of the chemical trade, such as the alkali industries, gas and coal tar products, pharmaceutical preparations, disinfectants and antiseptics. Thus in the chapter on pharmacy we have a summary of the Pharmacy Acts and some account of an early Pharmacopœia issued in 1618. We are therefore able to observe that antitoxins and serums have replaced for the treatment of human ills the liver of quails, the fat of herons, the flesh of vipers, and the ashes of young storks. Eighteen pharmaceutical exhibitors had stands in this section, comprising many well-known firms too numerous for me to set out in detail. The section devoted to disinfectants also consisted of several stalls, the catalogue recognising that "the latest contribution to the literature of the standardisation of disinfectants is the report of THE LANCET Commissioners, published in that journal on the 13th, 20th, and 27th November, 1909." For general purposes the preference in disinfectants is given in the essay accompanying the catalogue to "certain coal-tar disinfectants, such as cofectant, cyllin, kerol, &c.," because they are non-toxic to the human subject, are readily prepared as emulsions, and "possess very much higher germicidal powers than phenols and the cresols." In illustration of this pronouncement Jeyes' Sanitary Compounds Company had a large stall to exhibit the cyllin disinfectant which is sold under the control of the Belgian Government. How this control is established was recently described.[1] Cyllin was also exhibited as soap or powder and ointments. The Sanitas Company had likewise a stall, at which were displayed the various wares which this enterprising business puts on the market. Edward Cook and Co., beside the great variety of soaps for which they are celebrated, exhibited the disinfectant called "cofectant," which showed up so well under the chemical and bacteriological tests which THE LANCET devised. It is now made up as a liquid, or in powder, or as an ointment, and also as lozenges. The latter promise to become popular as throat disinfectors for the prevention or cure of septic infection. By the side of the disinfectants there were many soap exhibits, and at the entrance of the British section there was an ornamental fountain made of Erasmic soap bubbles. The firm, at their great works on the banks of the Mersey, have succeeded in consuming their own smoke.

[1] See THE LANCET, Jan. 22nd, 1910.

Scientific Instruments and Food Products.

Next to the chemical section came the exhibit of mathematical and scientific instruments, some of them of great value and precision. The Cambridge Scientific Instrument Co., with their temperature-controlling appliances, and G. Cussons, Limited, with balancing apparatus designed by Professor W. E. Dalby, of the Imperial Technical College, had exhibits here. These, and some of our best makers' exhibits—barometers, optical instruments, compasses, Lord Kelvin's "wattsmeters," deflectors, and recorders—were all ruthlessly destroyed. A step further on came the mining exhibits and Home Office collection, which I have already described. On this side of the British Section, and for its whole length, there was hardly a single exhibit but was of some direct or indirect interest to the medical profession. Nor were the other parts at all devoid of professional interest. For instance, there was the food products section, which included many invalid foods and popular restoratives, such as Savory and Moore's peptonised milk, Mellin's infant food, and Jarr Keiller and Sons' confections. This firm by the way occupied an exceptional amount of space to display a model of Balmoral Castle, made of chocolate, huge nosegays made of sweets that imitated flowers in colour and shape, and walls built up with pots of the inevitable Dundee marmalade. Vegetarians visiting this section must have been delighted with Vavasseur and Co.'s exhibits, for they showed how cocoanuts could be utilised for making milk, syrup, and grease, all useful for vegetarian cooking. The Indian Tea Syndicate, in this section, drew vast crowds by the gratuitous distribution of afternoon tea. But for the thirsty—and in the hot weather an exhibition does engender thirst—there were also provided the syphons and capsules or "Prama" sparklets. Mixed with syrup, these produced a very cool, sparkling, and quite innocent temperance drink which could be obtained at any time of the day.

Travelling by Sea and by Land.

Another subject of general and also of specific interest relates to travelling. Even those who do not travel in the sense of going abroad or to distant places, but sleep in the same bed every night, are nevertheless constantly travelling short distances in tram or train. As an ever-increasing proportion of time is spent in travelling, the nature of the accommodation afforded is a matter of growing importance. The railway and tramway section graphically demonstrated that this accommodation has been very materially improved from time to time. The East Coast Route showed some beautiful models, pictures and plans, and a very large contour, or raised, map of Scotland and the east coast. The photographs and other views of some of the health and pleasure resorts of Great Britain caused quite a sensation, and foreigners were often heard to exclaim in tones of surprise: "What, there is some scenery in England!" Perhaps this revelation combined with the comfort, not to say luxury, of some of the railway carriages exhibited, will induce more tourists from the continent to visit the beauty spots of Great Britain. Then there were the ships, from the small Channel boats to the leviathan *Mauretania*. All these beautiful models were destroyed and many cost several hundred pounds to make. There were models of the "Harwich to the Hook of Holland" or Antwerp steamers, oil paintings of Dover, Folkestone, and Calais with models of the steamers that ply to these ports in front of the pictures; and in contrast with these little boats were models of ocean-going steamers such as the Union Castle Mail Steamships for South Africa and the Atlantic liners. These were very beautiful and illustrate the history of shipbuilding, but what concerns intending passengers and what they can appreciate, however ignorant of technicalities, is a full-size model of the interior of a cabin. This was shown by the Cunard Company. Opening the door, what from the outside appeared as a small hut, the inside was a faithful reproduction of a state room. Here the contrivances for serving meals to a patient unable to rise were shown. All the comforts and ingenious devices to obtain the utmost convenience could be examined, including the three windows, the first in transparent glass, the second in ground glass (through which it is not possible to see but which

allows the light to penetrate), and the third of a wooden *persienne* that keeps out the light but lets the air through. The luxurious toilet arrangements with a constant service of hot and cold water, the combination of comfort with artistic decorations, all seemed to suggest that an ocean journey need not be an ordeal but a pleasant experience. But all this has gone with many, many other things, some that cannot possibly be replaced. Yet there is to be a revival. A new British section is to be rapidly brought into existence. Perhaps no better wish can be expressed than to hope that the reconstructed section will equal in merit that which the flames have destroyed.

(To be continued.)

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Hospital Isolation.

THE Gorton district is to be amalgamated with Manchester, and we shall therefore have no more separate health reports from Mr. A. W. Martin, its present medical officer. In his last report he deals chiefly with the hospital isolation of infectious diseases. He would, for instance, only send severe cases of scarlet fever to the hospital, leaving the mild cases at home—a course he has adopted for the last 20 years. He says that hospital isolation appears to have little or no effect on the attack-rate of the community, but the great decline in the death-rate is in all probability due to the influence of the hospitals. As there are varieties among plants and animals, so there seem to be varieties differing in degrees of malignancy among disease germs, and in consequence of nearly every case of the malignant type being removed to hospital for isolation and treatment there has been the gradual elimination of the malignant type, till it has now become practically extinct, the mild type alone prevailing. He believes that if the same system were adopted with measles and whooping-cough, all the severe cases being removed to hospital for isolation and treatment, while the mild cases were treated at home, there would be in all likelihood a similar lowering of the death-rate in these diseases. It would be interesting and important to know if, and where, similar methods have been adopted, and with what results to the death-rate.

The Prevention of a Cholera Invasion.

With all the benefits the Ship Canal has brought to Manchester, there is the drawback that she is rendered more vulnerable as to the importation of infectious disease. But a very careful watch is kept, so that even if the port sanitary authority had not received a letter from the Local Government Board pointing out that cholera is epidemic at Cronstadt and other Russian ports, it may safely be assumed that all precautions would be taken against the admission of such a foe. The Manchester authority pays a subsidy to the Liverpool authority, which takes care that no ship is allowed to enter the port of Manchester without the certificate of the port medical officer. Mr. W. F. Dearden, the Manchester port medical officer, finds some difficulty in getting the masters of ships thoroughly to understand their obligations, and he has therefore drawn out a synopsis of the regulations issued by the Local Government Board as to cholera, plague, and yellow fever. Copies of this are to be distributed to the masters of ships trading with infected ports.

Health of Cheshire.

It is cheering to learn from Dr. Meredith Young's report as to the health of Cheshire, that the death-rate for the county was 12·72 per 1000, and that the infantile mortality was not more than 99 3 per 1000 registered births. Moreover, the death-rate from pulmonary phthisis was the lowest for the county since 1892, and as this decrease has been fairly gradual and steady, there is some hope of its continuance provided, says Dr. Young, "that there is no relaxation in the public and private efforts made on all hands for the control of this provedly preventable disease." There is a steady and persistent decline in the birth-rate, especially among the comparatively well-to-do and educated classes. "This," says Dr. Young, "is due to causes which are far from unavoidable, and is fraught with very serious consequences to the future of the Empire." He finds that vaccination is still carried out in a varying, but on the whole a hopeful, percentage of cases.

The Public Health of Manchester.

As in the case of Cheshire, the medical officer of health of Manchester, Dr. J. Niven, also tells of a falling birth-rate, 27·52 per 1000, the lowest on record. It is true that the same may be said of the death-rate of 17·70 per 1000, while the infantile mortality is also considerably lower than in any previous year. This is attributed to various factors, "to the increased attention given to the welfare of mother and infant by medical practitioners, the excellent work done by the department of elementary education, the increasing efficiency of the health visitors, the growing influence of the Mothers' Guild, the improvement of the milk-supply, the work already done under the Children Act—halting and imperfect as it has been,—the guidance of the district nurses, the careful instruction imparted to midwives, and the baby-shows, have all contributed." The inclusion of baby-shows in this category of good influences has the charm of novelty. The returns show a further reduction in the proportion of tuberculous milk brought into the city during 1909. The Manchester township, as it always has done, holds the worst place as regards public health. In it "tuberculous mortality increases up to the most advanced periods of life," while in north and south Manchester it is declining. This is largely ascribed to life in the lodging-houses which abound in the old Manchester township. And this is considered by Dr. Niven "the hardest nut of all to crack in the prevention of tuberculosis." He has a scheme for the methodical fighting of this disease of which more will probably be heard.

Sept. 6th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Crusade against Phthisis: Important Liverpool Proposal.

RECENTLY the port sanitary and hospitals committee of the city council appointed a special subcommittee to consider the best method of dealing with tuberculosis in the district. The subcommittee has now reported on the subject to the hospitals committee, which has approved of the report, including the following recommendations: "That the health committee be requested to take into consideration the advisability of appointing an assistant to the medical officer of health to undertake the following duties: (1) to visit the homes of persons suffering from tuberculosis, who have been in-patients at Fazakerley Hospital, or notified under the Order of the Local Government Board, at their homes, with a view to ascertain that medical instructions are being followed, and to remind or advise the patient when necessary as to the precautions to be observed; (2) to note and report to the medical officer of health any home conditions likely to influence the disease, either in regard to the patient or to those living with him; (3) to keep systematic records of visits or re-visits, and of the conditions found, and submit them to the medical officer of health, and to carry out any other kindred duty or investigation which the health committee may direct." The health committee was further requested to take into consideration the advisability of undertaking payment of the cost of the examination of sputum for tubercle bacilli made by the city bacteriologist, at the request of a medical practitioner, in all necessary cases where the patient is not being treated in a public institution and cannot afford to pay for the examination. These recommendations having been considered by the health committee, that body resolved, in the event of their approval by the city council, to advertise for an assistant to the medical officer of health at a salary of £250 per annum, increasing in 12 months to £300 per annum.

Proposed Liverpool Memorial to the late Miss Florence Nightingale.

I understand that it is intended to establish in Liverpool a memorial to the late Miss Florence Nightingale of a kind befitting the character of that noble lady. It is proposed that the memorial shall be in connexion with the work of the Liverpool Queen Victoria District Nursing Association, which was founded by the late Mr. William Rathbone, with the counsel and encouragement of Miss Nightingale. It is hoped that it may take the form of a large and much-needed development

of that eminently practical and increasingly useful work. A definite scheme will be shortly delineated.

Corporation Infectious Hospitals.

From the annual report of the medical officer of health (Dr. E. W. Hope) upon the city hospitals it is to be noted that these institutions are being well administered and are doing a most useful work. The question of the permanent closure or reduction of the number of beds at Parkhill Hospital has from time to time engaged the attention of the hospitals committee during the past few years, and although it was not considered safe to close the hospital entirely, a considerable number of the beds have been put out of commission—viz., 200—and the staff has been correspondingly reduced. The number of beds retained in use at the hospital during the year was 235. At present the number of beds available in the various hospitals is as follows: City hospital north, 162; City hospital south, 100; City hospital east, 152; City hospital, Parkhill, 235; City hospital, Fazakerley, with annexe, 510; total, 1159. No fewer than 6625 patients had been treated within their walls, the great majority of these being cases of scarlet fever. The advantages of the hospitals are now so fully recognised by the public that the removal to hospital of their sick dependents is often insisted on and claimed as a right; whereas in former years, in cases similarly circumstanced, removal would never have been sought, and would even have been resisted. The report contains elaborate tables and diagrams illustrating the variety and nature of the diseases treated in the hospitals.

Small-pox at New Ferry.

Another outbreak of small-pox has occurred at New Ferry, near Birkenhead, in the last few days. A man and his wife resident in New Ferry-lane have been attacked. The man, feeling unwell at his employment, was sent home, and the medical man who was called in diagnosed the case as one of small-pox. The patient rapidly becoming worse, died on Sept. 1st. His wife also contracted the disease in a milder form, and was removed to the small-pox hospital at Greasby. The children, five in number, are now being detained at the isolation hospital at Pensby. The acting medical officer of health of the district is of opinion that these two cases had no relation to the previous outbreak a few months ago.

Sept. 6th.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Appeal Against a Closing Order under the Housing and Town Planning, &c., Act.

WHEN a closing order has been made by a local authority under section 17 of the Housing, Town Planning, &c., Act, the owner of the house concerned may appeal to the Local Government Board against the order, but before dismissing such appeal the Board is required to hold a public local inquiry. The first of such inquiries in Wales was held in Aberdare a few weeks ago, and the action of the district council has been upheld. The houses which were the subject of the inquiry were 11 in number and were built in 1851. In 1894 they were purchased by the present owner for £650, who let them at a rental of 19*s.* per lunar month. The conditions which led the medical officer of health, Dr. Morgan J. Rees, to report them as being unfit for human habitation referred principally to a lack of through ventilation, unpaved areas, and unsatisfactory flooring.

Death of Henry Collen Ensor, M.R.C.S. Eng., L.S.A.

The medical profession, not only of Cardiff, but of a wide district surrounding, has sustained a severe loss through the death on August 23rd of Mr. H. C. Ensor. He was operated on successfully for nasal obstruction, but died shortly after the conclusion of the operation. He received his medical education at Guy's Hospital and, after acting as resident surgeon to the Birmingham and Midland Eye Hospital, commenced practice as an ophthalmic surgeon in Cardiff. For several years he was ophthalmic surgeon to the Newport Hospital, and was subsequently appointed to succeed Dr. Tatham Thompson as ophthalmic surgeon to the Cardiff Infirmary. He held also a similar position in the Cardiff Provident Dispensary, the Seamen's Hospital, the Mountain Ash Cottage Hospital, and the Cardiff Deaf and Dumb Institute. Of an unassuming and somewhat retiring disposition, Ensor nevertheless secured the entire confidence of his patients, a fact which was due in no small measure to the thoroughness which characterised all his work, for of him it may truly be said that he had "an infinite capacity for taking pains." He was thoroughly imbued with the spirit of Freemasonry and was held in the highest esteem by members of the craft. He was a Past Master of the Bute Lodge in Cardiff and had held high rank in Provincial Grand Lodge. His funeral was attended by many of his medical colleagues, and he was accorded the customary simple Masonic rites by the large number of Freemasons who were present. He leaves a widow and three children to mourn their loss.

Infantile Mortality in the Rhondda Valleys.

In his report to the Local Government Board on infant and child mortality Dr. A. Newsholme included the Rhondda urban district council among those sanitary authorities who, as tested by excess of infant mortality, are most urgently called upon to perform more completely their primary duties. For this reason the section upon infantile mortality in the recently issued annual report of Dr. J. D. Jenkins, medical officer of health of the Rhondda, is of exceptional interest. Dr. Jenkins is able to report a very satisfactory decrease in the infantile mortality rate for 1909 when it was 130 per 1000 births compared with an average rate in the preceding ten years of 190. In England and Wales the rates during the same periods were 109 and 138 respectively. Among the recommendations made by Dr. Newsholme with a view of securing a reduction in the number of infant deaths, emphasis was laid upon the necessity for removing general insanitary conditions, and especially for abolishing dry systems of excrement disposal and substituting water-closets. For many years past the prevailing system in the Rhondda has been that of water-carriage, and among the 25,000 houses there are only 200 which are not provided with water-closets. The scavenging of the district is supervised by the six sanitary inspectors and appears to be carried out satisfactorily, the daily removal of household refuse preventing the accumulation of decomposing material in the proximity of dwellings. Early in 1909 the district council decided to adopt the Notification of Births Act, 1907, and later in the year appointed two health visitors to whom were allotted those portions of the district which in recent years had shown the highest infantile mortality rates. They visit the houses at which births have taken place immediately after the medical men or midwives have ceased to attend and offer advice to the mothers not only upon the upbringing of the baby, but also upon such matters as the storage of food, general cleanliness, ventilation, and such other subjects as may be considered to have an influence upon the general welfare of the child in common with that of the other inmates of the house. They also visit those houses in which the death has occurred of a child under one year old. Dr. Jenkins considers that the latter visits may lead to a better understanding on the part of parents of conditions which may have led to the fatality investigated, and which may have been preventable. Already there are indications of the good resulting from the services of the health visitors, and the council will, no doubt, realise the wisdom of increasing their number, so that the whole of the urban district may have the advantage of these officials.

Death of Howard David Reynolds, M.R.C.S. Eng., L.R.C.P. Edin.

Mr. H. D. Reynolds, who died at his residence, Kensington House, Pembroke Dock, South Wales, at the age of 6 years, on August 21st, was medical officer of health of the Pembroke boroughs for nearly 30 years. He was J.P. for Pembroke, surgeon to the Pembroke Infirmary, and consulting surgeon to Haverfordwest Infirmary, and in addition held many other appointments. He qualified in 1865 M.R.C.S. Eng. and later took the L.R.C.P. Edin. and L.M.

Sept. 6th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Medical Inspector of the Counties of Roxburgh and Selkirk.

AT a meeting of the medical inspection committee of the educational committees of the counties of Roxburgh and Selkirk, held at Newtown, St. Boswells, Dr. Alexander Gibb Glass was appointed medical inspector of schools of the united counties. Dr. Glass is a native of Grantown-on-Spey

and is at present medical officer of health and school medical officer of the burgh of Burnley.

Rev. William Jeffrey, LL.D., L.R.C.P. Edin., L.F.P.S. Glasg.

On August 25th there passed away one who filled a conspicuous position in the profession of medicine, and who was a man of many and varied interests. In these days of stress and strain it is enough for the ordinary man to equip himself efficiently for a single profession. William Jeffrey was both a medical practitioner and a minister of the Gospel, and within six weeks of his lamented death in his sixty-fourth year he was actively engaged in the practice of both professions. As pastor of the High Church, Kilsyth, he ministered to the spiritual needs of a large congregation with peculiar acceptance, and as a physician he was always at the call of those who were not in a position to afford the ordinary medical advice. Though he gave his services gratuitously and gladly to the poor of all denominations (and of none), he was ever scrupulously careful not to encroach on the legitimate province of his fellow practitioners. He refused his aid where he had reason to believe that the patient was able to pay, and his relations with his fellow practitioners were of the most cordial nature. For upwards of 27 years he acted as consulting physician to the Glasgow Central Dispensary, and had long been the senior physician of that institution. Of commanding presence and richly gifted by nature with all the qualities which go to make up personal charm, Dr. Jeffrey inspired absolute confidence in his patients, while the loveable nature of the man won in unstinted measure the affection of all with whom he came in contact. Astute to detect malingering he was one of the shrewdest as well as one of the kindest of men. He was equally at home with his rich parishioner and his needy patient, and many a home will be the poorer, and many a heart will be the sadder, by the departure of one of whom it can be said with all truth that "he went about doing good."

Sanitary Congress at Elgin.

The thirty-sixth annual Congress of the Incorporated Sanitary Association of Scotland was opened at Elgin on Sept. 1st. Lord Provost Wilson welcomed the delegates, and Mr. Robert Lindsay (Midlothian), President of the Association, delivered his presidential address, entitled "The March of Sanitary Science." Dr. Matthew Hay contributed an important paper on Human Carriers of Typhoid and other Zymotic Diseases. On the second day Dr. William Robertson, medical officer of health of Leith, read a paper on Practical Points in the Control of Pulmonary Tuberculosis, which was very keenly discussed. The concluding paper was given by Baillie Fraser (Inverness), convener of the public health committee, the subject being Social Problems in Relation to Public Health. In it he strongly advocated the State control of parentage and the labour colony treatment of criminals and inefficients.

Aberdeen Parish Council Medical Officership.

Only one application has, it is understood, been received by the Aberdeen parish council in reply to the advertisement by that body for a medical officer for the Oldmill Poorhouse. It is probable, therefore, that the whole matter will be reconsidered by the council at its next monthly meeting.

Medical Inspection Difficulty in Sutherland and Caithness.

The Sutherland county education committee have expressed the opinion that the recent arrangement of a medical officer of health of the combined counties of Caithness and Sutherland should be terminated and an officer appointed for the double duties of medical officer of health and medical inspector of school children, and the county council of Sutherland acquiesced in this proposal. The county council of Caithness, however, refused to agree to this proposal and proceeded to a scheme for the appointment of a medical inspector for Caithness alone, apart from the medical officer of health, and thus an unprecedented state of affairs has arisen. The medical officer is the connecting link between these two counties, and the action of the county committee of Caithness also includes the alternative arrangement of the present combined counties' officer acting as superintendent in Sutherland over the local practitioners, because the county council of Caithness will not agree to the increase of duties in Sutherland, as they have not been scheduled. The local authorities of Sutherland in this matter are considering the advisability of laying the whole matter before the Local Government Board, as after many months of negotiation no satisfactory arrangement has yet been made.

Sept. 6th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Emigration Statistics.

IN 1909 Irish emigration exceeded the natural increase of population—that is, the excess of births over deaths—by 889. The respective figures are: natural increase of population, 27,786; emigration, 28,675. In 1909 the numbers emigrating were 5380 more than in 1908 (23,295). No explanation of this state of affairs is apparent, but it is something to be thankful for that the numbers emigrating in 1909 from Ireland were less than the average of the preceding decade, which was 37,141.

Drunkenness in Ireland.

The statistics just issued from the Government offices show that in Ireland during the last decade cases of drunkenness have diminished from 98,401 to 68,748. During 1909 the cases were 5519 fewer—that is, a much larger decrease than in any previous 12 months since 1903. Further, there is a decrease of 393 in the cases of serious crime last year as compared with 1908, but an increase of 455 as compared with 1907. Waterford is the most drunken town in Ireland for its size, as more than three persons per 100 were charged, while in Dublin the proportion was less than one.

Suicide in the Richmond Asylum.

The city coroner held an inquest on Sept. 5th into the circumstances of the death of a patient in the Richmond Lunatic Asylum. The unfortunate man, who was known to be of suicidal tendency, was missed at 2 P.M., and on search being made his body was discovered hanging by a muffler to a heating pipe. He had apparently been dead for several hours, and the absence of food in the stomach suggested that he had not breakfasted. The coroner observed that no check of the patients had been taken, or the man's absence would have been discovered earlier, but the jury found that proper care had been taken.

Royal Institute of Public Health.

The corporation of Dublin has resolved to invite the Royal Institute of Public Health to hold its annual congress next year in Dublin.

The Alleged Sweating in Belfast.

The report of the medical officer of health of Belfast containing allegations as to sweating in Belfast came before the city council on Sept. 2nd, but the Lord Mayor ruled that the question of sweating as such was outside the province of the corporation and could only be discussed by it in strict reference to the question of sanitation. He pointed out that the corporation could do nothing to put down sweating, and that there was no more ground for it to make a pronouncement in regard to it than that it should declare its views on tariff reform or on the licensing laws. The chairman of the public health committee said his committee had met that morning, and as a consequence he would ask the corporation to omit the portions of the minute containing the part of the medical officer of health's report dealing with home workers. A deputation from the Belfast trades council appeared before the city council urging that the corporation should ask that the branches of trades pilloried in the health report should be scheduled as "sweated," but the Lord Mayor ruled that the deputation had not asked the corporation to do anything that it was within its power to do. The trades council have decided to hold a public meeting in opposition to "sweating" in the various trades, and especially in reference to what was mentioned in the health report of Belfast for 1909.

Sept. 6th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Action of Various Caustics on "Plaques Muqueuses."

M. Jeanselme and M. Touraine recently presented to the Société Médicale des Hôpitaux the results of their researches with the aid of the ultra-microscope on the most efficacious means for sterilising *plaques muqueuses*, which are the chief lesions by which syphilis is communicated. It appears from their researches that the best disinfection is obtained with a solid pencil of nitrate of silver or with tincture of iodine. After cauterisation with solid nitrate of silver or tincture of iodine all the *tréponèmes* are destroyed, both on the surface and in the depths, and the action appears to last for several days. An ointment of calomel applied without friction seems to have a fleeting action which is limited to the surface of the plaque.

A Legacy to the Pasteur Institute.

A generous lady, widow of the Marquis de Beauregard de Maubreuil d'Orvault, has on her death-bed bequeathed the remainder of her estate to the Pasteur Institute, in addition to a million francs formerly bequeathed. Among other institutions which benefit are the following: The Academy of Moral and Political Science, 100,000 francs; the Hospital d'Ormesson for Tuberculosis, 50,000 francs; the Hospital de Villepinte for Tuberculous Girls, 50,000 francs; and the Society for the Benefit of Wounded Soldiers, 15,000 francs.

The International Exhibition of School Hygiene.

This exhibition was held at the beginning of August in the Grand Palais of the Champs Elysées. School furniture was specially represented, not only by models of tables, but by the aid of class-rooms completely furnished according to the style used in different countries. Reserved exclusively to the members of the congress during the meeting, it has been opened to the public subsequently. The opening meeting was held at the Sorbonne under the presidency of the Minister of Public Instruction. In the afternoon a visit was paid to the Château de Chantilly, and in the evening there was a reception by the President of the Congress, Dr. Mathieu. Only to quote the works connected with hygiene and medicine at the meeting on August 4th, M. Doléris and M. Chotzen presented a remarkable report on the education of the sexes followed by a demonstration of gymnastics. On the next day a general meeting, presided over by M. Chantemesse, was devoted in great part to a report by M. Lesieur and M. Desguin on the training and selection of school medical officers. They concluded that competition was an excellent mode of appointment. Dr. Mathieu showed the usefulness of a school medical history sheet. The concluding meeting was presided over by M. Cheron, assisted by Dr. Mathieu, who read the resolutions that had been passed, the principal of which were: (1) That the teaching of school hygiene should be given in all schools for the training of teachers; (2) that this teaching should be given by medical men and tested by examinations; (3) that sanitary history sheets should be of a uniform type in all schools; (4) that physical training should be obligatory in all schools for boys and girls; (5) that playgrounds should be reserved by the municipalities; (6) that candidates for teaching appointments should be trained by the school medical officers in all details of sexual questions; and (7) that the necessary instruction to parents should be given to them by well-trained teachers or by school medical officers.

Typhus Fever.

At a meeting of the Academy of Sciences held on August 8th Dr. Roux, director of the Pasteur Institute, communicated some remarkable observations by M. Charles Nicole at Tunis on typhus fever which is ravaging this country. M. Nicole shows that this disease remains transmissible during the first period of convalescence. This has been shown by experiments on monkeys, to which it can be transmitted. Immunity is only acquired after a first severe attack.

The Association for the Advancement of Science.

This congress took place during the first week of August and was a particularly successful one. I may mention among the interesting contributions that of Professor Arloing, Director of the Veterinary School of Lyons, who communicated to the congress his profound conviction, supported by experience, that herds of cattle can now be successfully vaccinated against tuberculosis. It is unnecessary to insist on the importance of such a declaration. Professor Arloing has succeeded during the last two months in successfully vaccinating 70 head of cattle in the Puy-de-Dome, 40 in the Saone-et-Loire, and 125 in Allier, and he proposed at the end of the congress to proceed to the Haute Marne to vaccinate there 100 head of cattle which had been got ready for him. The process costs little and consists of two injections at an interval of two or three months, and confers, he believes, on the animals treated an immunity which lasts at least two years, the effect being particularly marked when the animals are young.

The Isolation of Radium.

Mme. Curie and M. Debiern have made a communication to the Académie des Sciences announcing the isolation of radium.

Sept. 6th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

PLAGUE returns for the week ending July 16th show a decrease in mortality from 717 to 561 for all India and Burma. The Punjab no longer heads the list, but has, in fact, dropped to the bottom place amongst the provinces. The Bombay Presidency reports 153 deaths; Burma, 84; Mysore State, 42; Bengal, 36; the United Provinces, 27; Madras, 25; the Central Provinces, 18; and the Punjab, 13 (the mortality for this province in the previous week's returns was 287).

Cholera in Kashmir.

Beyond the three European deaths reported in my last letter no others have up to date occurred from cholera in Kashmir. Owing to the death of the manager of the Rest House at Baramulla from cholera this building has been closed. Official returns are posted daily at the Srinagar Club and at the offices of the Motamund Durbar, and these announce up to July 17th 1198 cases of cholera in all, and 657 deaths.

The Rice Trade and Beri-Beri.

At the last committee meeting of the Burma Chamber of Commerce a letter was read from the officiating secretary to the Government of Burma saying that the Hong-Kong administration appeared to have accepted the view that the use of polished rice from which phosphatic salts had been removed by over-milling was the cause of beri-beri, and that that administration was apparently prepared to consider measures to exclude such rice from its territories. The letter further states that in the event of other Governments taking up the same attitude the result would be very serious to the rice export trade of Burma, and asked whether the Chamber would be prepared to arrange for a conference of representatives of rice millers to discuss the question of the voluntary modification of the present process to ensure the retention of these phosphatic salts of grain which are said to be necessary as a precaution against beri-beri. There was also read a report from the Subcommittee on Rice suggesting that samples of polished rice should be sent to the local government, which might be asked whether these were the kinds referred to by the Hong-Kong administration, and also that a sample of unpolished rice should be sent with the suggestion that this quality might be acceptable. This report having been circulated to and adopted by the committee, a letter in accordance therewith was addressed to the local government.

The Treatment of Lunatics in the Punjab.

Few more exacting tests of personality can be imagined than the responsible duty of looking after lunatics, and even the most sensible and patient volunteers for this work can hardly be expected to master all the subtleties of their kindly task by the sole light of nature. It is satisfactory to find that during the course of last year a systematic effort has been made in the Punjab to instruct the warders of the provincial asylum in their duties, and to find the hope officially expressed that this effort will be attended with good results. It may also be noted that in order to obtain men of a superior stamp, Captain A. S. M. Peebles, I.M.S., the superintendent,

has lately been trying to obtain the services of pensioned officers of the Indian Army, but some doubt may reasonably be felt as to whether the latter will be found willing to discharge the exceedingly distasteful duties which not infrequently fall to the lot of an asylum attendant, while a pension earned for effective military service would hardly seem, on the face of it, to afford a sufficient guarantee of a man's suitability for dealing with the insane. Enthusiasm may, however, reasonably greet the suggestion of Colonel T. E. L. Bate, I.M.S., Inspector-General of the Punjab Civil Hospitals, that a few of the brethren of the Franciscan Order should be induced to undertake the supervision of the attendants. The admirable work carried on by the Franciscan nuns in the female portion of the asylum has claimed the warm appreciation of Sir Louis Dane, and there can be little doubt that the presence of the Brothers of the Order in the male asylum would be calculated to exercise a like sympathetic and wholesome influence.

A New Medical College for Lucknow.

The Secretary of State has sanctioned the construction of a Medical College and Hospital at Lucknow, at an estimated cost of Rs.32,69,950. The foundation stone of this work was laid by His Majesty the King on the occasion of his visit to Lucknow in December, 1905, as Prince of Wales, and the time since then has been employed in elaborating and completing the full details of the project. The designs for the building are in the Indo-Saracenic style, the work of Colonel Sir Swinton Jacob, K.C.I.E. The College part of the scheme, the cost of which was met from private subscriptions, was commenced last year, and these buildings are far advanced. The complete work will now be put in hand. The site for the hospital and other buildings, a commanding and central one, has been admirably chosen; that the buildings have been well designed the name of Sir Swinton Jacob is sufficient guarantee. The provision of an up-to-date hospital and college at a place like Lucknow was necessary and it is understood that no effort will be spared to push the scheme to completion.

The Conference on Tropical Diseases at Manila.

Major A. Hooton, I.M.S., who attended the recent meetings of the Far Eastern Association of Tropical Diseases at Manila, has submitted a long report to the Government of India. In dealing with tubercle and leprosy he reports that an active crusade against tubercle has been started; the steps taken up to the present include instruction in schools, special out-patients' departments for tuberculosis cases in the large hospitals, attendance of patients at their homes by nurses, and open-air treatment in special camps conveniently placed so that patients able to do so can carry on their work. It is proposed shortly to establish a hospital for hopeless cases, with the principal object of minimising the danger of infection of the healthy, and a home in the mountains for incipient cases, to grant free sites, and if necessary building materials for airy dwellings to be constructed on a definite plan for sufferers not otherwise provided for, and to form a league for the dissemination of a knowledge of the proper measures for prophylaxis. As in many parts of India, in the Philippines tuberculosis is very prevalent and fatal. With reference to leprosy, it is noted that the segregation of lepers is perhaps the most striking of the sanitary reforms that have been inaugurated by the American Government in the Philippines, though great advances have been made in vaccination and other directions. It is now about five years ago since the initial steps were taken. An attempt was first made to explain the etiology of the disease to sufferers and their friends, and prominent Filipinos were induced to assist in the education of their companions with this end in view. Then gradually a small number of lepers were persuaded to take up their residence in the buildings prepared for them in the island of Culion. Every available means was adopted to make these people contented and comfortable, so that the disinclination of those still at large to join them might be overcome if possible without resort to force. At first some opposition was met with, but after a comparatively short space of time the people became more accustomed to the idea, and it was thought safe to progress a step further. No serious difficulty resulted and for the last three years throughout the group, with the exception of the island of Mindanao, the present leprosy law has been in force. This requires the civil authorities to deliver to the director of health, when called upon to do so, all persons afflicted or suspected of being afflicted with leprosy, and empowers the director of health to segregate such persons at the leper colony at Culion. Before finally segregating any individuals, however, the director of health must, if required by the patient or his friends, demonstrate the presence of the leprosy, but this clause is very seldom taken advantage of, and in no case has a repeated examination conducted at the laboratory at Manila failed to produce the requisite evidence. An additional check is also provided by the fact that the original diagnosis is made by a travelling committee of three medical men, who examine suspected persons collected at various appointed stations on the coast and assemble sufferers on board the steamer, which eventually transports them to their destinations. As regards the arrangements, the leper residents are allowed to write letters and to receive visits periodically from their friends, but the letters are disinfected, and friends and relations must live in quarters provided for them on an adjacent island. The results of segregation have more than justified the trouble and expense involved. A census of lepers in the islands (excepting Mindanao) showed 4000 at the commencement of the operations, and this number, owing to the large death-rate amongst the patients and the reduction of infection of healthy persons, has now fallen to 2300. It is believed that very few lepers remain at large at the present time.

August 1st.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

A Consumption Crusade.

A PUBLIC meeting was held in Sydney on June 29th to institute a "crusade" against consumption. Sir Philip Sydney Jones, M.D. Lond., presided, and the meeting was under the auspices of the newly-formed society with the title of "National Association for Prevention and Cure of Consumption." Resolutions providing for the opening of a national fund, for an appeal to the Prime Minister of the Commonwealth and the State Premiers and public generally, were carried. Sir P. S. Jones delivered an address on Consumption. Communications were opened with other principal Australian cities with a view to extending the project. It is not likely the matter will be very warmly taken up in Victoria, where the Board of Public Health has already been doing what was possible, and the Australian Health Society has for years carried on a programme of popular health lectures and the distribution of information by leaflets and pamphlets in that State, and of late years has paid special attention to the consumption problem.

Radium.

A proposal was recently made in Sydney that the Government should institute a "Radium Bank" by providing a supply of radium which would be hired by practitioners as they wanted it. The proposal has taken practical form in another way, the Sydney Hospital having opened a subscription list to provide that institution with an adequate radium outfit. In an interview with a representative of the *Sydney Daily Telegraph* Professor Anderson Stuart strongly urged the public to subscribe to a fund for providing radium at all public hospitals.

Bush Nursing.

A special meeting of the Victorian branch of the British Medical Association was held to hear an outline of Lady Dudley's scheme for "bush nurses," which was communicated by Mr. Boulton of London. The scheme at the outset was said to be intended for the organisation of district nursing throughout Australia and its gradual extension to outlying districts. This was the plan that had succeeded in Great Britain and Canada, and Australia presented less difficulty than the latter in that there were already existent small country hospitals which could be utilised as bases for beginning work. The proposed organisation consisted of: 1. A federal committee, whose duty it was to see that conditions were standardised all over Australia, and which would appoint nursing inspectors to see that the scheme was working smoothly. 2. Each State would have a central committee, whose duty was to see that nurses were available and adequately trained. Every hospital-trained nurse would have to undergo six months' experience of district nursing in the city before being sent out, and would also require to be

proficient in maternity work. The State committee would also see that payment was adequate and that no trespass on the function of the doctor was permitted. 3. In each town there would be a local committee, whose duty would be to see that the nurse was properly housed, and to provide means of transport. It would also arrange all financial matters, and the nurse would receive no money from patients at all. The local bodies would be represented on the State committees, and from these the federal council would be elected. It was not intended to thrust nurses on the people. Each town or district could apply at its own discretion, and the nurse, if not fully occupied, might possibly lecture on matters of hygiene in the local schools. The meeting received the address sympathetically, but a good deal of doubt was expressed as to the necessity for anything of the kind. Public enthusiasm has been somewhat lacking, especially in Victoria. New South Wales has shown more energy, and already a considerable sum has been raised by subscription and other means. The conditions in Australia are so wholly different from Great Britain and Canada that outside the cities there are practically no people that could be termed unable to pay for skilled nursing or unable to have their sick removed to hospital. Possibly in parts of Queensland and Tasmania the provision of nurses in outlying districts would have some real service.

Death of a Medical Man.

The death of Mr. L. L. Smith occurred in Melbourne at the age of 80 years. Mr. Smith held the qualification of L.S.A. Lond., and although the adoption of an advertising practice placed him at variance with the medical profession he played a prominent part in the public life of Victoria. He was elected to the Victorian Parliament on nine occasions and held office in more than one Cabinet. He was a commissioner for the last International Exhibition held in Melbourne and a trustee of the building. He was a great patron of the turf and owned successful racehorses. He took a great interest in viticulture and was the first to produce a Victorian champagne. Altogether he was one of the most familiar figures in Melbourne streets for the last half century and was very popular personally with his intimates.

Melbourne Hospital.

The terms of the gift to the Melbourne Hospital for rebuilding purposes required the committee to commence the new building within 18 months. This period has elapsed, but the trustees of the Wilson estate have extended the time. Plans have been approved by the medical and surgical staff, and the quantities for the first section are now being made out. The foundation-stone will be laid on Oct. 17th. The annual report for the year just closed shows that the financial position of the institution is unsatisfactory.

Talbot Milk Institute.

The committee of this institute appeal for funds, and claim that their operations have resulted in a large reduction of infant mortality in Melbourne and suburbs. The evidence is not very convincing from the smallness of the field occupied. A sum of £3000 is required to prevent financial strain. The work has been practically only two years in operation.

August 2nd.

Obituary.

PAOLO MANTEGAZZA.

A PICTURESQUE figure has disappeared from the public life of Italy in Paolo Mantegazza, who died on Sunday, August 28th, at his villa on the Gulf of Spezia in his seventy-ninth year.

Of Lombard parentage, he was born at Monza on Oct. 31st, 1831, the son of Federico Mantegazza, a distinguished judge, and of the Contessa Laura Soliera, both, father and mother, remarkable for their mental culture and their devotion to their country's good. Designed for the medical career, young Paolo was enrolled as a student at the University of Pisa and subsequently at that of Pavia, where he graduated Doctor of Medicine with honours. A monograph on spontaneous generation presented to the Lombard Academy of Science and Literature gave earnest, thus early, of his contributions to the higher nature-study, in prosecution of which he made a round of the principal medical schools of France, Germany, Holland, Belgium, England, and Scotland. At Paris, in 1854, he published his "Fisiologia del Piacere," or "Physiology of Pleasure," a work addressed to the non-professional world, by which it was read with avidity not only in the original but in four other European languages. Passionately fond of travel and of nature-study under every clime, he went to South America, making Buenos Aires his headquarters, where he entered on practice as a consultant in medicine. Thence he passed to the Argentine Republic and married a creole, who coöperated with him in promoting the interests of that budding State, now more than realising the bright future he predicted for it. In 1858 he returned to his native Italy to organise a contingent of emigrants by way of reinforcing the Italian element in the Argentina, but the events of 1859 intervened, and his patriotism found an appropriate outlet nearer home. His country's "Risorgimento"—in other words, its unity and independence—drew him into the patriotic ranks, headed by King Victor Emanuel, and the valour he had displayed as a student when in 1848 he defended Milan on the barricades during the memorable Cinque Giorni (Five Days) found congenial vent in the campaign that began with Magenta and ended at Solferino. Fresh from the stricken field, he became assistant surgeon in the Military Hospital of Sant' Ambrogio at Milan, whence, now in his twenty-ninth year, he passed to his *alma mater* Pavia as professor of general pathology—a post he gained by "comparative trial" over the heads of many formidable competitors. In this chair, which he filled with much acceptance, he took an initiative, afterwards followed not in Italy only but in many other seats of learning in Europe, that of founding a laboratory for experimental pathology—a step quite in keeping with his ardent ambition to bring nature-study into ever closer relation with medicine, as its most useful auxiliary. In 1869 he was called to fill the chair of Anthropology in the Istituto di Studi Superiori at Florence, in acknowledgment of his proficiency in a science then struggling for existence, a science which he was among the first to appreciate in its bearings on social rehabilitation. To him indeed Italy owes her Museo Antropologico, whose seat is at Florence, as she is also his debtor for the foundation of the Società Antropologica Italiana, in connexion with which he also started the *Archivio di Antropologia ed Etnologia*—a periodical which he enriched with many contributions, which in turn evoked others on the same theme, mainly from pupils hardly less proficient and enthusiastic than their teacher.

All this time he was a strenuous advocate and promoter of State hygiene, of which his compatriots call him the "Apostle," enlightening the people as to the duty they owe to themselves and thereby to their fellow-citizens in maintaining the "*corpus sanum*" as the fitting receptacle of the "*mens sana*." With characteristic philanthropy and eloquence he threw wide the storeroom of his studies and his experience to the general reader, illustrating the elementary truths of physiology by effective demonstrations of the good that rewards their observance and the harm entailed by their neglect, following, indeed, on the lines of Dr. Andrew Combe in the England of the early nineteenth century. His "Elementi d'Igiene," many times reprinted and brought up to date, has still an immense popularity, while his "Almanacchi Igienici"—remembrancers, addressed year by year to the "man in the street," of the rules to be complied with by the individual and the community, if both, one and other, are to maintain health and moral as well as physical well-being—were a "departure" amply justified by the good they wrought. Not only in his capacity as an academic teacher but as Member of Parliament from 1865 to 1876, and as Senator of the kingdom—an honour afterwards conferred on him—he kept the "hygienic crusade" in constant evidence before the Italian public, professional and lay, municipal and legislative. Working, if not in conjunction, at least in harmony with a kindred spirit, Lombroso, he instituted in 1902 at Florence, as an adjunct to his Museo Nazionale d'Antropologia, a "Laboratorio Antropometrico"—on which occasion he received the most gratifying proofs of sympathy and support, not the least being the presentation to him, from the ladies of Italy and of other European countries, of a finely illuminated "pergamena" and an artistically-mounted gold pen, in testimony of their gratitude for his exertions in behalf of the "Italy that is to be." Among the signatories were such eminent ornaments of their

ex as Adelaide Ristori, Gemma Bellincioni, Ada Negri, Matilda Serao, Madame Zola, and Madame Rostand, and the peech *de circonstance* eloquently delivered by the Pro-essoressa Emma Parodi evoked from the veteran surgeon nd nature-student a reply in his happiest vein. This was ideed the "swan-song" of Paolo Mantegazza. Not long hereafter his health, robust as he was, began to betray the igns of the severe demands he had made upon it. ymptoms of renal mischief declared themselves, and e had to relax much of his intense activity, though still aintaining his popularity as an expositor of his favourite hemes, anthropological and hygienic. Gradually he with-rew from the public eye, finding solace and resource in his eautiful villa at San Terenzio on the Ligurian sea-board—he region still haunted by the "wraith" of Percy Bysshe helley—till last spring he had a final relapse and, as already tated, on August 28th passed peacefully away. His funeral n August 30th attracted many mourners from the Italian eats of learning, and *oraisons funèbres* of varied eloquence ras pronounced over his bier. The whole press of Italy was t one in recording their sense of what the country had lost n him—no tribute, however, equalling in insight and dis-rimination the "estimate" of him given to the academic orld by his friend and fellow worker, Giuseppe Sergi, pro-essor of anthropology in the University of Rome.

JOSEPH NELSON, M.D. R.U.I., L.R.C.S. IREL.

WE announce with deep regret the death on August 31st, n his seventieth year, of Dr. Joseph Nelson, the well-known Belfast ophthalmic surgeon, which occurred in the city where he practised for so many years. Dr. Nelson was born in Downpatrick, one of the most historic of Irish cities, where his grandfather, Rev. Dr. James Nelson, was a great educa-ionist, and where his father, Rev. S. Craig Nelson, was an extremely able Unitarian minister. Young Nelson, one of a arge family, received his early education at home, and after-vards went to reside with an uncle in Belfast, and entered hat famous training school of so many distinguished Ulster-nen, the Royal Academical Institution, where it is a radition that he shocked a staid teacher by submitting an essay defending cock-fighting. When he was reprimanded, his well-known uncle came to his aid by demanding from his nstructor whether he was a teacher of morals or of composition. He later entered the Queen's College as a medical student, and, after pursuing his course for wo years, an event occurred which altered his whole career. On receipt of the news that Garibaldi had left his sland home at Caprera, he came under the magic spell of a United Italy, and with another student (Alexander Blakely Patterson, a County Tyrone man, afterwards a judge in India, who is now the sole survivor of the 10 "Britishers" associated with the liberation of Italy in 1860) young Nelson lung off cap and gown and slipped away to Genoa and fought all through the campaign. Gaining a commission in the "Regimento Inglese," commanded by Colonel Dunne and officered by English, Scotch, and Irish, he took part in all the battles, and was presented with a sword by Garibaldi, and in later years was decorated by the King of Italy with two medals.

Returning home Nelson and Patterson resumed their studies at college, where they were ever afterwards known by the prefix "Garibaldi," and in 1863 Nelson gained the M.D. of the old Queen's University (an institution to which he was always most loyal), and in the same year he became L.R.C.S. Irel. He then went to India as surgeon to a tea plantation, and later became himself a successful tea-planter. In 1878 he came home and decided to devote him specially to eye diseases, of which he had gained a good deal of experience in India, and in order to fit himself for the task he studied in Vienna under Professor Füchs (he was his assistant) and also became junior assistant at Professor F. R. v. Arlt's Klinik. In 1880 he began practice as an ophthalmologist in Belfast, and in 1882, when the new ophthalmic department was opened in connexion with the old Belfast Royal Hospital, he was appointed to its charge, and remained in the same position until three years ago (in the new Royal Victoria Hospital), when he resigned. He was also oculist to the Belfast Hospital for Sick Children. He was an ex-president of the Ulster Medical Society, and he acted as treasurer to the executive committee of the Belfast members of the British Medical Association during the annual meeting last year.

Dr. Nelson for many years had a large ophthalmic practice in Belfast and the north of Ireland, and he impressed patients and medical men who came in contact with him as a man who took the greatest care with every case. A thorough man of the world, one who had travelled much, a successful business man, and with a strong personality, Dr. Nelson was a great favourite, and will be much missed in social and medical circles. He was twice married, and his widow and five children survive him. He was buried privately at Downpatrick.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: —Dr. Farabeuf, formerly professor of anatomy in Paris and member of the Academy of Medicine.—Dr. A. Mürset, chief medical officer of the Swiss army.—Dr. Frederick Baumgarten, physician to the French Hospital, Mexico.—Dr. H. Schwartze, formerly professor of otology in the University of Halle.—Dr. Masse, formerly professor of operative medicine in Bordeaux and founder of the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux*.—Dr. Ludwig Scherer of Ludwigshafen, an important figure in German medical politics. —Dr. Leopold Oser, extraordinary professor of medicine in Vienna. He was born at Nikolsburg in 1839, and studied medicine in Vienna. He distinguished himself during the cholera epidemic in 1866. He was appointed extraordinary professor in 1885. His published works deal mostly with diseases of the stomach and intestines, and he contributed a monograph on diseases of the pancreas to Nothnagel's "Handbook of Special Pathology and Therapeutics."—Dr. Charles Jewett, professor of midwifery and gynæcology in Long Island College Hospital, Brooklyn.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Athens:* Dr. Constantin Bucura of Vienna has been offered the chair of Midwifery and Gynæcology.—*Berlin:* Dr. Georg Klemperer has been appointed Extraordinary Professor and Director of the Cancer Institute of the Charité in succession to Dr. Ernst v. Leyden.—*Budapest:* Dr. Géza Mansfeld has been recognised as *privat-docent* of Experimental Pharmacology; Dr. Desider Navratil as *privat-docent* of Rhino-Laryngology; and Dr. Adolf Juba as *privat-docent* of School Hygiene.—*Clausenburg:* Dr. Heinrich Kanitz has been recognise as *privat-docent* of Dermatology.—*Florence:* Dr. Domenico Taddie has been recognised as *privat-docent* of Urology.—*Freiburg:* Dr. v. Szilli has been recognised as *privat-docent* of Ophthalmology.—*Genoa:* Dr. Mario Truffi of Pavia has been recognised as *privat-docent* of Dermatology.—*Giessen:* Dr. v. Eicken, Extraordinary Professor in Freiburg, has been appointed Professor of Otology and Laryngology in succession to Dr. Leutert who has retired.—*Halle:* Dr. Georg Grund has been recognised as *privat-docent* of Medicine.—*Harvard:* Dr. Walter R. Brinckerhoff has been appointed Adjuct Professor of Pathological Anatomy, and Dr. S. B. Wolbach Adjunct Professor of Bacteriology.—*Jena:* Dr. Erich Lexer, Professor of Surgery in Königsberg, has been appointed Professor of Surgery in succession to Dr. Bernhard Riedel, who is retiring.—*Kharkoff:* Dr. Rubashkin of St. Petersburg has been appointed Professor of Histology and Embryology, and Dr. Bokarius Professor of Forensic Medicine.—*Kiel:* Dr. Walter Stoeckel of Marburg has been appointed Professor of Midwifery and Gynæclogy, in succession to Dr. Franz, who goes to Berlin. Dr. Ernst Baum, *privat-docent* of Surgery, has been granted the title of Professor. Dr. Rudolf Höber, *privat-docent* of Physiology, has also been granted the title of Professor.—*Königsberg:* Dr. A. Linck has been recognised as *privat-docent* of Otology. —*Lund:* Dr. Karl Petrén of Upsala has been appointed Professor of Medicine, and Dr. Gustav Ahlström Professor of Ophthalmology, in succession to Dr. Dalén.—*Montreal (McGill University):* Dr. Oskar C. Gruner has been appointed Lecturer on Pathology and Anatomy.—*Naples:* Dr. Giuseppe Buglia has been recognised as *privat-docent* of Experimental Physiology.—*New York Polyclinic Medical School and Hospital:* Dr. M. D. Ledermann has been appointed Extraordinary Professor of Laryngology and Rhinology.—*Pavia:* Dr. C. Baslini and

Dr. C. Genari have been recognised as *privat-docenten* of Ophthalmology, and Dr. A. de Simoni as *privat-docent* of Bacteriology.—*Padua:* Dr. Francesco Peruzzi has been recognised as *privat-docent* of Pædiatry.—*Palermo:* Dr. Luigi Philippson has been appointed Professor of Dermatology, and Dr. Gaetano Lodato Extraordinary Professor of Ophthalmology.—*Rome:* Dr. Gherardo Ferreri, Extraordinary Professor of Otology and Laryngology, and Dr. Domenico Lo Monaco, Extraordinary Professor of Physiological Chemistry, have been promoted to Ordinary Professorships.—*St. Petersburg Military Medical Academy:* Dr. D. Kryloff has been recognised as *privat-docent* of Medicine, and Dr. S. Vladichko as *privat-docent* of Neurology and Psychiatry.—*Turin:* Dr. Angelo Ceconi, Extraordinary Professor of Internal Pathology, Dr. Vicarelli, Extraordinary Professor of Midwifery and Gynæcology, and Dr. Giuseppe Gradenigo, Extraordinary Professor of Otology and Laryngology, have been promoted to Ordinary Professorships.—*Warsaw:* Dr. I. Pajarisky of Odessa has been appointed Professor of Pathological Anatomy in succession to Dr. Ushinsky resigned.—*Zürich:* Dr. Erwin Payr of Greifswald has been appointed Professor of Surgery.

ROYAL ABERDEEN HOSPITAL FOR SICK CHILDREN: NEW BUILDING PROPOSED.—On August 24th, at a meeting of directors of the Royal Hospital for Sick Children in Aberdeen, it was decided that a new hospital should be built, and a subcommittee was appointed to consider and report as to the best methods to be adopted to carry the resolution into effect. The great need for a new building has long been before the directors. The present hospital has been in use for 33 years, and, in the words of the chairman, Sir Thomas Burnett, at this year's meeting in February, the present accommodation is "not only unsuitable for a modern children's hospital, but hopelessly insufficient." In an ordinary way the resources are taxed to the uttermost, and when special seasons of illness occur many cases have to be refused admission. Some months ago the suggestion of a new children's hospital as a King Edward Memorial was made by Miss K. M. Lumsden; the question, however, had arisen as early as February, 1906.

THE SUICIDE OF A MEDICAL MAN FOLLOWING A GROUNDLESS ACCUSATION.—The evidence given at two inquests held recently at Lewisham in the course of the same week proved that the suicide of a medical man had been brought about by the worry and anxiety caused by a groundless accusation made against him. The first inquiry was upon the body of a retired stationer named Alfred Prewett, 82 years of age, who died on a Sunday night after having been ill since the preceding Thursday evening. He had been attended by Mr. M. A. de Quadros, a registered medical practitioner stated to be of Portuguese extraction, to whose wife Mr. Prewett was related and who was also his personal friend. Mrs. de Quadros and her daughter undertook the nursing, and when on the Sunday a female relative called and suggested that further medical advice should be obtained they raised no objection. The death of the old man, however, took place that evening, and Mr. de Quadros was prepared to give a certificate that it was due to exhaustion consequent on old age. On the next morning, however, the house was visited by two detectives accompanied by a medical man owing to information having been received at Scotland Yard which, according to the evidence given by a detective, was to the effect that the patient was lying ill under suspicious circumstances, and that Mr. de Quadros, who was attending him, would benefit under his will. The police and the medical man who accompanied them were satisfied by the answers made to their inquiries, but the effect of their intervention was that Mr. de Quadros wrote to the coroner saying that, although he was prepared to certify the cause of death, he would wait, in the circumstances, until he heard from that official, the same letter saying that the writer was "innocent" in the matter. The coroner as a not unnatural consequence requested Dr. F. S. Toogood to make a post-mortem examination, at which he invited Mr. de Quadros to be present, and held an inquest which exonerated him from blame. Unfortunately, before the inquest upon his former patient took place, Mr. de Quadros had taken his own life with prussic acid, and it was clear from the evidence given at the inquest upon him that the anxiety caused by the unexpected inquiries and suspicions set on foot was responsible for his doing so. In his case a verdict of "Suicide during temporary insanity" was returned, tw days after the jury who inquired into the death of his patien had returned the verdict "Natural causes." It is hardl necessary to dwell upon the cruelty and injustice perpetrate by whoever invoked the aid of the police without any tangibl grounds for so doing. The person or persons who did so faile to appear at either inquest to offer any evidence or to withdra and express regret for the slanderous accusations which ha so terrible a result. The coroner at the inquest upon Mr. d Quadros made some forcible observations as to this, pointin out that at least some attempt at reparation was due to th relatives of the deceased, and expressing his contempt fo those who, owing to the privilege accorded to the police t refuse to give up the names of their informants, were able t remain anonymous.

GENEROUS GIFTS TO THE SOUTHPORT AND WIGAN INFIRMARIES.—The honorary secretary of the Southpor Infirmary has acknowledged the receipt of £5000, the gift o Miss Swindells of Birkdale for the building and endowmen of the "Swindells" ward of the infirmary, which is now i the course of erection.—The Mayor of Wigan is endeavourin to raise 1,000,000 sixpences to free the Wigan Infirmar from debt and to erect a new out-patient department as memorial to the late King. The mayor has now received letter from Lord Crawford, saying he would be please to guarantee £1000, and he suggested that for each £9 collected for the fund he should make it up to £100—in othe words, he would add 10 per cent. to the fund collected.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institution and others possessing information suitable for this column, ar invited to forward to THE LANCET *Office, directed to the Sub Editor, not later than 9 o'clock on the Thursday morning of eac week, such information for gratuitous publication.*

ALDRIDGE, F. J., M.B., B.Ch. Oxon., M.R.C.S. Eng., L.R.C.P. Lond has been appointed a Resident House Physician at St. Thomas Hospital.

ARCHER, T. C. R., M.R.C.S. Eng., L.R.C.P. Lond., has been appointe a Casualty Officer and Resident Anæsthetist at St. Thomas Hospital.

BANKS, ALFRED, F.R.C.S. Eng., has been appointed a Medical Refere under the Workmen's Compensation Act, 1906, for County Cou Circuit No. 51.

CLAY, JOHN, M.B. Durh., F.R.C.S. Eng., has been appointed a Medic Referee under the Workmen's Compensation Act, 1906, for Count Court Circuit No. 1.

DOBELL, D. C., M.B., B.Ch. Oxon., has been appointed a Resident Hous Physician at St. Thomas's Hospital.

EDWARDS, ROBERT T. E., F.R.C.S. Edin., has been appointed Medic Officer of Health of Merionethshire.

FAWKES, M., M.B., B.S. Lond., has been appointed Certifying Surgeo under the Factory and Workshop Act for the Midhurst District c the county of Sussex.

GIBBONS, JOHN F., L.R.C.P. & S. Dubl., has been appointed Assistan Resident Medical Officer at the Royal Albert Hospital, Devonport.

GLASS, ALEXANDER G., M.D Edin., D.P.H. R.C.P.S. Lond., has bee appointed Medical Inspector of Schools of the United Counties c Roxburgh and Selkirk.

HOPWOOD, J. S., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas' Hospital.

JOHNSON, G. PETGRAVE, M.D. Glasg., has been appointed Medic Officer of Health of the County Borough of Stoke-on-Trent.

KENNEDY, ROBERT, M.D. Glasg., has been appointed Visiting Surgeo to the Western Infirmary, Glasgow.

KNAGGS, R. LAWFORD, M.D. Cantab., F.R.C.S. Eng., has been appointe Consulting Police Surgeon in Leeds.

LAUDERDALE, E. M., M.R.C.S. Eng., L.R.C.P. Lond., has bee appointed a Resident House Physician at St. Thomas's Hospital.

MANN, H. L., M.R.C.S Eng., L.R.C.P. Lond., has been appointed Casualty Assistant at St. Thomas's Hospital.

MARRINER, K. D., M.R.C.S. Eng., L.R.C.P. Lond., has been appointe Casualty Assistant at St. Thomas's Hospital.

MAYBURY, B. C., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas' Hospital.

MIDDLETON, MARJORIE E., M.B., B.S. Lond., has been appointe Resident Medical Officer to the Haywood Hospital, Burslem.

MOHAMMED KHAN, M., M.R.C.S. Eng., L.R.C.P. Lond., has bee appointed House Physician at the Hospital for Diseases of th Chest, Brompton.

NESS, R. BARCLAY, M.B., F.F.P.S. Glasg., has been appointed Visitin Physician to the Western Infirmary, Glasgow.

PARKINSON, W. R., M.R.C.S. Eng., L.R.C.P. Lond., has been appointe a Casualty Officer and Resident Anæsthetist at St. Thomas Hospital.

PRIDHAM, F. C., M.R.C.S Eng., L.R.C.P. Lond., has been appointed a Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

SEYMOUR, E. A., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed a Resident House Physician at St. Thomas's Hospital.

SHIPTON, W., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed a Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

SOMERVILLE, JAMES S., M.B. Glasg., has been appointed Junior House Surgeon to the Rochdale Infirmary.

WHITE, SINCLAIR, M.D. R.U.I., F.R.C.S. Eng., has been appointed Honorary Consulting Surgeon to the Retford Hospital and Dispensary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNSLEY, BECKETT HOSPITAL AND DISPENSARY.—Senior House Surgeon, unmarried. Salary £120 per annum, with apartments, board, and laundry.

BEDFORD COUNTY HOSPITAL.—House Physician. Salary £60 per annum, with apartments, board, and washing.

BIRMINGHAM CITY ASYLUM.—Junior Assistant Medical Officer. Salary £150 per annum, with board, apartments, and washing.

BIRMINGHAM GENERAL HOSPITAL.—Resident Patbologist for six months. Salary £50 per annum, with board and residence.

BOURNEMOUTH, ROYAL NATIONAL SANATORIUM.—Resident Medical Officer. Salary £12 per month, with board, residence, and washing.

BRIGHTON AND HOVE HOSPITAL FOR WOMEN.—House Surgeon, unmarried, for six months. Salary £80 per annum, with apartments, board, &c.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

CANCER HOSPITAL, Fulham-road, London, S.W.—Assistant Surgeon.

CARMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, laundry, &c.

CHELSEA INFIRMARY, Cale-street, S.W.—Second Assistant Medical Officer. Salary £100 per annum, with board, washing, apartments, &c.

CHELTENHAM GENERAL HOSPITAL.—House Physician, unmarried. Salary £75 per annum, with board and lodging. Also Surgeon-in-Charge, unmarried, of Branch Dispensary, Salary £80 per annum, with board and lodging.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physician. Salary £60 per annum, with board, apartments, and laundry.

CITY OF LONDON LYING-IN HOSPITAL, City-road, E.C.—Resident Medical Officer for six months. Salary at rate of £50 per annum, with board, washing, and lodging.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Surgeon and House Physician. Salary in each case £80 per annum, with board, washing, and residence.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, &c.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with apartments, board, laundry, &c.

DREADNOUGHT HOSPITAL, Greenwich.—Two House Physicians, also Two House Surgeons, for six months. Salary in each case £50 per annum, with board, residence, and washing. Also Assistant Surgeon.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £100 per annum, with board, residence, washing, &c.

DUNDEE SCHOOL BOARD.—Assistant Medical Officer. Salary £250 per annum.

FRENCH HOSPITAL, 172, Shaftesbury-avenue, W.C.—Resident Medical Officer, unmarried. Salary £100 per annum, with board and laundry.

HALIFAX, ROYAL INFIRMARY.—Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with rooms, board, and washing.

JERSEY INFIRMARY AND DISPENSARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and attendance.

KETTERING AND DISTRICT GENERAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, residence, &c.

LEICESTER INFIRMARY.—House Physician. Salary at rate of £100 per annum, with board, lodging, and washing.

LIVERPOOL, CITY INFECTIOUS DISEASES HOSPITAL.—Assistant Resident Medical Officer, unmarried. Salary £120 per annum, with board, washing, and lodging.

LOCHGILPHEAD, ARGYLE AND BUTE ASYLUM.—Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and laundry.

LOWESTOFT HOSPITAL.—House Surgeon, unmarried. Salary at rate of £100 per annum, with board, lodging, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 per annum, with board, residence, &c.

MANCHESTER AND SALFORD HOSPITAL FOR SKIN DISEASES.—House Surgeon. Salary £75 per annum, with board and residence.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon, all for six months. Salary for House Physician and House Surgeon at rate of £40 per annum; Assistant House Physician and Assistant House Surgeon at rate of £20 per annum, with residence and board. Also Resident Anæsthetist. Salary at rate of £60 per annum, with residence and board.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—Clinical Patbologist. Salary £50 per annum.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—House Surgeon. Salary £60 per annum, with board, residence, and laundry.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with board, lodging, and washing.

NOTTINGHAM GENERAL HOSPITAL.—Honorary Assistant Physician.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.

PRESTON ROYAL INFIRMARY.—Resident Medical and Surgical Officer, unmarried, for six months. Salary £130, with board, residence, and washing.

PRESTWICH COUNTY ASYLUM, Manchester.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Joint Morning House Anæsthetist. Salary £25 per annum.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon. Salary at rate of £100 per annum, with board and residence.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, all found.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

SALISBURY, FISHERTON HOUSE ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, washing, &c.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried, for six months. Salary £70 per annum, with residence, board, and washing.

SWANSEA UNION WORKHOUSE.—Assistant Medical Officer. Salary £215 per annum.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer, unmarried, for six months. Salary £100 per annum, with board, lodging, &c.

WAKEFIELD, WEST RIDING ASYLUM.—Medical Superintendent. Salary £1000 per annum. Also Senior Assistant Medical Officer. Salary £250 per annum, with apartments, board, washing, and attendance.

WOMEN'S IMPERIAL HEALTH ASSOCIATION.—House Lecturer (Female). Salary at rate of £150 per annum and all expenses.

Births, Marriages, and Deaths.

BIRTHS.

BURD.—On Sept. 1st, at Lancside, Oaken, Wolverhampton, to Dr. and Mrs. Burd, a daughter.

CARD.—On Sept. 2nd, the wife of Alfred H. Card, M.R.C.S., L.R.C.P., of Muswell Rise, N., of a son.

GABB.—On Sept. 1st, at Cornwallis-gardens, Hastings, the wife of Harry Gabb, M.B., B.C., of a son.

TAYLOR.—On Sept. 2nd, at Melville-street, Edinburgh, the wife of William Macrae Taylor, M.B., F.R.C.S. Edin., of a daughter.

MARRIAGES.

BOYLE—GREEN.—On Sept. 3rd, at St. Marylebone Church, Henry Edmund Gaskin Boyle, M.R.C.S., L.R.C.P., to Mildred Ethel Green.

TURNER—WORSLEY.—On Sept. 1st, at St. Oswald's Parish Church, Winwick, Arthur Hewett Turner, M.R.C.S., L.R.C.P., to Helena J. B. Worsley, daughter of the late Mr. James Edwardson Worsley.

WILLCOCKS—MALCOLM.—On August 24th, at St. Mary's Church, Calicut, Malabar, S. India, Captain Roger Durant Willcocks, I.M.S., to Alice Maud, daughter of the late J. R. Malcolm.

DEATHS.

ALLIOTT.—On Sept. 2nd, at Ferndale, Sevenoaks, Alexander John Alliott, M.D. Cantab., in his 63rd year.

WAINEWRIGHT.—On August 29th, at Pontresina, Engadine, Benjamin Waincwright, M.B., C.M., F.R.C.S., aged 57 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE DIRTY MEDICINE BOTTLE.

Professor Joseph P. Remington, a prominent pharmaceutical teacher addressing a section of the American Medical Association at the recent meeting at St. Louis, called attention to the useful work which the pharmacist can do in the way of preventing infection from harmful bacteria. By way of illustration, he stated that several practices have been followed by careless and ignorant druggists, which have undoubtedly increased the death-rate in the past. Thus bottles and boxes coming direct from an infected sick room have frequently been refilled without proper cleansing. It is obvious that the blame for this dangerous practice rests largely with the nurse in charge of the case, who should see that corks and boxes from infected quarters are destroyed, and that bottles and other utensils are properly sterilised before passing into other hands. Corks are particularly dangerous as germ bearers, and there is no valid excuse for using them a second time. The old practices of biting a cork to soften it and moistening it with the tongue to make it fit the neck of the bottle are not altogether obsolete, disgusting though they are. The necessity for scrupulous cleanliness in dispensing is especially evident in the case of hypodermic injections and collyria. Caro should be taken to storilise the liquid to remove all flocculi and particles of dust, and to use perfectly clean utensils and containers. Such precautions call for greater care in the storage of dispensing materials and containers than is usually met with. A glance at the back of a dispensing screen too often reveals row after row of dusty bottles and jars, and syrup bottles coated around the neck with crystalline sugar and dust, upon which flies find a happy hunting ground.

INOCULATION OF SMALL-POX.

To the Editor of THE LANCET.

SIR,—At page 778 of THE LANCET of Sept. 3rd, in answer to a correspondent ("C. F. F.") the following statement is made: "Inoculation of small-pox was introduced into this country by Lady Mary Wortley Montagu in 1721, and we believe that this is the first recorded instance of the practice in these islands." Tanner's "Practice of Medicine," seventh edition, Vol. I., p. 281, has in a footnote the following: "The debt which our ancestors owe to this lady is not diminished by the fact that inoculation had been practised for very many years in South Wales, where it was known as 'Buying the small-pox,' for this circumstance only became generally recognised as Lady Montagu's views engaged attention, and while she enjoyed the privilege of being the best abused person in England.'" I beg respectfully to submit the above for further information.

I am, Sir, yours faithfully,

Sept, 4th, 1910. X.

TREATMENT OF THREADWORMS.

To the Editor of THE LANCET.

SIR,—For ten years or so I have treated threadworms with a suppository of ungt. hyd. nit. fort. grs. 7½. I direct the nurse to insert one each second night at bed-time, and have seen the best possible results from the treatment. For children under four years a smaller suppository may be used.

If your correspondent will write to me direct I will send him half a dozen suppositories to try.

I am, Sir, yours faithfully,

JOHN ROUND, L.R.C.P., L.R.C.S.

30, New Cross-road, London, S.E.

To the Editor of THE LANCET.

SIR,—In reply to "A. T." in THE LANCET of Sept. 3rd, p. 788, with reference to the treatment of threadworms, as clinical assistant to Dr. Theodore Fisher, at the East London Hospital for Children, I have found petroleum emulsion, prepared according to the "Codex" of the British Pharmaceutical Society, is most efficacious. Bad cases may be entirely cured within 24 hours. The emulsion is given in 1-drachm doses and upwards three or four times daily.

I am, Sir, yours faithfully,

Sept. 5th, 1910. H. PLATTS.

Agreement.—In the first instance the agreement should never have been entered upon without legal advice, and we must refer our correspondent to a lawyer for advice as to the real relations of the parties to it and as to the validity of the document. It would seem fair that the purchase price should be lowered as the earnings are not so high as was anticipated, but our correspondent must remember that he made his bargain presumably after due inquiry, so that he will find it very difficult to escape the consequences.

A Student of Medicine has omitted to enclose his address. We find that the gentleman named is correctly given at the street whence his advertisement emanates in the current Nisbet's Directory. He seems to have moved during the year from the country into London and not to have notified the fact to the Medical Register or the Medical Directory.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

CONGRESSES are now getting so numerous that we have thought that a diary like the one printed below might be of service to our readers. With that idea we shall repeat it occasionally, with any necessary alterations or subtractions. The following Congresses, Conferences, and Exhibitions are announced for 1910:—

Sept. 10th-14th (Brussels).—Second International Congress on Occupational Diseases.
" 13th-15th (Brussels).—International Congress on Radiology and Electricity.
" 17th-25th (Antwerp).—Fourteenth Flemish Congress of Natural and Medical Sciences and International Scientific Exhibition.
" 18th-24th (Königsberg).—Eighty-second Congress of German Scientists and Medical Men.
" 22nd-27th (Toulouse).—Sixth French Congress of Gynæcology, Obstetrics, and Pædiatrics.
" 22nd-28th (St. Petersburg).—Fifth International Congress of Obstetrics and Gynæcology.
" 27th-30th (Vienna).—Eighth International Physiological Congress.
Oct. 1st-5th (Paris).—Second International Conference for the Study of Cancer.
" 3rd-7th (London).—Sixth London Medical Exhibition.
" 3rd-7th (Berlin).—International Congress on the Care of the Insane.
" 4th-8th (Brussels).—Second International Congress of Alimentary Hygiene.
" 5th-8th (Brussels).—Ninth International Tuberculosis Conference.
" 10th-15th (London).—Town Planning Conference.
" 13th-15th (Paris).—Eleventh French Congress of Medicine.
" 16th-22nd (Barcelona).—First International Spanish Congress of Tuberculosis.
Nov. 7th-12th (Cape Town).—Twelfth South African Medical Congress (1910).

In 1911:—
May-October (Dresden).—International Hygiene Exhibition.
June and July (Romford).—Town Planning and Modern House and Cottage Exhibition.
July (Birmingham).—British Medical Association.
August or September (Berlin).—Third International Laryngo-Rhinological Congress.
September (Brussels).—Exhibition of Fractures.
Sept. 24th-30th (Rome).—International Congress on Tuberculosis.
October (Cologne).—International Congress of Criminal Anthropology.

In 1912:—
September (Washington, D.C.).—Fifteenth International Congress of Hygiene and Demography.

In 1913 the only fixture so far is in London, where the Seventeenth International Congress of Medicine will take place.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.
MONDAY.—College re-opens.
TUESDAY.—4 P.M., Dr. J. E. Squire: Clinique (Medical).
WEDNESDAY.—4 P.M., Mr. E. M. Corner: Clinique (Surgical).
THURSDAY.—4 P.M., Dr. C. O. Hawthorne: Clinique (Medical).
FRIDAY.—4 P.M., Mr. W. Hill: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith road, W.
MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
WEDNESDAY.—10 A.M., Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
SATURDAY.—10 A.M., Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.
MONDAY.—2 P.M., Clinical Demonstration: Dr. Wall: Diseases of the Lungs.

TUESDAY.—2 P.M., Clinical Demonstration: Dr. Grünbaum: Diseases of the Kidneys.
WEDNESDAY.—2 P.M., Clinical Demonstration: Dr. Hutchison: Diseases of the Digestive System and Children's Diseases
THURSDAY.—2 P.M., Clinical Demonstration: Dr. T. Thompson: Diseases of the Nervous System.
FRIDAY.—2 P.M., Clinical Demonstration: Dr. L. Smith: Diseases of the Heart and Vessels.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (14th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

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FRIDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (17th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

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THE INDEX TO THE LANCET.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 7th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 1	30·28	N.W.	...	117	68	56	54	59	Fine
,, 2	30·24	W.	...	101	71	58	58	59	Overcast
,, 3	30·18	N.W.	...	118	67	54	53	58	Fine
,, 4	30·20	N.	...	72	60	50	52	56	Cloudy
,, 5	30 22	N.	...	75	61	51	52	55	Overcast
,, 6	30·16	N.	...	90	61	54	52	55	Cloudy
,, 7	30 24	NNE	...	91	58	53	53	56	Overcast

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Introductory Address
ON
VACCINE THERAPY: ITS ADMINISTRATION, VALUE, AND LIMITATIONS.

Delivered before the Royal Society of Medicine on May 23rd, 1910,

BY SIR ALMROTH E. WRIGHT, M.D. DUB., F.R.S.

MR. PRESIDENT AND GENTLEMEN,—I do not conceal from myself that in opening this debate I am undertaking a task of quite exceptional difficulty. I have to set out to you such new points in connexion with vaccine therapy as may seem to me to deserve attention. I have to attempt to take the measure of the achievements of this new therapeutic method. I have to discuss its limitations. And, above all, I desire to suggest to you in connexion with all these subject-matters certain canons of criticism.

RATIONALE OF VACCINE THERAPY.

Before I embark upon these tasks I may perhaps with advantage consider for a moment the rationale of vaccine therapy. The fundamental principle of vaccine therapy, as I conceive of it, is to exploit in the interest of the infected tissues the unexercised immunising capacities of the uninfected tissues. Let me illustrate my meaning. I will take the case of a localised infection. We have here a condition in which the invading microbes are holding their own or getting the upper hand, and our object must be to turn the tables upon them. For this purpose we inoculate into some other part of the body microbes which are similar to those which the patient has to combat. Such inoculation is not, however, as the unthoughtful immediately assumed, a mere replica of the original infection. There are two points of difference. First, the microbes in the vaccine have been devitalised, so that their multiplication is impossible; secondly, the dose of vaccine is so regulated that the organism of the patient must inevitably win at the site of inoculation. Now a victory such as this is won by the elaboration of antibacterial substances, and these are generated in such a case on a scale which is more than adequate to bring about a destruction of the bacterial elements which have been incorporated. The surplus of specific antibacterial substances which have thus been elaborated will now find its way by the channel of the blood to the focus of infection. There it will bring aid to the defensive forces of the organism which before were ineffectually combating the invading microbes. The victory which the uninfected tissues have won over the microbes of the vaccine will in this way lead up to a victory of the infected tissues over the microbes they have to combat. A therapeutic method which proceeds on this newfound principle must, of course, make new demands. It will be well to realise what they are.

The medical man who has recourse to vaccine therapy ought to have a familiar acquaintance with the microbes which affect the human body. He ought to appreciate that vaccines owe their efficacy to the reaction they set up in the tissues, and not to any action exerted directly by the vaccine upon the invading microbe. He ought to have mastered the general principles of immunisation. He ought to know in connexion with each vaccine the *minimum effective dose*—i.e., the dose which gives the minimum immunising reaction without any intervening negative phase—and the *medium*, or average, dose—i.e., the dose that gives, after a negative phase, a more powerful immunising reaction. He ought to know the general conditions which affect the sensibility of the organism. He ought to understand how to adjust the dose to the requirements of the individual patient. And he ought to have a knowledge of the conditions which obtain in the focus of infection, and of the methods of circumventing the difficulties which are introduced by these conditions.

If vaccine therapy demands all this of the medical man, it is clear that the discussion of vaccine therapy must inevitably lead on the opening up of the question as to whether the medical practitioner must of necessity be a bacteriologist. If, in the course of this discussion, it becomes clear that vaccine therapy is more effective than any other method of treating bacterial disease, and if it is conceded that it holds out in very many cases the only real prospect of advantage to the patient, such concession will in reality be tantamount to a declaration that applied bacteriology is the essential and indispensable part of medicine, and that the practice of medicine must be reorganised upon that basis. If, on the contrary, the conclusion is arrived at that vaccine therapy has, as compared with other methods, only a limited utility and a limited application, this will be tantamount to a declaration that the reorganisation of medicine on the basis of bacteriology may still a little longer be postponed. Such reorganisation, of course, becomes inevitable as soon as an effective application of bacteriology has been made. Inasmuch as these are, if I understand the matter aright, the real issues which lie behind this debate, I think it will not be unprofitable if, before dealing specifically with vaccine therapy, I pass in rapid review

THE RECENT HISTORY OF MEDICINE AND OF ITS RELATIONS TO BACTERIOLOGY.

As one looks back and recognises that the successive applications of bacteriology to therapeutics stand out as great landmarks in its history, one often wonders that medicine was not long ago swept along irresistibly into the channel of bacteriology. One wonders, for instance, in connexion with the advent of antiseptic surgery why this triumphantly successful application of bacteriology was not immediately followed up by a serious attempt on the part of our profession to study and turn to account this new science. Perhaps it was that the science of bacteriology was then quite in its infancy, and perhaps that the thoughts of our profession were here too engrossed in experimentation with different antiseptics. But the dominant factor in the situation was, I feel sure, the fact that antiseptic procedures could be successfully carried out without any knowledge of bacteriology. Seeing that the action of antiseptics is exerted upon all microbes without distinction of kind, the study of bacteriology appeared to the surgeon to be merely a work of supererogation. When, following in his wake, the physician embarked upon the treatment of bacterial diseases by antiseptics, his thought followed upon the same road. He saw in antiseptics therapeutic agents which would be effective indiscriminately against all microbes, and seeing this he, like the surgeon, held himself absolved from any study of bacteriology.

In the meanwhile the science was advancing with giant strides. One by one the pathogenetic microbes with which we are now acquainted were discovered and their rôle in connexion with the production of disease was elucidated. At the same time methods for identifying and making cultivations of each of these species of microbes were gradually elaborated. Then followed the discovery of agglutination, and with this the recognition of the possibility of diagnosing the nature of a bacterial infection by testing the properties of the blood fluids. After this came the discovery of the "deflection of complement test" and the discovery of the opsonic power of the blood, and with this another and much greater extension of the method of serum diagnosis. Finally came the recognition of the possibility of inducing auto-inoculation for diagnostic uses, and with this the serum tests which previously gave assistance only when spontaneous auto-inoculations were taking place became applicable also in connexion with strictly localised infections. But the clinician has not yet been prevailed upon to reconsider his position. He still—in face of these discoveries—claims to be absolved from a study of bacteriology; and he is still bemused with the idea that the final appeal must always be to himself and to his methods of physical diagnosis.

Let me, in connexion with this fixed idea, invite you to consider the following points: (1) There was undoubtedly a time when the verdict of the pure clinician on a question of a diagnosis was incontestable. That was when the disease could be recognised and identified only by its clinical symptoms. Diphtheria then meant a condition where a particular kind of false membrane appeared on the throat, typhoid fever a fever where the temperature ran a particular course, and phthisis a disease in which certain noises could be heard down a stethoscope. With the discovery of the specific causes of these diseases came a quietus to all this. Diphtheria now means an invasion of the throat by diphtheria bacilli, typhoid fever an invasion of

the blood by the typhoid bacillus, and phthisis an invasion of the lungs by the tubercle bacillus. It is not, at this hour of the day, arguable that the verdict of a bacteriologist stands in need of confirmation from a clinician. In blunt language, "the boot is on the other foot."

Let me pass to a further point. (2) While it must be conceded that clinical methods do furnish in many cases a bacteriological diagnosis, this is reached only by a process of inference, and the chain of inference is in this case made up of a series of open links. I should not have thought it necessary to emphasise this so obvious fact were it not that I was recently assured by a reputable clinician that it had never crossed his thought that dulness over the apex of the lung did not supply proof of tuberculous infection.

And there is yet one further important point. (3) A diagnosis of the nature of a bacterial infection which is based upon the physical signs comes short not only in the respect that it can never be wholly trustworthy, but also in the respect that it must almost always be belated. For physical signs such as can be appreciated by clinical methods can, in the nature of things, be elicited only after comparatively gross physical damage has been done. I need not insist that bacteriological methods have from this point of view a great superiority. Pathogenetic microbes may, as you know, often be found in the secretions or the blood long before a diagnosis can be arrived at by clinical methods; and when methods of direct bacterial diagnosis give negative results, we can nearly always by inferential methods—by the opsonic index, or the agglutination test, or the deflection of complement test—arrive at the nature of the infection long before its clinical features have become distinctive.

While all this was, and is, uncongenial to the pure clinician, he did not fail to appreciate that there could be no question of ignoring bacteriological discoveries which were of fundamental importance for medicine. He was therefore face to face with the problem as to how to make provision for the carrying out of the necessary bacteriological tests and examinations. The proper way of confronting the situation would, of course, have been to look the future fairly and squarely in the face, and to enact that in the future no one should qualify as a medical man without some elementary knowledge of bacteriology, and that no one should proceed to any of the higher qualifications without a thorough training in this science. If that course had been taken even a few years ago—and it has not yet been taken—the younger rank and file of the profession and the younger generation of clinical teachers would now be abreast of any work which might fall to them in connexion with vaccine therapy.

There was, however, one way of escape out of the situation. This was to delegate all bacteriological work in hospitals to a special bacteriological department, and in private practice to such public or private laboratories as might be disposed to undertake it. For a time—as in the case where the Merovingian Kings delegated all their functions to the Mayors of the Palace—everything smiled upon this arrangement. In particular the next great advance in bacterial therapeutics—I refer, of course, to the serum treatment of diphtheria—seemed to fit very harmoniously into this scheme. The medical man who had divested himself of all bacteriological work found here, to his joy, that it would be practicable for him to get his diagnosis from one bacteriological laboratory and his remedy from another, and that there would still remain for himself a dignified rôle as a middleman between the patient and the bacteriologist. Moreover, this rôle would, it was anticipated, continually grow in importance as serum therapy found new application in connexion with one acute disease after another. The medical man even dreamed dreams of polyvalent sera that would make everything in the nature of minute bacteriological diagnosis superfluous. Upon this basis the march of bacteriological discovery seemed to promise advantage to the medical profession—advantage in the form of greater therapeutic success—and there would not be as counter-weight any added burden of unaccustomed labour. The advent of vaccine therapy has disturbed this carefully thought-out scheme, for it has brought home to us that bacteriological work is called for in connexion with nearly every case. And that is a fact which gives, as you will see, quite a new complexion to the proposal that the medical man should depute to others everything that relates to bacteriology. In point of fact, we are here brought up against a very fundamental question—the question as to when and under what circumstances and to what extent the skilled work of a professional may legitimately be delegated. We may here confine ourselves to the case of the delegation of skilled work in connexion with our own profession.

DELEGATION OF BACTERIOLOGICAL WORK.

It will prevent a confusion of issues if we at the outset discriminate between the case where a consultation is held over a patient and the case where a specimen is sent to a laboratory for report. In the former case the consultant is brought face to face with the patient and with the problem which is to be resolved. He is asked to undertake an examination which may seem to him required for the elucidation of the case, and to discuss the whole problem with the practitioner; and the consultant and practitioner can then, as fellow experts, consider exactly where and to what extent "functional errors"—concerning which I shall presently have something to say—may be affecting the several findings, and exactly how far these findings may be accepted as assured. And, finally, when by such collaboration a decision has been arrived at, the responsibility for any action taken rests upon the shoulders of both.

In the case where a specimen is sent to a bacteriological laboratory for report we have utterly different conditions. The bacteriologist is not brought face to face with the problem. Instead of being afforded an opportunity of obtaining his own specimen in the way that he judges best, or even an opportunity of suggesting the proper way of approaching the bacteriological investigation, he is tied down to the examination of such specimens as may be submitted to him. Again the bacteriologist is generally very imperfectly informed with respect to the nature of the problem which is to be resolved. Moreover, when the written bacteriological report comes to hand the practitioner, who has not himself been a laboratory worker, will be quite unable to exercise any expert criticism upon it or to see where fallacies may come in. He will, in the ordinary case, assume that laboratory methods are not subject to fallacy and "functional errors" and that the "Yes" of the laboratory means definite "Yes," that the "No" of the laboratory means definite "No," and that in the case of a laboratory result which is expressed in terms of figures, those figures must be an absolute mirror of reality. And even if it should so happen that the practitioner to whom the bacteriological report is sent has expert knowledge of laboratory work, he will, in default of personal knowledge of, and opportunity for questioning, the bacteriological worker, be quite unable to evaluate the "functional error," and to assign in accordance with this its proper value to the report.

Having discriminated the case of the consultation, which is, as we have seen, really the case of collaboration in skilled work, from the case where a specimen is referred to a laboratory for report, we have now to try to arrive at a considered decision upon the morality of that kind of delegation. Three different cases of delegation may be distinguished. The *first* is the case of a man who, being himself skilled in the whole of the work which he undertakes, has part of it carried out by an assistant, satisfying himself that it has been done in the proper manner and accepting the responsibility for this. It is the case of the delegation of duties by the honorary physician or surgeon to the resident staff of the hospital, by the director of a laboratory to his staff, and by the practitioner to the nurse. The *second* is the case of a man who, when invited to undertake work which lies outside the range of his competence, hands over that work and the attaching responsibility to another who has the special kind of skill which is required. This is the ordinary case of a practitioner sending on a case to a specialist. The *third* is the case of a man whose studies have not covered the whole of his profession in work and who arranges to delegate to others that portion of the work which he has omitted to learn, while retaining for himself the responsibility for the whole, along with the higher scale of reward which goes with that responsibility. You will, I think, recognise that this is the case of the medical man who, finding that bacteriological work is required for diagnosis and treatment, makes shift, without learning any bacteriology, to depute that work to others while retaining for himself the control of the case.

I have no doubt that you will adjudge the *first* of these forms of delegation to be both legitimate and necessary

the carrying out of work on any large scale; that you will commend the *second* while recognising that it can only exceptionally be resorted to; and I believe that you will see that the *third* case is not very clearly distinguishable from the case of a layman who should undertake to treat a case on condition of his being permitted to consult by correspondence competent medical authority whenever he might see occasion for doing so. When I suggest that these cases are comparable, I do so because I want to put this issue before you. If we, as a profession, deprecate treatment by the unqualified on the ground of the dangers which may attach to the treatment of grave cases by the ignorant, can we then refrain from condemning, as perilous to the patient, the treatment of grave bacterial infections by those who are ignorant of bacteriology? And if we, as a profession, condemn consultation by correspondence on the ground that a trustworthy opinion cannot be based upon medical data which are furnished by an ignorant patient, how then shall we refrain from condemning the system by which a medical man who is ignorant of bacteriology selects the bacteriological data upon which a diagnosis is to be based?

I confess that I myself can find only one answer to that question. But let me assume that the question as to whether this kind of delegation is legitimate is still doubtful. There is then still another way by which we may arrive at a decision. Every tree is known by its fruits. We may therefore inquire into the practical working of the system. I would point out here—for we must judge everywhere by one and the same standard—that if we deprecate the treatment of cases by the unqualified on the ground that such treatment may sometimes be perilous to the patient, and if we condemn consultation by correspondence on the ground that this system would often work badly, we must, on the same basis, condemn the system by which the bacteriologically uninstructed delegate bacteriological work to the laboratories if this system is occasionally perilous to the patient and if it often works to his disadvantage.

I suppose that no one who has any experience of the practical working of this system of delegation has any doubt on this point. Every worker in such a laboratory could tell a tale of opportunities of diagnosis missed, of misdirected searches, and of quite incredible solecisms committed by distinguished clinicians whose qualifications date back to pre-bacteriological days. It is probable that every worker in a clinical laboratory has frequently been sent blood in a capillary tube with a request that it should be examined microscopically with a view to the detection of pathogenetic microbes. Or he has been sent a specimen of desiccated blood in a capsule with a request to examine for the malaria parasite. Or he has been asked to report on the opsonic index of a charred specimen of blood—the opsonic index being, in the view of the sender, a function which does not stand in need of any further qualification, and a function which is indestructible by heat. Or he has been asked to find the malaria bacillus in a specimen of urine, or has been sent a 24-hour specimen of urine from a case of septicæmia to make a vaccine for the treatment of the case. Or he has exhibited a preparation showing phagocytosis and has been asked by a high clinical authority to say which is the microbe and which is the phagocyte. In fact every bacteriological worker has been asked to place his services at the disposal of medical men who are in everything that appertains to bacteriology more uninstructed than the educated layman.

One ought perhaps here, you think, to accept as a counterpoise to the bad results which accrue from this system of delegation the good results which accrue from it in connexion with the diagnosis of diphtheria from swabs sent to the laboratory, and in connexion with the treatment of this disease by diphtheria antitoxin. I do not for one moment wish to overlook either these or the many other advantages which may have accrued from the establishment of laboratories for clinical bacteriology; but if I take these into consideration I am, by the same compulsion, obliged to take into consideration also that treatment by the unqualified and consultation by correspondence may also do good. And I put it to you that if we, as a profession, are under an obligation to call attention to the shortcomings of unqualified practice and consultation by correspondence, are we not under the same obligation to exercise censure upon ourselves when we have recourse to a system of delegation which involves us in similar shortcomings?

But let me deal with the suggestion that our present system of delegating bacteriological work, as exemplified in the case of the diagnosis and treatment of diphtheria, is an ideal system. I am very far, indeed, from taking this view of the matter. I regard our present system of dealing with the diagnosis and treatment of diphtheria as essentially defective. It is defective, first, in the respect that it takes into account only one bacteriological factor—the diphtheria bacillus—and one of its pathological effects—the intoxication by diphtheria toxin. It is defective, secondly, in the respect—and this defect attaches to nearly all our therapeutic efforts—that, instead of adapting itself to the particular requirements of the individual case, our present treatment of diphtheria aims only at securing a high average of successes. I hold it to be a great defect in our methods of diagnosis of diphtheria that attention is concentrated on the presence or absence of the diphtheria bacillus. We simply close our eyes to the fact that there may be associated with the diphtheria bacillus other pathogenetic microbes, such as streptococcus, whose presence may perhaps involve almost as much danger to life as the diphtheria bacillus itself. This neglect of the associated infections is only a natural outcome of the delegation of bacteriological work to bacteriologists who are out of touch with the case, and of the faulty appreciation of bacteriological data by medical men who are uninstructed in bacteriology.

Nor even if we leave entirely out of sight the question of therapeutics of the associated infections, and confine ourselves to the question of the therapeutics of the diphtheritic infection, would it be possible to applaud the policy of delegating the manufacture of the serum to a bacteriologist who is not in personal charge of diphtheria cases. For the laboratory bacteriologist almost by necessity sets himself, in the manufacture of serum, an ideal which is merely a laboratory ideal. He aims at the production of a serum which will conform to accepted laboratory tests and, in seeking to achieve the greatest possible antitoxic potency, he leaves out of sight the fact that a diphtheritic infection is something more than an intoxication by diphtheritic poison. In other words, he makes no provision to secure a serum which would promote the rapid casting off of the diphtheritic membrane and extermination of the diphtheria bacilli. So even in the case of diphtheria a policy of delegation, which absolves the clinician from all concern with bacteriology, and commits his work to the purely laboratory bacteriologist, would seem to be merely a policy of the second-best.

I.

Limitations of Vaccine Therapy.

And now I pass to deal with the subject which is set down for me. That subject is vaccine therapy: its administration, value, and limitations. Let me begin with the discussion of the limitations of the method. To the man who is not in sympathy with vaccine therapy the discussion of its limitations must be pre-eminently welcome, and to those of us who desire to see vaccine therapy employed whenever it can do good such discussion must be equally welcome. With a view to facilitating the consideration of this question, I have here set out in the form of a tabular statement certain salient points with reference to the limitations of vaccine therapy. I have, as you see, divided my table into two columns. In the first column I have set down a list of the objections which I have heard urged by pure clinicians. In the second column I have set forth the limitations which I myself, in common, I hope, with every bacteriological worker, would wish to insist upon:—

Limitations of Vaccine Therapy.

(*I.*) *Limitations as contended for by the clinician who regards vaccine therapy as an uncomfortable innovation.*	(*II.*) *Limitations as contended for by the bacteriological worker who looks forward to vaccine therapy being applied in conformity with scientific principle.*
1. Vaccine therapy finds no useful application except in connexion with furunculosis.	1. Vaccine therapy can be applied only where an exact and complete bacteriological diagnosis has been made, and where the diagnosis is kept up to date.
2. Vaccine therapy is of limited utility, because it can be applied only by those who have devoted study to bacteriology and immunisation.	2. Vaccine therapy can be applied only by those who have some acquaintance with bacteriology, some understanding of the rationale of vaccine therapy, and a knowledge of the dose of the particular vaccine which it is proposed to employ.

3. Vaccine therapy finds no useful application in connexion with the graver infections, such as pneumonia, rheumatic fever, typhoid fever, phthisis, meningitis, and streptococcal endocarditis.	3. A limit is placed to the efficacy of inoculations by the fact that there are definite limits to the responsive power of the patient.
4. The proper sphere of vaccine therapy is not to take the place of any surgical operation, but to supplement it.	4. Successful results can be obtained only where an efficient lymph stream can be conducted through the foci of infection.
5 Vaccine therapy finds no useful application in connexion with the ordinary infections of those regions of the body which fall within the sphere of the particular specialty that may happen to come under discussion.	5. In long-standing infections vaccine therapy can give definite results only after a long succession of inoculations, and there is no security against a relapse until the infection has been completely extinguished.
6. Vaccine therapy is of limited utility because it is applicable only to disorders which are referable to bacterial infection.	6. In a not inconsiderable percentage of cases it is essential to success that the dose of vaccine shall be controlled by measurements of the opsonic index.

LIMITATIONS AS CONTENDED FOR BY THE CLINICIAN.

When you have scanned the suggestions with regard to the limitations of vaccine therapy which are set out in column I. of the table above, you will, I think, recognise that we have in No. 1 the objection of the practitioner who shuts his eyes and ears to the facts until it becomes absolutely impossible any longer to do so. In Nos. 2, 3, 4, and 5, we have the usual objections of the general practitioner, consultant physician, operative surgeon, and specialist who desire to stand upon the old paths, and to be let alone. Lastly, we have in No. 6 the objection of the man who has no conception of the role which bacteria play in connexion with disease.

The contention that therapeutic inoculation has a useful application only in connexion with staphylococcus infections finds its exact parallel in the contention that prophylactic inoculation finds a useful application only in connexion with small-pox. We all now know that prophylactic inoculation has achieved brilliant results in man in connexion with typhoid fever and plague, and in animals in connexion with anthrax and many other diseases, and we infer from this that the principle of prophylactic inoculation is a principle of general application. In the same way we all know—all of us who care to know—that therapeutic inoculation is every day applied successfully in connexion with every kind of pathogenetic microbe. And we know also—and those of us who are actually at work on the question have realised this from the outset—that we have here a principle of general application.

We pass now to the contentions 2, 3, 4, and 5, to the contentions of those who urge that their particular spheres of practice cannot usefully be intruded upon by vaccine therapy; to the objection of the consultant physician that vaccine therapy has no useful application to any of the graver bacterial infections which he is called in to see; to the objection of the operating surgeon that vaccine therapy may never take the place of operative procedures; and to the objection of each several specialist that useful application cannot be found for vaccine therapy within the particular specialty which he himself practises. In reality there is no kind of necessity for combating these contentions. In so far as they are the outcome of hasty generalisations, and in so far as they are irrational and interested, they will crumble away of themselves; while in so far as they are based on reason and upon a real insight into facts of nature they will, of course, hold good. For the present I will content myself with pointing out that already vaccine therapy promises to be brilliantly successful in pneumonia; that it holds out promise in typhoid fever and in many forms of rheumatism; that it supplies the only ray of hope we have in endocarditis; that inoculation or a system of regulated auto-inoculation, such as Dr. Paterson has suggested and carried out at Frimley Sanatorium, is our only stand-by in phthisis; that it has already—pre-eminently in the case of tuberculous glands and many other forms of tuberculous infection—proved its superiority over operative procedures; and that it has given very favourable results in treatment of diseases of mouth, nose, ear, and genito-urinary system.

There remains to be considered objection No. 6—the objection that vaccine therapy is of limited utility because it is applicable only in disorders which are produced by microbial infection. While the world in general has progressed up to the point of accepting from the bacteriologist the fac that epidemic disease is due to microbial infection, th medical profession in general has not yet accepted it fron the bacteriologist that we have in practically every diseas a bacterial infection or the result of a bacterial infection It is still comparatively unfamiliar matter that jaundice bronchitis, common colds, many cases of asthma, infantil paralysis, and almost all cases of cardiac disease are one an all referable to microbial infection. And though it is made reproach to the bacteriologist that he finds everywhere bacterial infection, it is in reality the besetting si of the bacteriologist to underrate, in common wit every other man, the part played by microbes in disease and he constantly has the mortification of findin that he has failed to appreciate the microbial factor in disease, and has therefore misapprehended its nature. I woul invite you to reflect in this connexion how few of us are pre pared even to give a hearing to Metchnikoff when he urge that atheroma of the arteries may quite well be the result o an intoxication by bacterial products absorbed from th intestine, or to Mr. Arbuthnot Lane when he urges—as understand him to do—that where the breasts and ovaries the middle-aged woman are not regularly flushed throug with blood in the hyperæmia of the sexual orgasm, the tend to undergo cystic degeneration under the influence toxins absorbed from the intestinal canal. But perhaps shall press home my point better if I tell you some of th awakenings that have only recently come to me, and if show you how prone one is to be misled by tradition an nomenclature and to overlook everything that does n directly obtrude itself upon our senses. I may take the things in any order, just as they come to mind.

Formation of scar tissue.—It has been handed down to as a dogma that where there has been very considerable lo of substance as the result of deep and extensive ulceratio or deep and extensive burns, the best result which one ca look for is healing by scar tissue. I remember beir wakened out of this belief by finding that very deep ar extensive tuberculous ulcers may heal up under vacci therapy with a complete *restitutio ad integrum*. In the fir case I remember the ulcer was situated on the back of th hand. It was more than 2 inches in diameter, and it we down to the bone, and the *restitutio ad integrum* was he so complete that a year afterwards it was practical impossible to tell the hand which had been ulcerated fro its fellow, and the patient, who, as a furrier, had to unde take very delicate manipulations, found his hand as flexib as before. The second case was that of a patient who h now for two years been one of our laboratory men. In h case a tuberculous ulcer which measured not less than inches by 4 inches, and which extended from the ear to th point of the shoulder, and which was at one point so deep to seem as if it must burst into the pharynx, has now f years been covered in with a soft white elastic skin whic shows no sign of contraction and is not very different fro normal skin. In would seem in view of these and oth similar cases that it might perhaps be practicable to avo the formation of scar tissue after burns by combating th supervening bacterial infections. We are trying to see wh can be done on these lines.

X-ray dermatitis.—It will perhaps seem to you that only man who was riding a hobby to death could suggest th a bacterial factor entered into the pathology of X-ra dermatitis. I will confess that it had never occurred to me th this might be the case until I was asked to see an X-ra operator whose hands were in a terrible condition with crac and ulcers. Cultures here disclosed the fact that we h to deal with an extensive streptococcus infection, and th patient received great benefit from vaccine therapy, th intractable ulcers rapidly healing up as soon as the prop dose of his vaccine had been arrived at. I ask myself, view of the burning quality of the pain in X-ray dermatiti and the course that the disease runs, whether a streptococc may not often be an important factor in this complaint.

Inflammatory trouble at the roots of the teeth and toothach —It probably has not occurred to the ordinary man connect trouble at the root of the teeth and toothache wi a bacterial infection. But no sooner does one make an effo to shake off the disease of not thinking, and to sit down reflect upon the subject, than it becomes clear that trouble the roots of the teeth must be due to microbes finding the way down. And a very simple bacteriological observati

then suffices to show that we have in those cases where there is trouble at the roots of the teeth generally to deal with the ordinary streptococci of the mouth. We have, therefore, here a source of trouble which may quite well fall within the range of vaccine therapy; and as a matter of fact I have often seen such trouble quiet down under the influence of a vaccine. I would suggest here, as a point for investigation, whether the burning pain of actual toothache is not analogous to the burning pain of the streptococcus ulcer, and whether it may not be due to a quite similar infection.

Pruritus ani.—Pruritus ani is, again, one of those disorders which the ordinary man would not think of referring to a bacterial infection. At any rate, it had not occurred to me that it might be due to such an infection until a patient who was suffering from this condition was referred to me for the treatment of an associated furunculosis. I now find it difficult to understand how it is possible to look at pruritus ani from any other point of view than that of a bacterial infection. I have had under observation and treatment, in addition to the case just referred to, three very desperate cases of this affection. In each case I have found that a platinum loop applied to the seat of irritation brought away quite astonishing numbers of microbes, invariably staphylococcus and pseudo-diphtheria, and occasionaly tetragenus; and in each of these cases life has been rendered comfortable, or, if not quite comfortable, at any rate quite endurable, by the use of appropriate vaccines.

Hay fever.—Although the brilliant researches of Dunbar have put it beyond doubt that hay fever is to be traced to the toxic action of pollen, it would none the less seem possible that bacteria play a rôle in connexion with it. On the one hand, the consideration that the coryza which begins as hay fever may culminate in an asthma which may last for months after the season of pollen is over, and on the other hand, the fact that cultures made from the mucous membrane of the nose in hay fever often furnish voluminous growths of staphylococcus and bacillus septus and other organisms make it probable that the action of the pollen may pave the way for a microbial infection, and that this may seriously aggravate the disorder. If this is so, and if the exaggerated susceptibility to pollen which is the prime cause of the disease cannot be successfully overcome, bacterial vaccines may quite well prove useful in these cases.

Urinary calculus.—It is now perfectly well understood that the formation of biliary calculi stands in connexion with a coli infection of the biliary ducts and gall-bladder, and it has been known for very many years that phosphatic calculi form in the urine as the result of changes produced by bacteria. It is only going one single step further to search for a bacterial cause in connexion with every case of urinary calculus, and to try to identify the bacterial cause if such should exist. I have not undertaken any systematic observations along these lines, but, again, in the course of our daily routine of work a certain number of facts which all point in one direction have thrust themselves on my attention.

CASE 1.—A medical man who had suffered for years from a bacteriuria, which furnished in every case a pure culture of staphylococcus, developed a renal calculus and was operated upon.

CASE 2.—The daughter of a medical man who had undergone an operation for renal calculus which resulted in the removal of 21 oxalic acid calculi from the pelves of the kidneys, was brought to me with a view to something being done to prevent a recurrence of her troubles. A series of cultures made from her urine furnished in each case a copious growth of staphylococcus.

CASE 3.—A patient whose urine had for years furnished on each occasion a pure culture of a coliform bacillus, and who had undergone vaccine treatment for this, developed symptoms of renal calculus. The operation revealed the presence of a stone, and cultures made from the pelvis of the kidney furnished copious cultures of staphylococcus. A similar operation for calculus, undertaken 12 months later on the other kidney, again furnished a culture of staphylococcus.

CASE 4.—A patient who had been admitted to the inoculation wards at St. Mary's Hospital for the treatment of a deep and extensive ulceration caused by a combined syphilitic, streptococcal, and staphylococcal infection, developed symptoms of renal colic. Radiographic examination showed the presence of a stone in the pelvis of the right kidney and a similar calculus in the right ureter. An examination of his urine revealed the presence of staphylococci in fair numbers.

Indigestion, vomiting, flatulent distension of the stomach.—The fact that these are often prominent features in early phthisis is one of those facts which have been known so long that no one any longer asks for an explanation of them. I believe the answer to the problem may perhaps be found in the fact that pyorrhœa alveolaris is a frequent accompaniment of phthisis. I can hardly doubt, after what I have seen result from vaccine treatment in these cases, that the gastric disturbance must often be due to streptococci, swallowed with the food. I have, for instance, seen vomiting that had occurred regularly every day for six months disappear after the inoculation of a vaccine made from streptococci derived from the mouth. We must remember, in connexion with gastric disturbance which is associated with pyorrhœa, (1) that cooked food is for all practical purposes sterile food; (2) that the admixture of microbes which gives rise to fermentation can only come from the mouth or stomach; and (3) that inasmuch as a more or less effectual process of sterilisation takes place in the stomach, while the development of microbes goes on without such check in the mouth, the cause of the gastric fermentation is probably to be found in the microbes of the mouth which are swallowed with the food.

Epilepsy.—It would seem as if we had in epilepsy a condition which could not by any possibility stand in any etiological connexion with any bacterial infection. But even here the judicious will find ground for hesitancy. He will reflect that in infancy almost any infection which is associated with the setting free of bacterial toxins in the organism will produce convulsions. It may therefore not unreasonably be surmised that a bacterial focus which stood in connexion with the nervous system might even in the adult produce a like result. And I believe that I have seen epilepsy in tuberculous patients improve under inoculation treatment.

Cancer.—In spite of the fact that a moment's consideration would bring it home to anyone who had come into intimate contact with cancer that the microbic infections make a large part of the misery of the disease, both for the patient and for those that come in contact with him, the rôle which microbic infections play in connexion with cancer is as yet almost unrecognised. In reality that rôle is far more important than appears at first sight. Owing, no doubt, to that defective resistance which seems to be a feature of all neoplastic tissues, cancer, very early in its history, long before it has burrowed its way to the surface, becomes the seat of a staphylococcus infection—an infection by the so-called Micrococcus neoformans of Doyen. And there is reason to believe that much of the pain and swelling and inflammation in connexion with the tumour, and much, if not all, of the so-called cancerous cachexia, is due to this micro-organism. In view of this it is clear that, even though we cannot hope to strike at the root of the evil by anything in the nature of a vaccine treatment, cancer—and in particular, inoperable cancer—comes within the range of vaccine therapy.

Diabetes.—It must over and over again have suggested itself that diseases which are due to the faulty functioning of some organ—diseases, for instance, such as Graves's disease and pancreatic diabetes—may ultimately be traced to bacterial infection. Countenance is given to this suggestion by such work as has recently been done in connexion with the vaccine therapy of diabetes. I may refer to a case of pancreatic diabetes which was treated by my colleague, Captain S. R. Douglas, where the secretion of sugar and the symptoms of the patient were found to vary with the patient's resistance to a coliform bacillus which had been isolated from her fæces. I may refer also to the interesting facts which Dr. J. C. McWatters is bringing forward in this discussion in connexion with the treatment of glycosuria by staphylococcus vaccine. I think you will see that his facts suggest that glycosuria and carbuncle, which we have always supposed to be related as cause and effect, may perhaps in some cases be merely two different manifestations of a staphylococcus infection.

Enuria.—Finally, let me invite you to consider whether a bacterial infection may not in some cases turn out to be the cause of enuria. I can call to mind a case where enuria was apparently attributable to an unsuspected coli infection of the urine, and another case in which it was also associated with the same infection. Both cases yielded to treatment by vaccines.

I have, perhaps, said enough to rebut the contention that the range of vaccine therapy is restricted. In point of fact, it not only covers almost the whole range of our present medicine, but also much that lies altogether outside its borders. For it beseems every doctor to remember with humility that there are an infinitude of chronic or recurrent ills affecting mankind which are never seriously brought to his notice, because no one believes that there is any understanding of them in the medical profession, or any possibility of a cure being found for them. In this connexion I

may just glance at another point which, perhaps, more than any other, will bring home to you how extensive is the range which opens out before vaccine therapy. It is certain that we come into this world each with his individual susceptibility to microbic invasion. I am here thinking not of our susceptibility to those microbes which can pass from man to man in the form of epidemics—those microbes which alone come into the field of view of the hygienist. I am thinking rather of the fact that one man is by nature deficient in his resisting power to the staphylococcus, another to the pneumococcus, another to the bacillus of Friedländer, another to the influenza bacillus or to the acne bacillus, another again to some one of the different forms of streptococcus, or of the pseudo-diphtheria bacillus or of the coli bacillus, and another to the tubercle bacillus. And I would have you reflect, in connexion with these microbes, that while their ravages may not be dramatic, they are collectively responsible for nine-tenths of human disease. And then I would have you reflect that while man makes efforts to guard himself against epidemic disease, and while he enlists the help of the State in this task, he accepts it as if it were an unalterable law of nature that he should be buffeted throughout his life by the particular microbe to which he individually is liable. Thus one man puts up with recurrent influenzal attacks, another man with a succession of sore-throats, another man with continual recurrences of boils, another man with chronic bronchitis, another with perpetual trouble in the roots of his teeth, another with a continuous discharge from the ear, another with sycosis or acne, another with the coli infection of the urine, another with continual pruritus, another with tubercular glands, another with phthisis, another with recurrent intestinal attacks, and so on through the whole gamut. Vaccine therapy will, I believe, help every man to keep under the particular microbe which besets him.

LIMITATIONS AS CONTENDED FOR BY THE BACTERIOLOGIST.

I now pass to consider Column II. of my table; in other words, to consider the limitations of vaccine therapy, which must—if I see the matter aright—be contended for by every bacteriological worker who desires to see vaccine therapy applied in conformity with scientific principles. I think that only the first and the last two of the contentions in Column II. stand in need of anything in the way of amplification and defence. There is no one I conceive who would think of questioning that a complete and exact diagnosis is a necessary preliminary to a successful application of vaccine therapy. Nor will anyone who has done work on a case of mixed infection have any doubt as to the absolute necessity of keeping the diagnosis up to date. It must none the less be emphasised that as soon as ever a definite label has been placed upon a case, that label generally dismisses from view all further bacteriological possibilities.

The risk of accepting an incomplete for a complete diagnosis, and so imperilling the success of our treatment, is perhaps most conspicuous in connexion with syphilitic and tubercular infections. And yet in many cases the very clinical characters which serve as stigmata of tubercular or syphilitic infection are characters which ought properly to go down to the account of other microbes; and when we go into the matter it becomes clear that it is the presence of these microbes in the lesion which puts the clinician on the trail and furnishes him with the logical justification for the diagnosis of syphilis or tubercle. A typical instance is furnished by rupia. The characteristic rupial scab testifies to the presence of a bacterial agent which induces a copious transudation of lymph. The bacterial agent which has a pre-eminent power of doing this is the streptococcus. But in the case of a typical pure streptococcal infection the exudate is wont to be a perfectly clear lymph which sets into an amber yellow scab which crumbles down into a powder like gum arabic. In rupia, however, the discharge is semi-purulent, and the heaped-up scab which suggests the idea of a streptococcus infection is very tough and opaque. It is, in fact, a scab that contains a large admixture of leucocytes. This suggests a superadded infection, and the commonest infective agent which leads to an emigration of leucocytes is the staphylococcus. The characters of the rupial scab thus furnish presumptive proof of the presence of streptococcus and staphylococcus—in reality both these are regularly to be found in rupia—and, little as the pure clinician appreciates the fact, it is this twofold infection which leads him to the diagnosis of syphilis. For we have apparently in the spirochæte a microbe which brings about a general lowering of the resistance of the body to microbic infection. I may say, in passing, that the inference that a multiple infection such as we have in rupia is *always* due to syphilis is not always correct.

It is, however, certain that there is no tubercular or syphilitic ulceration of a mucous membrane, and no extensive tubercular or syphilitic ulceration of the skin, which is not complicated by secondary infections. It follows that it is improper in any case of tubercular ulceration of the larynx or tongue to depend entirely upon tuberculin and to overlook the associated infections. Similarly, it is important, in any connexion with syphilitic ulceration to keep in mind the possibility that chemotherapy may be ineffective if we do not turn our attention to the associated microbes. And in such cases it often does not suffice to combat only one variety of associated microbes. One comes across case after case where, owing to the fact that one of a batch of infecting microbes has been overlooked, a wound obstinately refuses to get well. I have, for instance, in mind a case of tuberculous ulceration of the chin which failed to make progress when treated with a combination of tubercle and staphylococcus vaccine, and which healed up rapidly when, after the discovery of a streptococcus in the wound, a combination of tubercle, staphylococcus, and streptococcus vaccine was employed. The subsequent history of this case is interesting also as showing the necessity of keeping the diagnosis up to date. When some months after the patient had gone back to the country the ulceration broke out again, the same triple combination proved quite ineffective. The ulceration spread in an alarming manner, and the patient returned to hospital for treatment. It was then found that the bacillus proteus had established itself in the wound, and that his blood gave a positive reaction with Wassermann's test. A proteus vaccine was now administered, and under the influence of this, in combination with a few doses of iodide of potassium, the wound healed up rapidly.

The fact that long-standing infections cannot be got under save by a long succession of inoculations is obvious to anyone who understands anything of the rationale of vaccine therapy. I, however, specially emphasise it here because I find that the most unreasonable expectations are afloat as to what may legitimately be expected from vaccine therapy. In view of these, I must try to make it clear what we can and what we cannot hope from the method in a case of long-standing infection. Perhaps the easiest way of bringing home some appreciation of the conditions is to compare the human body to a garden, the vaccine-therapist to the gardener, and the pathogenetic microbes to weeds which can be thinned out, but which, so long as any of them remain over, retain their power of multiplying and regaining lost ground. This analogy makes it plain that the most that can be achieved in a long-standing infection by one dose of a vaccine is a temporary reduction in the number of the infecting microbes, and that it is not worth while, in such a case, to embark upon anything less than a systematic campaign. And it also makes it plain why it should be necessary to inoculate again and again for an unlimited time when a vaccine is employed for therapeutic purposes, and once or twice only where it is employed for prophylaxis. Clearly where inoculation is resorted to for therapeutic purposes, the surplus of anti bacterial substances, which is elaborated, is immediately expended in the destruction of microbes; where inoculation is resorted to for prophylaxis, such surplus is not used up, but is kept in reserve against future eventualities. When a patient is informed of these facts, and when he is told that it will be necessary to inoculate again and again for an unlimited time, he will inevitably ask how long it will take to accomplish a *cure*. It will be profitable, therefore, to clarify our ideas about this question of the achievement of a cure.

Bacterial infections fall in reality into two classes. (*a*) Into the first class would fall "surface infections" by microbes which are normally saprophytic on the affected surfaces. The pneumococcal or streptococcal infections, which are the commonest causes of bronchitis, are instances in point. In this class of infection it is unreasonable to aim at a complete extinction of the infecting microbe. What we can here hope for in the way of a cure is to keep the number

of microbes within bounds, and to minimise the chance of a recrudescence by keeping the patient's resisting power up to the mark. (*b*) Into the second class would fall infections by microbes which are extraneous to the normal organism, which are always pathogenetic, and which can only be acquired by infection from the sick. Tubercular infections are instances in point. In this class of cases the extinction of the infection is quite a reasonable ideal. But if now, in connexion with this class of infections, the question is pressed as to how soon this can be achieved, the vaccine therapist is bound to reply that he can never say beforehand, and can never guarantee the attainment of this result. But, though he cannot prophesy, he can from time to time take stock of the patient's condition, and tell him whether or no he has made progress, and whether or no the infection has been extinguished.

In reality, we have in addition to the clinical condition—which, of course, cannot tell us whether an infection has been extinguished—not less than four different methods by which we may see how we have progressed. Let me explain what these are:—

1. In the case where the patient's index is being regularly taken, let us say at the expiration of ten days after inoculation, we have an automatic check upon the progress of the case. For if we find that, instead of sinking rapidly away to below normal, as it did at the outset, the opsonic index now maintains itself at the level of the normal, or a somewhat higher level, we may—if we have excluded the fallacy of auto-inoculation—confidently conclude that the patient is making good progress. For clearly as the pathogenetic microbes in the body diminish, there must be a proportionately slower expenditure of anti-bacterial substances. When we have satisfied ourselves that this is the case, and if also all the overt signs of infection have disappeared, we may proceed cautiously to apply the next test.

2. Where we have reason to believe that the infection may have been extinguished, and want to make certain that this is really the case, we may tentatively give up the inoculations but continue to make measurements of the opsonic index. And if, under these circumstances, we still find the opsonic index remaining normal month after month, we may conclude that the drain upon the patient's anti-bacterial resources—it is probably that drain which accounts for the subnormal indices found in the early stages of tuberculin infection—has been arrested. This will signify the complete, or all but complete, extinction of the infection. A table showing the results obtained by this method of testing on a series of patients is subjoined.

If we desire an even more searching test we may take either the next or the one following.

3. This test is based upon the consideration that if we send a lymph stream through a limb or any other region of the body which has been the seat of a bacterial invasion, that lymph stream will, as it returns to the blood, carry bacterial poisons back into the blood, with a result that a characteristic fluctuation will occur in the opsonic power of the blood. This test furnishes information which is specially valuable where the decision of the question as to whether the patient may use his limb depends upon the question of the extinction of the infection in a joint. For the purpose of this test active hyperæmia is induced in the suspected focus of infection, a bandage is then applied to the vein in such a way as to obstruct the blood current, and when a transudation of lymph has in this manner been obtained the lymph is driven back into the circulation by massage or active movements. In order that the test may yield conclusive results, it is advisable, in cases where there can be only very little remaining infection, to keep the limb at rest for a day or two before undertaking the test, in order to allow of an accumulation of bacterial toxins in the focus. (Chart I)

(4) While the test which has just been described resolves the question as to whether there is still lurking infection in a suspected focus, consideration will show that it will not resolve the question as to whether there may not be elsewhere in the patient's body an unextinguished focus. If this question should not be held to be sufficiently resolved by such a series of tests as is described under (2), it can be further put to the proof by testing the patient's blood before and after severe exercise. The routine procedure which we employ in such a case is to test four samples of the patient's blood—the first drawn off immediately before exercise, the second immediately after, the third six hours after, and the fourth 24 hours after. A pair of companion charts showing the results obtained by this method of testing is subjoined. (Chart II.)

THE RELATION OF THE OPSONIC INDEX TO INOCULATION.

The only one of the contentions in Column II. which is in any sense of the word controversial is the contention that it is not infrequently essential to success that the doses of vaccine shall be controlled by measurements of the opsonic index. We have in this connexion to consider, first, the question as to whether the opsonic power of the blood can be accurately measured; secondly, the question as to whether there is a correlation between the rise and fall of the opsonic

Table of Cases in which the Infection is Inferred to be Extinct from the Maintenance of a Normal Opsonic Level, and in which Confirmation of this Inference has been Afforded by the Fact that the Patients have Remained Quite Free from all Signs of Infection.

Case initials.	Nature of tubercular infection.	Length of treatment up to complete disappearance of all evidence of infection.	Measurements of opsonic index undertaken after cessation of treatment. Months.										
			1	2	3	4	5	6	7-8	9-12	13-16	17-20	21-24
A. H.	Extensive ulceration of skin and subcutaneous tissues	3 months.	—	·86	—	—	—	1·06	—	·93	—	—	—
F. M.	Peritonitis	39 ,,	1·13	—	·95	·91	—	—	1·05	1·05	—	—	—
M. B.	Adenitis	6 ,,	1·11	—	·98	·94	·94	—	*·84 1·07	—	—	—	—
W. C. P.	Cystitis	5 ,,	1·17	—	—	·88	†·69 ·96 ·88	—	—	—	1·13	—	—
G. E. G.	Epididymitis	2 ,,	·96	—	—	—	—	—	1·02	—	—	—	—
W. M. P.	Tubercular mass in vitreous	23 ,,	—	—	—	—	—	1·01	—	·96	—	—	—
E. P.	Adenitis	11 ,,	1·13	—	1·30	1·06	—	1·15	—	—	·96	1·12	—
L.	Ulceration of hand	7 ,,	1·18	—	·94	—	1·00	—	—	·86	1·04	—	1·20
G.	Adenitis	14 ,,	—	·83	—	·94	—	1·12	—	—	—	—	—
R. M.	Arthritis of knee	25 ,,	1·17	—	·98	—	1·06	—	1·11	—	1·14	1·19	—
R. W.	Adenitis	9 ,,	·80	—	·97	—	·96	—	·87	—	1·05	—	—
W. S.	Arthritis of knee	34 ,,	1·00	·93	·92	—	—	—	1·04	—	—	—	—
G. L.	Adenitis	22 ,,	1·12	—	—	1·18	·93	—	·84	1·07	—	—	—
G. M.	Arthritis of knee	13 ,,	1·21 1·08	1·07	1·02	—	—	—	—	—	—	—	—
G. S.	Adenitis	21 ,,	·92	—	—	1·28	—	—	·90 1·24	1·37	1·11	1·04	—

* Patient suffering from a temporary indisposition. † There is a doubt as to the accuracy of this estimation, as the patient was in perfect health, and the blood, when tested three days later, gave an index of ·96.

index and improvement and aggravation in the condition of the patient; and, thirdly, the question whether the measurement of the opsonic index can be dispensed with, and whether any other guide can take its place.

(i) *Question as to whether the Opsonic Power of the Blood can be Accurately Measured.*

I may point out, *in limine*, that the controversy which has taken place on the subject of the accuracy of the opsonic index is only what might have been expected, seeing that it is in connexion with the measurement of the opsonic index that the capacity of bacteriological workers for accurate quantitative work has for the first time been seriously put to the test.

I may very briefly refer here to three schools of criticism. The first, represented by Pigg-Strangeways and his collaborators, asserted that differences such as emerge in connexion with the counting of phagocytic preparations of different bloods might quite well be due to the operations of chance, which brought into the field of view of the observer in one specimen of blood a group of leucocytes which happened by chance to contain more microbes, and in the other specimen of blood a group of leucocytes which happened to contain less microbes. These critics further suggested that if a sufficient number of leucocytes—1000 leucocytes was the proposed number—were counted, it might be found that there was never any difference between tubercular and non-tubercular bloods.

A second school of criticism declared that, while there could be no question but that there were often marked differences between the blood of infected patients and normal blood, the margin of error in the method is so considerable as to deprive it of any practical value. In support of this thesis some observers brought forward discordant results obtained by themselves on duplicate samples of blood. Other critics brought forward discordant results obtained by a series of observers in different laboratories who were all supplied with the same bloods. In connexion with the last mentioned results it is to be observed that in tests thus organised the results of inaccurate workers throw doubt upon the work of accurate workers. Moreover, as I have already elsewhere[1] pointed out, results obtained in different laboratories with different strains of microbes are not, and cannot be expected to be, comparable *inter se*.

CHART I.

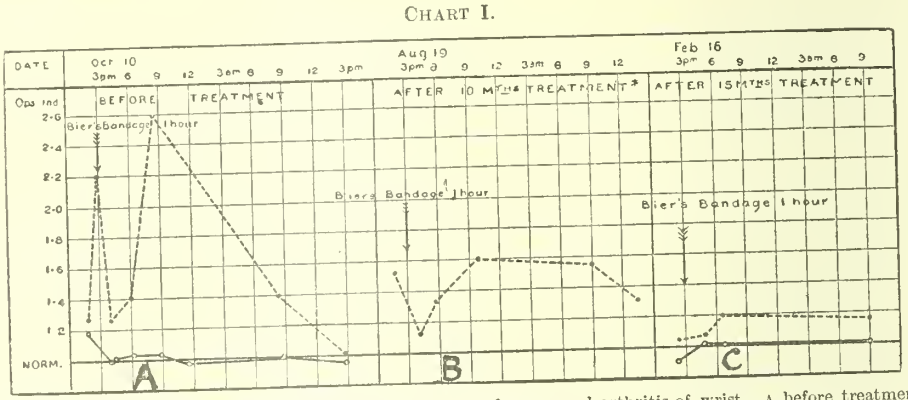
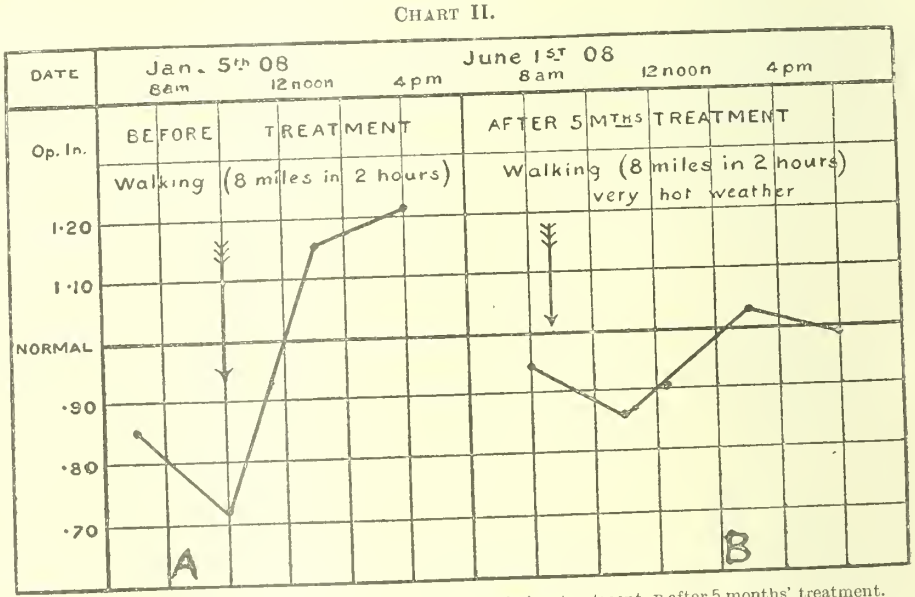


Chart showing results of auto-inoculation tests carried out in a case of gonococcal arthritis of wrist. A, before treatment; B, after 10 months' treatment with gonococcus vaccine; C, after 16 months' vaccine treatment. - - - - = Gono-opsonic index. —— = Tuberculo-opsonic index.

CHART II.



G. D. O. Phthisis. Auto-inoculation tests carried out A before treatment, B after 5 months' treatment.

A third school of criticism proclaimed that, inasmuch as the average ingest of a certain number of leucocytes is taken to represent the opsonic power of a blood, there here enters into the method a certain factor of chance—a factor which magnitude can be calculated only by a statistician. Again this school of criticism contends that, inasmuch as the phagocytic power of the individual leucocyte varies within certain limits, there here enters again into the method another factor of chance which also is a proper subject matter for mathematical evaluation. On this basis the statistician puts forward a claim to determine the limit of error of the opsonic method. In reality, however,

[1] Studies on Immunisation (Constable, London), p. 450.

addition to the two factors which have come within his purview, there are many others which have an important influence on the result.

In the first place, the range of variation in the phagocytic power of the leucocytes, which is by the statistician assumed to be a constant, is in reality a factor which is profoundly modified by the treatment to which the leucocytes are subjected. While we have in some cases a comparatively small range of variation, in cases where the leucocytes have been maltreated we have a much larger range. Again, though the statistician assumes that a record of bacteria counted in a series of leucocytes is as unambiguous and as little open to error as, let us say, a record of pips counted on a series of cards, this is very far from being so. Microbes cannot be satisfactorily counted unless the leucocyte has first been spread out flat as a card. Again, the microbes must have been differentially stained so as to stand out perfectly clear against the background of the leucocyte. Again, the bacteria must not be fragmented or gathered together into groups. They must not be so numerous as to make accurate counting difficult. And there is also another requirement; the observer must bring to the task of counting exceptional concentration, and he must display no little judgment in the avoidance of pitfalls and fallacies. It follows that the figures which represent the number of bacteria counted in the individual leucocyte are affected by the treatment to which these have been subjected *in vitro*, and these figures are also affected by the degree of skill and attention which has been brought to bear upon the preparation of the bacterial suspension, the spreading of the blood film, the fixing and staining of the preparation, and the counting. Figures which are the resultant of all these factors, which are personal to the individual worker, cannot, I submit, possibly furnish a "*mathematical limit of error*" for a method. What they may perhaps furnish is a value for the "mathematical limit of error" in combination with what I may perhaps call the "*functional error*" of the observer, or groups of observers, whose work is under review.

Let me try to make clear to you—in so doing I shall only be elaborating what is familiar matter to us all—the importance of the "*functional error*" in connexion with our work. The "*limit of error of a method*" is, if I understand the expression aright, a function which can attach only to quantitative methods in which we have an inherent factor of chance. It is a value which is unalterably fixed by mathematical laws, which can be arrived at only by a mathematician. It is a value which is exactly the same for every worker. No one can emancipate himself from it, or do anything to diminish it; and it is indissolubly attached to the *method*. The "*functional error*" is an error which attaches only to methods which involve a certain amount of skilful functioning. It attaches to the *operator*. It has a different value for every operator. It may in the case of one and the same operator vary from hour to hour with his physiological efficiency. Its value can be diminished by practice and attention. It cannot be evaluated by a mathematician. It can be pretty accurately gauged by the operator. The "*working error*" corresponds sometimes to "the limit of error of the method," sometimes to the "functional error of the operator," and sometimes to the sum of these values.

In the case of such an exercise as counting of the number of pips on a series of cards and taking the average of these, or in going through the same operations with a series of throws of the dice, nothing in the nature of skilful functioning is required. The "functional error" is therefore here negligible; and the "working error" may be identified with the "limit of error of the method." In such a case as the auscultation and percussion of a chest, or in billiards, the whole "working error" is the "functional error of the operator." In the case of the measurement of the opsonic index "the working error" is the sum of "the limit of error of the method" and "the functional error of the operator." Of these, by far the most important factor is the "functional error." I have satisfied myself, and all my fellow workers have satisfied themselves, and I am glad to say a very large and increasing number of bacteriological workers all over the world have satisfied themselves, that when the "functional error" has been reduced, as it can be by practice and patience, to small dimensions, and when, in connexion with tubercle, the customary counts of 100 or more leucocytes are made, the "mathematical limit of error" of the opsonic index is such as need not seriously be taken into account. In view of this I suggest that those critics who have put forward figures showing enormous working errors in opsonic estimations may have supplied to the world data with regard to the magnitude of their own functional errors, instead of—as self-esteem assured them—data with regard to errors inherent in the opsonic method.

(ii.) *Questions as to whether the Rise and Fall of the Opsonic Power of the Blood is Correlated with Improvement and Aggravation in the Condition of the Patient.*

I have elsewhere[2] discussed at some length the questions as to whether it is a practical ideal to make a *complete evaluation* of all the factors which make up the resisting power of the organism to bacterial invasion. I have pointed out there that inasmuch as it would be necessary for a complete evaluation of the antibacterial power of the organism to enumerate all the leucocytes, to measure their individual phagocytic activity—and, I may add, their power of digesting the ingested microbes—and to consider the question as to how far the leucocytes which are available could be brought into application; and, further, inasmuch as it would be necessary for a complete evaluation to evaluate all the known antibacterial elements which may affect the microbe from which the patient is suffering, and to make allowance for all the antibacterial elements which have not yet been discovered; and, lastly, inasmuch as there is no common denominator to which we can refer these different classes of defensive elements so as to add the one to the other or to set off the one against the other, it must for ever be impracticable to make a complete evaluation of the antibacterial forces of the body. And I have pointed out[3] that it is for these reasons absolutely necessary—if we are to have any direct guide in our immunisation proceedings—to content ourselves with a confessedly *partial evaluation* of the antibacterial powers of the blood. Again, I have pointed out that we can quite well turn to account a partial evaluation if the antibacterial element which has been selected for measurement is an element which can be accurately measured, which decreases and diminishes in the blood in response to inoculations of vaccine, and which increases and diminishes in correlation with the clinical condition.

The measurement of the opsonic power of the blood is *confessedly* and *in intention* a partial evaluation of the antibacterial defences of the body; it can be accurately measured, it is an element which decreases and diminishes in the blood in response to inoculations of vaccine; and the question for discussion is whether it increases and diminishes in correlation with the patient's clinical condition. I have affirmed that there is such correlation. If anyone desires proof of this, he has only to watch the effect which is produced on the clinical condition and the opsonic power of a tuberculous patient by an excessive dose of tuberculin or an excessive auto-inoculation. Or if he wants to see that a rise in the opsonic index is correlated with an improvement in the patient's condition, he has only to take a tuberculous patient who has a chronically low index and watch the improvement that goes hand in hand with an improvement in the index. Or if he wants to watch the way in which the clinical condition varies with the opsonic index, he has only, in a tuberculous person, to inoculate somewhat smaller doses than are required, and he will see the patient's condition improve and his opsonic index increase for a few days after inoculation, and then regularly fall away again before the next inoculation is undertaken. I have hitherto always emphasised this generalisation and said little about the exceptions, *first*, because in every new scientific departure our business is with the rule and not with the exception; and, *secondly*, because when it has once been stated that a measurement of the opsonic power of the blood is confessedly and in intention a partial evaluation of the antibacterial defences of the body, that statement inevitably brings it home to the thoughtful that there cannot then by any possibility be a perfect correlation between the opsonic power and the clinical condition.

I leave the matter there for your consideration. I would, however, point out to you that the difficult thing in this intricate web of things in which we are entangled is to possess ourselves of the broad generalisations. It is no difficult task to alight upon an exception to a generalisation which confessedly gives only the general rule. The man who, meeting an exception which might have been foreseen, straightway throws up the sponge is like the man "who encountered a corpse and retreated to bed, announcing that

[2] Ibid., pp. 331-53. [3] Ibid., p. 334.

all life was contradicted." I suppose that not even the correlation that exists between the readings of the clinical thermometer and the condition of a patient is to be accounted a perfect correlation.

(iii.) *Question as to whether the Measurement of the Opsonic Index can be Dispensed with, and whether there is any other Guide which can take its Place.*

I have already elsewhere [4]—weighing my words very carefully as I did so—said practically everything I have to say on the question of the importance of controlling the dosage by measurements of the opsonic index. I pointed out there that in a large class of cases it is impossible within the short interval which normally elapses between one inoculation and another to tell by any clinical observation whether the preceding dose of vaccine has elicited a satisfactory immunising response. We have in chronic tubercular infections typical examples of this class of case, and there are also many obstinate cases of infection by other micro-organisms—cases of empyema, sinusitis, middle-ear disease, urinary infections, streptococcal infections of bone, &c.—where a definite clinical improvement can be hoped for only after a consecutive series of effective inoculations. In all these cases we have either to work entirely without a guide or to rely upon the opsonic index as our guide. I have also emphasised that even where we have more or less definite clinical symptoms to guide us at the outset there will, if the patient improves, inevitably come a time where the clinical symptoms will fail us as a guide, but where the inoculations ought to be continued for the purpose of extinguishing the infection. Here, again, the opsonic index is our only possible guide. And we cannot dispense with it if we are to diagnose our obscure cases, to take accurate stock of the progress of our cases, and to satisfy ourselves that we have extinguished the infection and that we may suspend our inoculations.

If any of these statements are controvertible, it would be well that they should now be controverted. For, up to the present, what I have urged in favour of the importance of controlling dosage by the opsonic index has been met only by insistence that the correlation between the opsonic index and the clinical condition is not a perfect one—if this were a reason for dispensing with the opsonic index, it would also be a reason to dispense with the thermometer—and by the iteration of the formula that the clinical signs give to the clinician sufficient guide in the regulation of his doses. When I find a speaker obsessed with this formula; when I find him ignoring the fact that there are cases where no guidance can be obtained from the clinical symptoms; when I find that he refuses to face the problem as to how in such cases the dose of vaccine is to be regulated; when I find him citing cases which he has inoculated with success under the guidance of definite clinical symptoms, and adducing these as proof that the opsonic index can be dispensed with in cases where guidance cannot be obtained from the symptoms, I ask myself whether I am not perhaps listening to "one of those sages whom a man should understand less as he heard him longer." While I have insisted, and continue to insist, that there are many cases where we are not doing the best for the patient if we are not controlling the effect of our inoculations by the opsonic index, I have from the very outset recognised that vaccine therapy can in many cases be carried out with success without its aid. I recognise that more fully every day, and I rejoice, with all those who understand what vaccine therapy may mean to the world, that it should be so.

Let me briefly describe to you what our practice is in connexion with the control of inoculation by the opsonic index in the case of the out-patients and in-patients in the Inoculation Department of St. Mary's Hospital. In an ordinary case of localised streptococcus or staphylococcus infection we practically never have recourse to the opsonic index. In connexion with these infections we know the appropriate doses of vaccine, and the clinical symptoms furnish any further guide that may be required. The same holds true of acne. It holds true again of croupous pneumonia. Where we have to deal with a case of staphylococcus infection, such as sycosis, which has obtained a firm hold upon the patient and which offers considerable resistance to the treatment, and which we can only hope to overcome by a succession of effective inoculations, it is often necessary to regulate the dose by means of estimations of the opsonic index. The same holds true of the very chronic streptococcus infections which are associated with tubercular disease of bone. It holds true again of the chronic coliform infections.

In the cases of tubercular infection we make a distinction. We make it a practice in every case of phthisis to control the effects of the inoculations by the opsonic index, but employing, as we do in the case of phthisical out-patients, only doses which give no negative phases, we find it sufficient to determine by blood examination, undertaken on the day before the patient returns for inoculation, whether the dose has been adequate to keep the opsonic index up to the normal. In the case of phthisical patients who are treated in the wards more frequent examinations are undertaken. In the case of tubercular adenitis and other localised forms of tubercular infection we limit our opsonic examinations if satisfactory progress is being made. As a rule, we undertake these only where the question of increasing the dose presents itself. In cases which do not make such satisfactory progress the opsonic index is estimated much more frequently. In cases of septicæmia and in cases of advanced phthisis, and, in short, all cases where the condition of the patient is undergoing constant and rapid changes under the influence of continuous auto-inoculations, we find that the measurement of the opsonic index does not render any very valuable services.

In conclusion, I may mention, in connexion with the question as to whether the temperature in a pyrexic case can be taken as a guide to the opsonic index, that we have over and over again verified that, except in those unfortunately more or less rare cases where a pyrexic infection is being definitely got under by inoculation, we do not find any of that inverse correlation of temperature to the opsonic index which is illustrated in some of our published charts [5] and which Dr. Latham, generalising apparently from a very few cases, has alleged to constitute the general rule. The temperature cannot therefore be depended upon as a guide in immunization.

I pass on from the consideration of the limitations of vaccine therapy to its results.

II.

VALUE OF VACCINE THERAPY.

It would clearly be an impossible task to attempt here even a summary of the results of vaccine therapy. All that I would propose to do is to suggest for your consideration certain general canons of criticism which ought, I think, to be kept in view when we set ourselves to appraise the results of any therapeutic procedure. The question as to how we are to give our verdict upon the success or failure of vaccine therapy in the individual case ought obviously to take precedence over the question as to how, when we have passed our verdict upon the success or failure of vaccine therapy in a series of cases, we can bring these separate verdicts together into the form of a general verdict. Let me then begin with the former of these questions. Now I would put it to you that we have in connexion with vaccine therapy to consider two entirely different classes of cases.

We have, first, the simple and unambiguous case. This is the case where the treatment consists of a single inoculation of vaccine, and where the verdict takes into account only the results of that one inoculation. We may take as an example the case in which the vaccine therapist sets himself the task of aborting a stye on the eye or of arresting a streptococcus infection in a "poisoned wound." To abort the stye and to stop the streptococcus infection promptly is to succeed—for these things do not happen of themselves; to do less than this is to fail. The game consists here in the winning of one trick, and there cannot be two opinions as to whether that trick has been won or lost.

We come now to the more intricate case. This is the case where the treatment comprises a whole series of inoculations, and where what has to be adjudicated upon is the success or failure of the whole series of operations. Consideration shows that the conditions which here present themselves may be compared with a game which consists in winning not, as in the case last considered, a single trick, but a whole series of tricks. Among the problems which here present themselves there is again a simpler and a more difficult one.

Let us begin with the former. It is clear that if the

[4] Ibid., pp. 434-9.

[5] Ibid., pp. 404 and 407.

patient gets steadily worse under inoculation the case must be counted as a failure to vaccine therapy. And if the case gets steadily better and has ended in the extinction of the infection, it must be classed as a success to vaccine therapy, *if* it is conceded that the case offered no prospect of a spontaneous cure. If that is not conceded the case becomes, for those who have either a bias in favour of or a bias against vaccine therapy, a case for wrangling over. For the judicious and unbiased person it becomes a case which is to be set down as a more or less probable success for vaccine therapy. In other words, if the game is won it may be a matter of dispute whether it is the vaccine therapist who has won the tricks, and the dispassionate man will decide on the probabilities.

I pass to the really difficult cases. We have such a case where the vaccine therapist begins by winning a series of tricks and then begins to lose, and the game is broken off. We have again such a case where the vaccine therapist wins a series of tricks and it is assumed that this wins the game, and then the game is broken off, and then, after abandonment of treatment, there comes a relapse. And we have again such a case where the game is never definitely won, but where the vaccine therapist re-inoculates whenever the condition of the patient requires it, and each time temporarily ameliorates matters. In these cases the judgments that are passed are often absolutely reckless. It is here that the man who is blinded by a bias in favour of inoculation claims credit for winning the whole game when he has won only a very few tricks. It is here that the man who is blinded by a bias against inoculation contends that the game has been lost when only one trick or a very few tricks have been lost.

I will leave it to others to illustrate the effects of the bias in favour of inoculation. I think the following verdicts will illustrate the effects of the bias against inoculation. They relate to cases which were treated by me, which then passed out of my hands into the hands of others, furnishing to them material for controversial uses. The first was a case of tubercular epididymitis. An eminent surgeon had arranged to operate in this case, and the day had been fixed. On the advent of that day he, however, found that the disease had progressed so rapidly that the operation had to be abandoned. The patient was then referred to me for treatment by vaccine therapy. For a long time the patient made very satisfactory improvement under vaccine therapy. He then lost ground. If I remember aright, the epididymis began to break down. He then went back to the surgeon, and the operation for amputation of the testicle, which had before been abandoned, was undertaken. The case was then controversially cited as an example of the failure of vaccine therapy. I do not demur. I merely point out that this was a case where, in the language of my metaphor, I had won a series of tricks; I then began to lose, and the fact that I had failed to bring about a cure was the only fact which was taken into account. But if I appreciate the case aright, the success which attended vaccine therapy had made it possible to undertake the operation with a prospect of success. I ask myself what would be the verdict of the judicious upon such a case. Would *he* pronounce it a failure or a success?

The second case was that of a patient who had been suffering for several months from a chronic œdematous inflammation of the pharynx and soft palate, which had been treated unsuccessfully by an eminent laryngologist. I was asked to see the patient, and found that the cause of the trouble was a mixed pneumococcus and catarrhalis infection. A striking improvement manifested itself immediately after the inoculation of the first dose of vaccine. The patient was easier and the œdema and cyanosis of the affected parts had markedly diminished. A few days later, however, a small perforating ulcer made its appearance in the central line of the soft palate, and inoculation-treatment was discontinued. The case was published by the laryngologist who had been in charge of the case as a failure for vaccine therapy. Again, I ask myself what the verdict of the judicious would be. It would perhaps have been that one trick had been won by vaccine therapy, or perhaps—in view of the development of the ulcer—that one trick had been lost. But I think the decision would not have been that the game had been played to a finish and that vaccine therapy had proved a failure.

The third case was that of a patient with fairly advanced phthisis who was treated as an out-patient in the Inoculation Department of St. Mary's Hospital. Considering the fact that she was a frail little woman and had a very considerable distance to come for treatment, this patient had, we thought, made very fair progress under vaccine therapy; and she, of course, assured us that she had. Some time in the late autumn of last year she fell seriously ill, discontinued her attendance, and saw in consultation with her medical attendant an eminent physician. By his advice she was placed upon continuous inhalations of an antiseptic. A letter published by her medical attendant in one of the medical journals early in this year recounts the brilliant success of this method and the failure of vaccine therapy. Only two or three days ago that patient was admitted to St. Mary's suffering from pneumothorax and in a very serious condition. I do not know what the commentary of the judicious would be upon this. He might, of course, decide that the case was a success for vaccine therapy, and a success also for the method of the continual inhalation of antiseptics. Or he might decide that it was a failure for both methods. But I think he would not decide that it was a failure for vaccine therapy and a success for the method of the continuous inhalation of antiseptics. I think he would remind the letter-writer that "with what measure you mete it shall be measured to you again."

I have suggested all these difficulties to you. I confess I do not see my way out of them, unless perhaps we could content ourselves, in cases like those which have been cited above, to abstain from pronouncing a verdict on the summarised result of the whole. In such cases we might, it seems to me, content ourselves with giving a verdict on each successive movement in the game.

If I have succeeded in making you see eye to eye with me in this matter, if I have succeeded in making clear to you how in many cases almost insurmountable difficulties stand in the way of a final decision on the results obtained in the individual case, it will not be necessary for me to emphasise the fact that it must be hopeless to attempt to summarise our verdicts on vaccine therapy in any statistical form. I have, in conclusion, only one or two passing remarks to make in connexion with the question of the mode of administration of the vaccine.

III.

Mode of Administration of the Vaccine.

Probably to those who are familiar with Dr. Arthur Latham's work the issue as to whether the administration of vaccine by the mouth is an improvement over the method of hypodermic inoculation will be the first issue to present itself for consideration. For all of us, however, who approach it from the standpoint of the laboratory, this issue was already *res judicata* before it was brought into prominence by Dr. Latham. I had satisfied myself long ago—and the results of my experiments are embodied in my "Short Treatise on Antityphoid Inoculation"—that, though typhoid vaccine may be absorbed by way of the intestinal canal, it is only badly and incompletely absorbed, and above all that its action is uncertain. My friend and successor at the Royal Army Medical College, Sir W. B. Leishman, has carried out far more extensive and more careful experiments in connexion with the same question, and has arrived at the same result. He finds that inoculation by way of the alimentary canal is an extremely uncertain process. I do not think it is necessary to go any further than that, for science never sanctions a more complicated and more uncertain method being employed where a simple and certain one, such as subcutaneous inoculation, is available. And I would submit that the idea that a *via media* can be found between the antique system of prescriptions, with doses taken three times a day, before or after meals, and scientific applications of bacteriology, and the idea that that *via media* can be found in the administration of vaccines by the mouth, ought steadily to be put away from us. The new wine of bacterial vaccines cannot with impunity be poured into the old bottles of ancient medicine.

There is, in conclusion, just one other issue which I should like to put before you for consideration. The problem has been before my mind for a long time, and I understand that it has also suggested itself to others. Let me introduce it to you by recalling to your mind the mental picture which I dwelt upon at the outset of this discourse. You will remember that I suggested to you that the rationale of vaccine therapy was to be found in the exploitation of the unexercised immunising capacities of the uninfected tissues.

In other words, I suggested that the antibacterial substances which are elaborated in the organism in response to inoculation are elaborated by the tissues into which the vaccine is introduced. Now inasmuch as we may make our inoculation into any part of the subcutaneous tissue, it would, upon the theory that antibacterial substances are produced at the site of inoculation, seem to follow that we ought, by inoculating in a series of different places, to get a summation effect. The idea that such a thing might be opens up whole vistas of therapeutic possibilities. But at present the achievement of a summation effect from a series of simultaneous inoculations undertaken in different parts of the body belongs, like the achievement of a summation effect from a series of consecutive inoculations undertaken each after the previous one has evoked its immunising response, to the realm of unrealised possibilities. There lies before us here a wide and very difficult and unexplored field of work.

"Something lost behind the Ranges. Over yonder.
Go you there."

A CASE OF CHONDRO-CARCINOMA OF THE TESTIS.[1]

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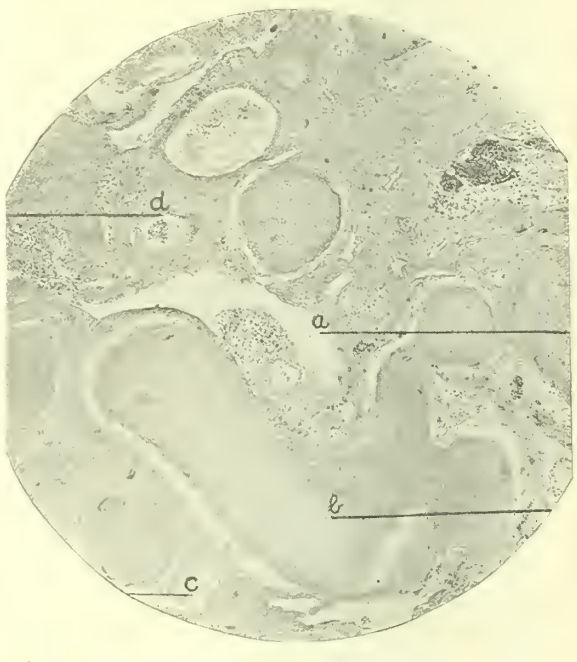
THIS case is published because it seems to be rare and interesting from both clinical and pathological standpoints. The growth of the testis belongs to the class "embryoma," 23 cases of which are described, mainly from the pathological aspect, by Nicholson in the Guy's Hospital Reports.[2] Particular attention is called to the microscopic examination of the metastatic growth, possible in only one of Nicholson's cases—viz., his Case 60—the well-known case of Sir James Paget, re-examined by Kanthack and Strangeways. The value of the "creatinin and creatin excretion" in helping to determine the possibility or otherwise of successful operation should also be noted.

Clinical account of the case (W. S.).—The patient was a man, aged 30 years, with a strong tuberculous family history, three sisters and one brother dying from phthisis between the ages of 19 and 30. The patient was struck by a hockey stick on the left testis in February, 1908. He had pain, stopped playing for two minutes, then finished the game. Swelling of the testis appeared at once and gradually grew larger, and he wore a suspensory bandage; he had no pain and did not lose flesh. On Feb. 5th, 1909, he consulted Dr. Bloxham of Cardiff, who brought him to Mr. Sheen on Feb. 12th. He was well nourished and in good general health. The left scrotum contained a smooth, ovoidal mass, roughly as big as the adult fist, hard, uniform, elastic, not tender, not translucent, veins not dilated, testicular sensation retained at the upper and front part of the swelling, and no thickening of the cord. Rectal examination showed nothing abnormal. The patient was placed in a nursing home and on Feb. 16th the testicle and cord were removed through an inguinal incision, the inguinal canal being opened to its outer end. The cord was apparently normal. The patient left in 14 days with the wound soundly healed. Mr. Sheen next saw the patient on June 3rd. After leaving the nursing home he had gained from 11 to 12 pounds in weight, but latterly his weight had been stationary. He had noticed an abdominal swelling for a fortnight. There was a large abdominal tumour, hard, elastic, smooth, prominent, slightly tender, reaching from the umbilicus to the symphysis, and from the left anterior superior spine to three inches to the right of the middle line. Slight frequency of micturition was present. There was a slight yellow tinge on the cheeks. The patient was told of the gravity of the condition and another surgical opinion was suggested. He saw Mr. Stanley Boyd in London, and Mr. Boyd has kindly stated that he made a small abdominal incision and found a little bloody fluid, a greenish tumour, and omentum studded with nodules of growth. The patient, returning to his relatives, was afterwards under the care of Mr. R. E. W. Brewer of Newport, Mon. He was tapped twice for ascites. He died on August 20th. There was no necropsy.

Description of the tumour (H. A. S.).—Its macroscopic appearance shows an irregularly nodular oval-shaped tumour weighing 450 grammes. Dimensions 12 cm. by 8 cm. by 7 cm. The tunica vaginalis testis, which is intact, is thickened and its surface covered by many ramifying dilated veins. The membrane with the vessels can be easily separated from the underlying tumour. The globus major and minor are atrophied and small. Attached to the mass is a portion of the spermatic cord about 7 cm. in length, the structures of which appear natural. The testis is



Microphotograph of the primary growth of the testis. *a*, Cystic space. *b*, Mass of young cartilage. *c*, Epithelial nest-cell. *d*, Spheroidal cells of carcinomatous type.

replaced by a uniformly hard growth of a greyish-white colour. Scattered throughout its substance are many minute glistening particles of cartilage, small cysts containing clear fluid, and small hæmorrhagic foci. There is no evidence of calcification, bone formation, or hair.

Sections were cut from the cortex and the deeper parts of the tumour, from the globus major and minor, and from the spermatic cord. A portion of the secondary growth in the abdomen was secured by Mr. Boyd, who has very kindly supplied a microscopic section which is described below.

The histological findings are briefly as follows:—A connective tissue stroma of varying characters. A large number (*a*) of hollow, cystic spaces and tubules lined by epithelial cells which differ in type, some columnar, others cubical or flattened; (*b*) masses of young cartilage which is richly cellular; (*c*) numbers of epithelial cell nests; and (*d*) masses of spheroidal cells of a carcinomatous type, which show some attempt at alveolation and which are supported by a loosely woven connective tissue stroma. The structure of the growth in the abdomen is similar to that of the primary growth. It is to be noted, however, that the connective-tissue stroma is much more delicate and cellular, and is in places of a myxomatous type. There are, further, no epithelial cell nests. The same branched tubular and cystic spaces with different types of epithelial lining and the same masses of carcinomatous cells mentioned above are easily recognised, as is also the formation of cartilage. The globus major and minor do not show any evidence of infiltration. Their tubules are degenerated and filled with débris, and there is a considerable increase in the fibrous connective tissue of the surrounding parts. The spermatic cord does not show any

[1] A paper read before the Cardiff Medical Society, Feb. 8th, 1910.
[2] G. W. Nicholson: New Growths of the Testicle, Guy's Hospital Reports, vol. lxi., 1907, p. 249.

evidence of cartilaginous infiltration; nor do its blood-vessels, lymphatics, or duct betray any sign of cancerous infection.

Following the descriptions of new growths of the testis as given by Nicholson,[3] the tumour may be classed as an embryoma in which the hypoblastic layer has undergone a malignant change giving a spheroidal-celled carcinoma.

Analysis of the urine (R.L.M.W.).—The recent work on the significance of the excretion of creatin in malignant disease, particularly of the liver, whether primary or secondary, led to inquiry into the matter in this case. For this purpose a 24 hours' sample was obtained on March 5th, 1909, three weeks after the operation. At this time a clinical examination of the patient showed no palpable metastatic deposits, and if the creatinin excretion was normal, such a result would have corroborated the opinion that there was no secondary growth of any size present in the abdomen or abdominal organs. The analysis of the urine gave the following results: Volume, 1200 cubic centimetres. Acidity 40·5 per cent. in terms of $\frac{N}{10}$ NaOH. Specific gravity, 1015. No sugar. No albumin. Preformed creatinin estimated by means of the method devised by Folin, 1·240 grammes. Creatin calculated as creatinin, 1·160 grammes for the total daily excretion.

The creatinin excretion in normal individuals varies between 1 and 2 grammes per diem, and is in general proportional to the body weight. The ratio of creatinin excreted per kilogramme of body weight, or in other words the "creatinin coefficient," varies between 18 and 30 milligrammes per kilogramme. The creatinin value in this case is low considering the body weight of the patient—viz., about 67 kilogrammes—the coefficient being 18·7 milligrammes. Now, creatin is entirely absent from normal urine, and since it is not excreted as a result of its ingestion it is clearly derived from some pathological changes taking place in the organism. Mellanby has clearly demonstrated[4] that creatinin is directly related to the creatin contained in muscle and other tissues, and that the latter is converted into creatinin in the liver. In hepatic disease he finds the creatinin excretion is lowered. There seems, however, to be a very marked difference between the excretion of creatinin and creatin in cirrhosis of the liver and carcinoma of the liver respectively. In cirrhosis of the liver the creatinin content of the urine is low and creatin is almost entirely absent. On the other hand, in carcinoma of the liver the creatin excretion is high, and in this case reaches a total of 1·160 grammes for the 24 hours.

These results have been confirmed by Hoogenhuyze and Verploegh,[5] but in addition they find an increased excretion of creatinin in some cases. The various details and also tables of results will be found in the respective papers of the above-mentioned authors. The results obtained by one of us (R.L.M.W.) in an investigation of several cases of malignant disease tend to support the view put forward by Mellanby. The outcome of this work seems to establish the value of the changes in creatinin and creatin excretion as a means of diagnosis in malignant disease. In the present case the creatinin excretion being subnormal and the creatin excretion high, it was concluded that the chondro-carcinomatous growth was not confined to the testis and neighbouring structures but had invaded other regions and was probably of widespread distribution. This conclusion was later shown to be correct, although, unfortunately, the want of a necropsy prevented an investigation of the condition of the abdominal organs.

Conclusions.—The following brief conclusions are drawn from the present case, from an interesting case recorded by Caddy[6] and from Nicholson's paper. All primary new growths of the testis are comparatively rare. Carcinomata are commoner than sarcomata. Carcinoma proper and embryoma occur with about equal frequency. Chondro-carcinoma belongs to the embryoma class. Its usual characters are as follows: a tumour of the testis in a male adult, of average age 30, often following an injury, particularly a blow, sometimes with a considerable latent period between the blow and the rapid growth of the tumour. The tumour is often painless and only noticeable because of its size and weight. The general health is at first unaffected and may remain so even at the commencement of the formation of metastases. Metastasis is rapid and general, abdominal organs, and next in frequency lungs, being affected. The growth is often highly malignant. Microscopically, the growth originates in the testis and contains representatives of all the embryonic layers; commonly it is the hypoblastic portion which assumes malignant properties. Involvement of the liver by secondary growth is shown (as with other malignant growths) by the diminution of creatinin and the appearance of creatin in the urine. With such alteration the removal of the primary growth can be only palliative.

We have much pleasure in recording our indebtedness to Mr. Barton White, of the Cardiff Mental Hospital, Whitchurch, for the excellent microphotograph reproduced above.

Cardiff.

[3] Loc. cit.

[4] E. Mellanby: Journal of Physiology, vol. xxxvi., 1908, p. 447.

[5] Hoogenhuyze and Verploegh: Hoppe Seyler, Zeitschrift für Physiologische Chemie, vol. lvii., 1908, p. 161.

[6] Arnold Caddy: Chondro-carcinoma of the Testicle, Annals of Surgery, 1899, vol. xxx., p. 210.

THE ENUCLEATION OF TONSILS WITH THE GUILLOTINE.

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THE importance and advantages of the total removal of diseased tonsils are partially, but, we believe, not sufficiently recognised. As this operation is performed by most members of the profession both in surgical and general practice its results are often disappointing, owing to the recurrence of symptoms, so that one or even two further operations have to be performed before complete relief is gained. It is surprising that an incomplete operation such as tonsillotomy should have persisted so long, which does not fulfil the surgical canon "that the whole diseased focus should be removed." In order to carry out complete removal some form of enucleation is generally necessary, and this has usually been performed by means of dissecting forceps or other blunt instruments. The guillotine as generally used removes little more than the projecting portion of the tonsil, and in that large class of case where there is no projection beyond the faucial pillars the guillotine is considered inadequate or no operation is performed at all. In some cases the tonsil is completely enucleated with the guillotine, but this is the exception rather than the rule. By a special method of using the guillotine we are able in nearly 50 per cent. of all cases, including tonsils of all shapes and sizes, to enucleate the tonsil complete in its capsule in one piece. In other cases it is possible to remove the tonsil in two or more pieces even to the last fragment of capsule. The recurrence of symptoms after tonsillotomy is somewhat discreditable to the method. Serious discomfort, inconvenience, and illness during an important period of life—namely, that of adolescence—are only too frequent in those who have had their tonsils removed previously, commonly more than once. In these cases the septic focus remains, and is able continuously to exert its harmful effect.

There are some anatomical points in connexion with the tonsil of importance from a surgical point of view. The tonsil represents a lymphatic gland, with numerous lacunæ which extend through its substance as far as the capsule. Its two surfaces, faucial and cervical, have important relations. The faucial, which is seen on looking into the throat, may project for some distance towards the middle line, and is studded with the orifices of the lacunæ; this is their narrowest part, so that there is no readiness of discharge should the lacunæ become filled with pus or caseous material. The cervical surface embedded in the wall of the pharynx is covered by a distinct capsule which is connected to the pharyngeal aponeurosis by loose areolar tissue, so that the tonsil can be freely moved over this surface. Its firm attachments are those where its mucous membrane joins that of the pillars of the fauces, and this is the only part which requires division in the operation of enucleation. The upper pole of the tonsil is usually

rounded and free, while the lower extremity tapers and is frequently connected with the lymphoid tissue at the base of the tongue. The main blood-vessels in the neck are situated at some distance from the tonsil and in enucleation the organ is pushed still further away. In size the tonsil varies considerably. Some of the specimens the photographs of which are reproduced measure 1¼ inches in their vertical direction; others the smallest, may be only between one-half and three-quarters of an inch long. These we have called the large and small size respectively in the following description; others occupying an intermediate position we call the moderate in size. The tonsils are frequently infected—the anatomical condition of the lacunæ makes these readily retain any infected material. Most pathogenic organisms have been found in the lacunæ, and we have taken swabs of the specimens for some time and have demonstrated most of the commoner organisms. Pus or caseous masses may be seen protruding from the orifices of the lacunæ in many cases. The tonsils may be enlarged, and in association with adenoids cause the characteristic symptoms. In a fair proportion of cases the tonsil is not enlarged, though considerably diseased, and undoubtedly the source of trouble, and the doctrine of septicity, not size, is a most important one. Fig. 1 shows that with a large

FIG. 1.

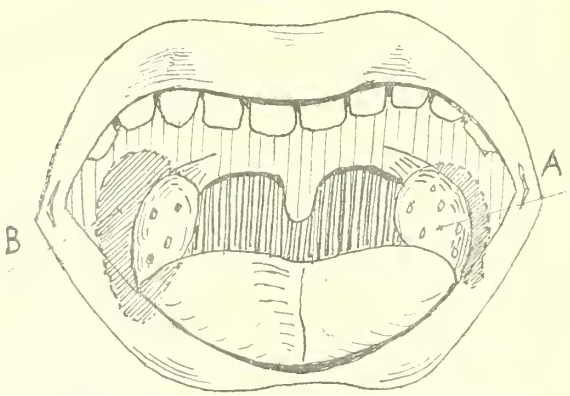


Diagram to illustrate situation of tonsil. A, surface projecting beyond anterior pillar. B, part embedded in pharyngeal wall (shaded area).

or medium-size tonsil where there is considerable projection towards the fauces and which appears large there is still in many cases a larger part embedded. In others where no projection exists or there is seen only a small slit between the faucial pillars there may be a considerable mass embedded in the pharyngeal wall and these are frequently the most septic cases. (Fig. 2) In a large proportion these

FIG. 2.

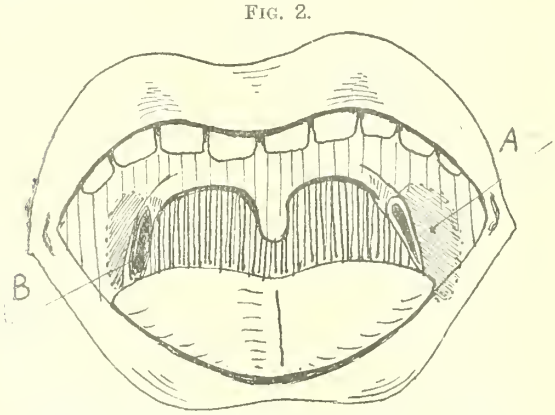
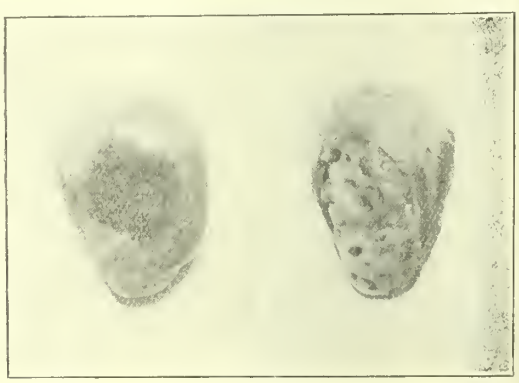


Diagram to show situation of small tonsils in a mere slit, B, between faucial pillars. The large mass of tonsil, shaded area A, is embedded. The tonsils do not appear enlarged, but are often grossly septic.

cases are passed over as not having enlarged tonsils. The necessity for total removal is abundantly proved by an examination of enucleated specimens. We have mounted a number in which under the capsule numerous yellow areas exist. These are caseous plugs filling the lacunæ and extending down to the capsule and which later may readily give rise to suppuration. This represents a natural injection of the lacunæ and demonstrates their extent better than those in which we have made artificial injections, and gives a ready explanation of peritonsillar abscess. After tonsillotomy the open mouths of the lacunæ are frequently seen occupied by yellow plugs, and in many cases it requires the faucial pillars to be separated before a small septic tonsil can be seen. These latter cases when acutely inflamed frequently bulge outwards, and we have found such a small tonsil containing half a drachm of pus, causing an extensive lymphadenitis of one side of the neck, and which appeared quite small from the faucial surface after removal of the whole pharynx at the post-mortem examination. After inflammation, the tonsil may become adherent to the pillars of the fauces, while infection passing through the bases of the lacunæ leads to adhesions between the capsule and the pharyngeal aponeurosis. The baneful effects of tonsillar infection are numerous and need only be mentioned; recurrent sore throats, due to attacks of tonsillitis, are quite common and persist so long as infective material remains. Infection through the bases of the lacunæ leads to a cellulitis of the tissue outside the capsule forming the peri-tonsillar abscess, which frequently recurs so long as the septic lacunæ remain. These with foul breath and bad tastes in the mouth are the commoner local disturbances. Tuberculosis of the cervical glands frequently owes its origin to infection through the tonsil; rheumatism, acute and chronic, to an infection by the streptococcus, while a small septic embedded tonsil may be the cause of a general ill-health and is often the undiscovered focus of some distant infection.

The advantages of enucleation by means of the guillotine are as follows. The method is simple and is only a modification of the common method of using the instrument. In hospital practice, where a large number of cases require treatment, and especially so as a result of the medical inspection of school children, some rapid method is indispensable. The total time required to do ten cases is about 40 minutes. In some cases 14 have been operated on in 40 minutes, and in others 13 cases in 55 minutes, the patient being anæsthetised in the theatre on the operating table. The method allows of the operation to be performed under nitrous oxide gas, or in our practice under ethyl chloride. The tonsils may be satisfactorily removed under local cocaine anæsthesia. Something over 600 cases were operated on last year (1909) without mishap. This one method is applicable to tonsils of all shapes and sizes. The actual time taken to remove the tonsils is less than one minute on

FIG. 3.



A B

Two large tonsils enucleated entire. A, Shows unbroken capsule of the cervical surface. B, Shows faucial surface with the orifices of the lacunæ. Natural size.

the average. The whole operation is under direct vision. The pressure exerted by the guillotine and by the finger can be regulated to a nicety, and the amount varies considerably with different tonsils and is better than pressure below the angle of the jaw. For purpose of description we use the following classification of results:—

1. *Complete enucleation in one piece.*—This represents the whole tonsil complete with an unbroken capsule In about 50 per cent. of cases the tonsil can be pushed into the ring of

the guillotine and can be enucleated entirely with a complete capsule. (Fig. 3.)

2. *Complete removal, but with not quite all capsule.*—In these cases, owing to the thickened capsule and adhesions, the whole tonsil is removed, but a small hole may exist in the capsule.

FIG. 4.

Two pairs of small tonsils enucleated entire, arranged to show faucial and cervical surfaces. Two-thirds natural size.

3. *Complete enucleation, but in two or more pieces.*—In those cases where, owing to large size or adhesions, the tonsil does not readily engage in the ring of the guillotine, a portion of the tonsil is removed. A second application of the guillotine removes the remainder of the tonsil with its capsule. (Fig. 5.)

FIG. 5.

A B C

Two large tonsils removed from the same patient. A, Cervical surface of tonsil with complete capsule. B, Cut surface of the first part showing the open lacunæ. C, Outer surface of the second part showing the remainder of the capsule. When these two parts are placed together the tonsil is complete. Natural size.

In some cases where a separate portion of tonsil exists in the hyoid fossa, this is separately removed by the guillotine; such a hyoid tonsil is seen in Fig. 6, while flat tonsils are

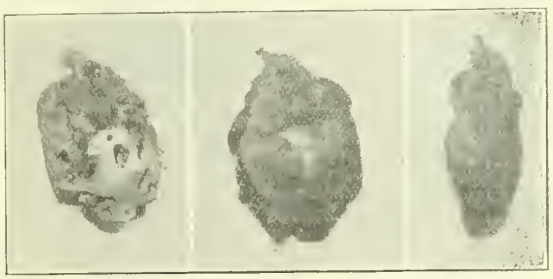
FIG. 6.

Hyoid tonsil, removed with the guillotine from the hyoid fossa. Natural size.

illustrated by Fig. 7, A, B, C. In some few cases removal has been incomplete, though even in these cases more tonsil is removed than by the usual method, and we are convinced that no other method of removal could give better results in the particular case, as in such cases the tonsil is so adherent to the surrounding tissues that not even the finger-nail or scoop will separate it.

Before operation the great essential is to make the mouth as clean as possible. In the waiting time before admission the patient visits the dentist, where the carious teeth are dealt with, and in children sufficiently old a gargle containing salicylic acid is prescribed. The patients are admitted the day before and remain in hospital two days after the operation. For operation the patient is placed in the dorsal position and a gag is inserted on the left side of the mouth. Ethyl chloride is administered, and when under its influence the patient is turned partly over on to the right side, the head lying on its right side on a level with or slightly above the trunk, so that the cheek pouch is on a lower level than the fauces and that blood may readily collect and run out of the mouth. The gag is then opened. The guillotine,

FIG. 7.



A B C

Flat tonsil enucleated. A, Faucial surface. B, Cervical surface with complete capsule. C, Lateral view. Natural size.

a Lennox Browne's modification of the McKenzie, with the shaft specially thickened, is first used as a tongue depressor and the lower tonsil seen. The operator stands facing the patient's head and on the right side. The guillotine being held in the right hand, the ring is passed under the lower border of the tonsil, which is pressed upwards towards the soft palate. The left index finger is then placed on the outer part of the anterior pillar of the fauces and presses the tonsil into the ring. At this time the blade is gradually pressed home with the thumb of the right hand. It enters between the tonsil and the anterior pillar, cutting the mucous membrane connecting the two. While cutting, the hand is gradually pronated, so that the under surface of the guillotine looks inwardly and finally upwards, the tonsils being separated from the pharyngeal wall during this manœuvre; the final cut severs the mucous membrane connecting it to the posterior pillar. The tonsil is then lifted out on the under surface of the guillotine, which is now uppermost. The right tonsil, that lowest down, is removed first. To remove the upper tonsil the patient is rolled back so that the head lies in the dorsal position. The patient is readily turned by a nurse who stands opposite the surgeon. The operator now passes to the side of the patient, the guillotine is again inserted, and the ring passed below and behind the tonsil which is pressed upwards towards the soft palate, the left index finger being again used to force the tonsil into the ring. The connexions are cut through as above described, the hand being meanwhile pronated and the tonsil removed on the under surface of the guillotine, which has become uppermost. Any hyoid projection can now be felt and if present removed. In less than half the cases the tonsil can be felt to slip into the ring, and in these instances it frequently comes out entire. In others it will not wholly engage, and one can say definitely that two or more attempts will be necessary to remove the whole tonsil. The above method requires some practice before it is possible to readily enucleate the tonsil. The hæmorrhage is sharp for the moment but soon stops, and we have had as yet no alarming hæmorrhage. We consider that no more blood is lost than after the other varieties of removal. Each tonsil is examined immediately after removal. If incomplete, the remainder, which can be readily felt by the finger inserted between the faucial pillars, is then removed. In the so-called recurrent cases and in those after numerous attacks of tonsillitis the organ does not so often come out whole. It usually comes as a surprise to many, however, to see the large amount of tonsillar tissue removed even after one or two previous tonsillotomies. A similar surprise occurs when a tonsil of large size is enucleated where from a mere inspection of the throat no tonsil was visible. By the pressure of the finger and the use of the guillotine by the above method, the last particle

of tonsillar tissue can be removed. The operation gives the most satisfactory results; we have examined a number of cases at varying periods after the operation and after removal of the tonsil in one or more pieces. The raw surface left rapidly granulates up and is assisted in closing by the approximation of the anterior and posterior pillars. There has been no selection of cases.

FIG. 8.

Two tonsils removed three weeks after previous operation of tonsillotomy. Total removal by the guillotine.

FIG. 9.

Pair of medium-size tonsils, enucleated entire. Lateral view to show projection of tonsillar tissue from the capsule. Natural size.

We append an analysis of 150 cases which were operated on during the past three months.

150 Cases; 298 Tonsils Present in Collection.

Large.—1. Enucleated complete in capsule, 45, or 36 per cent. 2. Not quite complete capsule, 25, or 20 per cent. 3. Enucleated in two pieces, 42, or 35 per cent. 4. Removed in three pieces, 6. 5. Removed in four pieces, 1. 6. Removed in five pieces, 1. Total, 120.

Medium.—1. Enucleated complete in capsule, 55, or 44 per cent. 2. Not quite complete capsule, 36, or 23 per cent. 3. Enucleated in two pieces, 29, or 23 per cent. 4. Removed in three pieces, 1. Total, 121.

Small.—1. Enucleated complete in capsule, 27, or 50 per cent. 2. Not quite complete capsule, 20, or 27 per cent. 3. Enucleated in two pieces, 8, or 14 per cent. Total, 55.

Complete enucleation.—Large, 45; medium, 55; and small, 27. Total, 127, or 42·3 per cent.

Complete removal but not quite all capsule.—Large, 42; medium, 36; and small, 20. Total 81, or 27 per cent.

Enucleation in two pieces.—Large, 42; medium, 29; and small, 8. Total 79, or 26·3 per cent.

Incomplete. Three cases.

The above analysis of the cases operated on shows that in 42 per cent. the tonsils with their capsule were enucleated entirely. In the remaining cases the entire tonsils with capsule were removed in one or more pieces. In three cases only was the removal incomplete. We have exhibited specimens on several occasions at the meetings of the Newcastle-on-Tyne Clinical Society, Northumberland and Durham Medical Society, and the North of England Branch of the British Medical Association.

VERMINOUS APPENDICITIS.

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SURGEON TO THE CUMBERLAND INFIRMARY.

AMONGST the objects found in the appendix are things from the mineral, vegetable, and animal kingdoms; we have pins and shot, seeds and worms. The appendix may catch, keep, and play with anything small enough to enter the only door it possesses, but it frequently adds to the size of the object caught by a coating of fæcal matter and lime salts. Worms probably find, now and then, a secluded spot for breeding in an undisturbed manner in the appendix.

The case of threadworms in the appendix now recorded is by no means exceptional when the literature of what has been found in the appendix is looked up. I have only twice met with worms in the appendix in hospital or private practice, but it is very possible that in some instances sufficient care was not taken to minutely examine all the contents of an excised appendix.

The case in point occurred in a girl, aged 7 years, who was sent into the Cumberland Infirmary on Feb. 4th, 1910, by Dr. Charles W. Graham of Carlisle for operation on account of abdominal pain and distension, fever, vomiting, and tenderness in the appendix region. The appendix region was more tender, and persistently tender, than any other part of the abdomen, but the pain was diffused over the abdomen and the distension was suggestive of general peritoneal infection.

A few hours after admission the child was submitted to operation. The cæcum was found to be inflamed, but no lymph was present. The appendix, when brought to the surface, was swollen and redder than normal. I removed it, thinking to find a mucocele. The abdomen was closed. It was not until the appendix was slit up that a nest of actively moving threadworms was seen, some of which escaped. They were the oxyuris vermicularis. The child's cæcum was soft and velvety, and I felt sure after finding the parasites that there were worms in the cæcum also.

After the operation the usual remedies were given, and a careful search was maintained for a week or more, but no sign of a worm was visible in the motions, which were washed, strained, and examined with a lens. Films of blood taken showed a marked polymorphonuclear leucocytosis, but the eosinophile cells were not increased in number, being rather fewer than usual. The child left the hospital recovered on March 12th.

I have merely glanced at the clinical side of the case because there is no sign at present known peculiar to verminous appendicitis, and, even if there was, operation would be called for in much the same way as in any other appendicitis.

The part played by worms in the production of appendicitis is discussed by Howard A. Kelly,[1] who alludes to the perforation of the appendix by worms and their escape into the abdominal cavity, and it would seem probable that the threadworm is less likely to perforate than the lumbricus. Again, threadworms are more likely to be met with in the case of children as a cause of appendicitis, and if they formed a sort of colony or nest in the terminal portion of the appendix, as they did in the present example, it is not easy to see how they would escape, unless by causing ulceration of the mucous and other coats of the appendix.

That worms—i.e., the oxyuris—can cause considerable pain to a child, local tenderness, and even peritonitis, seems to be agreed upon by all who have written on the subject or who have recorded cases. Lockwood,[2] for example, gives a case where the appendix contained pus, fæcal matter, and threadworms.

Since operating upon the girl in hospital I have met with threadworms within concretions in the appendix of a male patient aged 30 years. In his case there were discomfort on pressure over the appendix and symptoms of colitis. On

[1] Appendicitis and other Diseases of the Vermiform Appendix, second edition, 1909.

[2] Appendicitis, second edition, 1906.

removal of the appendix hard concretions were felt and seen in the tube; the tube was slit up, showing the terminal portion of the mucosa swollen and congested, but not ulcerated. This was the bed occupied by the larger concretion. The concretion was of a bright yellow colour, was composed of semi-soft fæcal matter, and was of the size of a small lemon pip. When the concretion was cut into a thread-like object was seen at once and declared by Dr. A. I. Shepheard-Walwyn of Wetheral, near Carlisle, to be an oxyuris. Examination with a lens confirmed this.

The appendix removed was sent to a laboratory for report, and in a concretion sent with the slit-up tube two more worms (oxyuris vermicularis) were found, both being immature females. No ova were found in the concretion nor on the mucous surface of the appendix.

I mention this case especially because the discovery of threadworms within concretions in the appendix has been verified, first by Dr. Shepheard-Walwyn, and in the second place, in another concretion from the same case, by Mr. Richard Muir, assistant pathologist to the pathological department in the University of Edinburgh. It looks rather as if threadworms may have formed the centre upon which fæcal matter collected, a mode of action quite different from the first case, where the worms formed a nest without any fæcal matter whatever.

Worms in the appendix have been dealt with at length by Aimé Guinard,[3] and under "Parasites Filiformes" the oxyuris and trichocephalus are stated to have been met with frequently in the appendix in a greater number of cases than is noted in this country. Out of 200 cases of removal of the appendix Guinard found the trichocephalus in 15 and the oxyuris in 3 cases. There can be but little doubt that the oxyuris is occasionally overlooked, especially when it occurs mixed up with fæcal concretions, for it was only when the concretions were cut into that the worms were found in my second case. Guinard sums up by saying, "I am absolutely convinced that the parasites can play an important rôle in the pathology of appendicitis." With regard to the habitat of the oxyuris, Guinard states that it is in the ileum, and that the females fecundate and pass into the cæcum and appendix until the maturity of their eggs, and they then fix themselves into the rectum, where they excite "les démangeaisons anales bien connues."

It is not simply in children that the oxyuris is met with apart from appendicitis, but in the cases recorded now it will be seen that one occurred in a girl, aged 7 years, and the other in an adult of 30 years of age.

That a worm could enter the appendix is noted by Dr. James Milman Coley,[4] who stated of the ascaris lumbricoides or common round worm that "their migrations sometimes extend to the biliary or pancreatic ducts or the vermiform appendage of the cæcum." No mention is made of the entry of threadworms.

In Kelly's "Appendicitis and Other Diseases of the Vermiform Appendix,"[5] the author states that it has been long known that enterozoa are not uncommon occupants of the appendix, and in numerous cases they have escaped through a perforation into the abdominal cavity. Perforation is denied by Dupallier,[6] but they can act as foreign bodies and determine an ulcerative appendicitis. Kelly remarks that the oxyuris is sometimes found in the normal appendix in large numbers, and may cause attacks of severe spasmodic pain. Aschoff[7] of Freiburg has come into touch in the course of examinations with cases of trichocephalus (2) and oxyuris (2).

It will be seen that the occurrence of parasites in the appendix is probably world-wide, and may in reality be more frequent than it is considered to be if the concretions removed from the appendix were always examined with minute care. In the appendices examined by Aschoff were found the common objects so frequently met with in this country—viz., bristle, hard seeds, sand, and lead, as well as the worms already spoken of.

About eight years ago the occurrence of threadworms in the appendix was the subject of several contributions to THE LANCET, and surgeons who had met with cases recorded their experiences. Mr. J. Lionel Stretton[8] of Kidderminster met with two threadworms, both females. Dr. G. F. Still[9] of London, in a letter drew attention to a case of a boy, aged 9 years, having 111 threadworms in a swollen and thickened appendix, and he seems to favour the view that threadworms may set up appendicitis. Professor Begouin,[10] in the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux*, contributed a paper on threadworms and appendicitis, and related a case of a woman, aged 24 years, whose appendix contained 15 threadworms, with ulceration of the mucous membrane. Mr. J. Hutchinson, jun.,[11] found an appendix full of lively threadworms, but the occurrence was exceptional in his practice at the date his letter appeared. Von Motz,[12] in the *Écho Médical du Nord*, 1902, p. 217, stated that he had met with the oxyuris in the appendix, and considered that chronic appendicitis might be induced by the trichocephalus or the oxyuris.

With regard to the pathology of these cases, I do not think any doubt rested in the minds of those who were present at the operation in my first case (that of the girl aged 7 years) that the acute abdominal symptoms (temperature 103° F., vomiting, pain, distension) and the reddened and inflamed appendix were conditions due to the presence of the worms, but whether one or two worms would produce the same effect may be open to doubt.

In my second case there were no loose worms, because they were enclosed in concretions of somewhat soft fæcal matter, and the inflamed portions of the mucous coat of the appendix were due in all probability to the irritation of the concretions and not to the worms.

Carlisle.

[3] Nouveau Traité de Chirurgie Clinique et Opératoire, A. Le Dentu, Pierrie Delbet, xxiv., Affections Chirurgicales de l'Abdomen, 1910.
[4] Practical Treatise on the Diseases of Children, 1846, p. 229.
[5] Second edition, 1909.
[6] Thèse de Paris.
[7] Die Wurmfortsatz Entzündung, 1908, pp. 6-7.
[8] THE LANCET, Sept. 27th, 1902, p. 895.
[9] THE LANCET, July 12th, 1902, p. 125.
[10] THE LANCET, Sept. 8th, 1902, pp. 687-688.
[11] THE LANCET, Sept. 30th, 1902, p. 837.
[12] THE LANCET, Nov. 1st, 1902, p. 1211.

A NOTE ON THE TOXICOLOGY OF CARBON MONOXIDE.

BY W. JAMES WILSON, M.D. R.U.I., D.P.H.,
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As a consequence of the increase in the use for heating and illuminating purposes of mixtures of coal-gas and carburetted water-gas, the profession and public have become familiar with the toxic and often lethal effects of carbon monoxide. However, the two cases which I describe below seemed worthy of reporting on account of the circumstances which led to the formation and escape of the poisonous gas into the air of the rooms. In one the carbon monoxide was a product of imperfect combustion in a gas-stove which was unprovided with a flue, whilst in the other its escape was due to the fusion of a lead gas-pipe by a leaky electric wire.

CASE 1.—On Dec. 22nd, 1909, at 7.30 A.M., the bodies of a man and woman, aged 35 and 30 years respectively, were found in a small office in Belfast. The room, which measured 15 feet in length, 10 feet in width, and 10 feet in height, was unprovided with a fireplace, and had a tightly-fitting door and windows, which were found closed. The man was dead when admitted to the hospital, and the woman died a week later. A post-mortem examination of the body of the man revealed the usual appearances presented by carbon monoxide poisoning, and the blood was found to be saturated to the extent of 60 per cent. with this gas.

At the inquest the jury found in both cases that death was due to carbon monoxide poisoning, resulting from imperfect combustion of the gas in a gas-stove, and recommended that the gas authorities should not supply gas-stoves unless a proper flue for carrying away the fumes was also installed. The imperfect combustion resulted from the fact that owing to the clogging of the burners the stove had "struck back." The evidence showed that the deceased had probably been 10 hours in the office. It may seem remarkable that the victims did not discover that the stove was at fault, but I find it is no uncommon thing to see a gas-stove or grate in use in this condition, the owner being unaware that it is not burning properly.

The results of a few experiments I made with regard to the production of carbon monoxide in gas-stoves are as follows. An examination of a gas fire (i.e., a fireplace

containing pieces of asbestos heated to redness by a row of Bunsen burners) showed that the amount of carbon monoxide given off into the air over the fireplace was inappreciable when the burners were properly lighted. When the burners "struck back" traces of carbon monoxide were given off. In one experiment 0·013 per cent. of carbon monoxide was found to be present in the air over the fire. When an ordinary Bunsen burner "strikes back" I find that the air escaping from the top of the burner may contain as much as 0·2 per cent. of carbon monoxide, and Haldane has shown that an atmosphere containing this amount of the gas is incapable of supporting life. The gas-stove associated with the unfortunate occurrence contained nine burners, the flames of which impinged on three perforated iron plates, and it is possible that these plates when red-hot contributed to the production of carbon monoxide. There was an asbestos tile behind the burners, but there were no asbestos "bricks" in the stove. I have an impression that when the products of combustion have to pass through incandescent pieces of asbestos more complete oxidation of them occurs. It is interesting to note that the man was found dead near the door, as if he had made an effort to escape and that this effort had accelerated his death, whilst the woman, although lying close to the stove, was still alive. Exercise is known to accentuate the poisonous symptoms even when non-lethal doses of carbon monoxide are inhaled.

CASE 2.—This was the case of a man, about 50 years of age, who was found dead in a bedroom on Jan. 7th, 1910.[1] Death was due to gas poisoning and the blood was saturated with carbon monoxide to the extent of 76 per cent. It appeared from the evidence that the deceased man was in the habit of going to his bedroom for a nap in the afternoon, and that on the occasion in question he had been poisoned by the escape of gas from a ⅜-inch gas-pipe which had fused owing to being in contact with a leaky electric wire. A ½-inch gas-pipe and an electric wire had been properly laid parallel to each other and about a foot apart underneath the floor of the bedroom. From the side of the ½-inch gas-pipe a ⅜-inch pipe came off at right angles, and in its path crossed the electric wire. At the point of contact fusion of the gas-pipe had occurred. A leakage of electricity had evidently generated sufficient heat to melt the gas-pipe and ignite the gas, which had burned long enough to scorch the surrounding boards, but as the space was very confined there was insufficient air to support combustion, so that the gas flame had become extinguished, and then the gas escaped into the apartment above.

The deceased had not been exposed for longer than two and a half hours to the effects of the gas. There was a fireplace in the room and the window was partly open at the time. Knowing the area of the room and the rate of escape of the gas, &c., I made a calculation to determine whether a poisonous atmosphere would have resulted if ordinary coal-gas had been in the pipe, and came to the conclusion that in that case death would probably not have occurred.

Haldane has shown that with coal-gas it is almost impossible to produce a poisonous atmosphere in a room by simply leaving the gas turned on during the night, whereas with water-gas a poisonous atmosphere is easily produced even in very large rooms. In conjunction with Mr. Harold Totton, B.Sc., I made an analysis of the Belfast gas-supply at this time and found that it contained on an average 20 per cent. of carbon monoxide. Ordinary coal-gas contains from 6 to 8 per cent. of carbon monoxide and carburetted water-gas from 30 to 32 per cent., so that the Belfast supply contained a mixture of about equal parts of these gases.

Haldane has also shown that deaths from carbon monoxide are enormously more frequent in cities using coal-gas mixed with carburetted water-gas than in cities in which coal-gas only is consumed. From statistical data he concluded that the number of accidents referable to the use of mixed gas would appear to increase approximately as the cube of the gain in percentage of carbonic oxide. Thus, if the percentage of carbonic oxide were increased from 6 to 12 the chance of being poisoned was not twice or even four times, but eight times as great as before the increase, and if the carbon monoxide became three times as abundant as heretofore the chances of being poisoned became increased no less than 27-fold. Carburetted water-gas began to be introduced into the Belfast supply in 1892. A return obtained from the coroner's office at Belfast showed the number of deaths from gas poisoning during the years 1889 to 1891 and 1907 to 1909 was as follows: 1889 *nil*, 1890 *nil*, 1891 one, 1907 two, 1908 five, and 1909 seven. Of course, there has been a great increase in population and in the use of gas since 1889, still a very large proportion of the deaths must undoubtedly be attributed to the increased amount of carbon monoxide in the gas-supply. Only one of the above deaths was due to suicide; all the others were occasioned by misadventure or accident.

McWeeney has shown that from the year 1880 to 1900 no death in Dublin was tabulated by the Registrar-General as having resulted from coal-gas poisoning, that the supply of carburetted water-gas mixed with coal-gas commenced at the beginning of 1900, and that during the four succeeding years there had been in Dublin 10 cases of gas poisoning resulting in 7 deaths. None of these deaths were suicides.

In America, where carburetted water-gas has been in use since 1880, the number of deaths from gas poisoning is enormous. The records of New York are instructive. From 1867 to 1880 there were 16 cases of gas poisoning; from 1880 to 1892 the number was 202. During recent years the number has increased still further, many of them being cases of suicide; for instance, in 1906 there were 419 deaths in New York due to gas poisoning, and of these 250 were the result of accident and 169 of suicide.

The facts which I have mentioned show how urgently such measures as the following are needed to prevent this wastage of life: 1. A limit should be put by Act of Parliament on the amount of carbon monoxide allowable in a gas-supply. The Departmental Committee recommended that the amount of carbon monoxide in the night supply should not exceed 12 per cent. 2. The inspection of gas-fittings and the prohibition of the use of gas-stoves unless provided with a flue. 3. Where the gas-supply of a town contains a large proportion of carburetted water-gas the householder should cut off completely the supply of gas to his bedrooms. The resulting inconvenience would be trifling compared with the risk which is otherwise incurred.

Bibliography.—J. S. Haldane: Appendix to the Report of the Departmental Committee appointed to Inquire into the Manufacture and Use of Water-gas, &c., 1899; also Journal of Physiology, vols. xviii., xx., xxii. E. J. McWeeney: Scientific Proceedings of the Royal Dublin Society, 1904.

Belfast.

[1] THE LANCET, Jan. 15th (p. 209) and 22nd, 1910 (p. 272).

THE VENTILATION OF SHIPS, PARTICULARLY MERCHANT SHIPS.[1]

BY FLEET-SURGEON W. E. HOME, R.N.

WHEN men begin to live together in society, I suppose their first reasoned step in hygiene concerns itself with the disposal of their excreta. Their earliest sanitary concern is to get safely rid of their solid and liquid dejecta. With these we have at sea no difficulty, but the gaseous excreta it is that are always giving us trouble in their removal.

Your houses ashore are severely limited in size, for reasons of economy, but ours even more. In the cost of ours must be reckoned, not only the capital expenditure, but the continuing expense of carrying them about on voyages. Each member of the crew adds for his accommodation two tons to the bulk of the ship; it will soon be three, and there are people asking for more. Thus it will be seen how difficult it is for owners to give more room to the men, and for us to get them satisfactory, that is, draughtless, ventilation into the very small spaces in which they live. While you, under protest, accept 300 cubic feet as the limit in a common lodging house, and require 600 in barracks, we at sea are jubilant because the Merchant Shipping Act of 1906 has enlarged the minimum cubic space for a merchant seaman, in ships laid down after 1906, to 120 cubic feet or 3 tons (albeit with deductions), a great advance on the 72 cubic feet formerly prescribed. Liverpool is trying to get 400 cubic feet per adult in houses let in lodgings. The emigrant who leaves Liverpool need only have 15 square feet of area on a deck 7 feet high, or 105 cubic feet, or perhaps, I think, 170 cubic feet on a lower deck less well lighted and

[1] A paper read at the Congress of the Royal Sanitary Institute at Brighton on July 9th, 1910.

ventilated than usual. In men-of-war bluejackets seem to get 200 cubic feet pretty generally.[2]

The more nearly we can approach natural conditions the better, but natural conditions are far beyond us and impossible.

In England the general motion of the atmosphere is eight miles an hour (Whitelegge), so that through a cross-section the size of a man (Galton) 6 feet by 1½ feet, these will flow some 400,000 cubic feet of air every hour. The advantage to health of this open-air ventilation was noted by Parkes to be strikingly shown in the improvement wrought on the health of cavalry horses, whose food, water, exercise, and treatment in other respects were tolerably uniform. Previous to 1836 the annual mortality of French cavalry horses was 18 per cent. They then got larger stables and an increased ration of air. By 1846 the death-rate was 6·8 and in 1862–66 it was 2·75, while in the Italian war of 1859 he tells us that 10,000 horses stabled in open sheds had hardly any sickness even. Each horse sick is a loss to his owner; each horse dead has a capital value, more readily brought to account than in the case of a man, consequently the need for ventilation here was strongly felt. I was told by a merchant captain, holding a prominent position, that he had as a younger man been very successful in command of horse ships, that the captain got a bonus on each horse landed, and that horse ships were the best ventilated of all—not improbable when the benefit of sanitation blessed both ship-master and ship-owner. It is difficult to convince people of improvements that do not write themselves down so in their bank books.

When we are in the open air we much enjoy our 400,000 cubic feet per hour, but we cannot live in this great flow, in fact, we build houses to keep it off us, so we must now inquire how much air we ought to have. A man's hourly output of carbonic acid is variously stated from 0·6 cubic foot (Whitelegge) to 0·8 cubic foot (Prausnitz, whose Austrian text-book is widely read in Germany). Professor J. S. Haldane states it at 0·6 cubic foot for a man at rest, 0·9 cubic foot generally, and 1·1 cubic feet during work; so I suppose we shall not be very far wrong if we take it at 0·8 cubic foot.

This quantity we must dilute with fresh air, but with how much fresh air? In England and America de Chaumont's old standard is still accepted. He found that if the carbonic acid in the air of barracks increased above 0·06 per cent., the air was "stuffy," had an unpleasant smell. Accordingly, he, and we follow him, considered 0·06 per cent. carbonic acid as the limit of respiratory impurity. The outer air already contains 0·04 per cent., so it can only take up 0·02 per cent. more—that is, 1000 cubic feet will take up 0·2 and 4000 cubic feet will be required to keep sufficiently diluted the 0·8 cubic foot of carbonic acid produced hourly by the average man. This same amount, 4000 cubic feet per hour, was also reached by Galton when calculating how much air a man required every hour to prevent the air about him becoming too damp, and by Dr. Shaw when deciding how much is required to keep down the temperature due to many people sitting and breathing together. So it has much sanction this 4000 feet of hourly ventilation supply to one man.

In Germany another standard is taken, 0·1 per cent. carbonic acid, Pettenkofer's original figure, the proportion submitted by Haldane and Osborn as sufficient for factories and workshops. If this be accepted, we see that each 1000 cubic feet of air can take up (0·1—0·04=) 0·06 per cent. of carbonic acid. That is to say, we shall now only want 1330 cubic feet of hourly supply. And from my experience I would say we shall do very well on a ship if we manage to get as much.

I have only spoken of carbonic acid percentages, for we measure the respiratory contamination by the easily estimated carbonic acid. The pure gas added, in the proportions of 0·06 (making 0·1 per cent.) to air, does no harm; at 2·5 per cent. it puts out a candle, but it must reach a proportion of 3 per cent. before, of itself, it causes unpleasantness, respiratory inconvenience to man. If the carbonic acid, however, be respiratory carbonic acid inconvenience and discomfort arise with far smaller percentages, particularly if they arise from the respiration of other persons. And it is not quite clear to what accompanying product the inconveniences are specially due. In any case it seems to increase uniformly with the carbonic acid. Flügge and his school urge that the chief physical inconvenience of overcrowding is interference with the agencies which naturally cool the body—the dryness, coolness, and movement of the air; that the air of overcrowded rooms is unduly stagnated, warmed, and humidified, so it has less cooling effect; that consequently there is a congestion or accumulation of heat in the organism, and that this it is causes the headache, giddiness, &c., of crowded rooms. Others believe these inconveniences due to the smells which people give off from the respiratory system, alimentary canal, skin, and clothing; in this case, the cleaner the people the less the need for so large an hourly supply, and Pettenkofer long ago pointed out how wasteful and unfair it was to expect ventilation to do the work of conservancy and ordinary cleanliness.

As bearing on these alternative theories, I must mention an interesting case of ventilation with unusually pure air, reported by Dr. W. H. B. Stoddart,[3] of Bethlem Hospital. We were all thinking a good deal about liquid air in 1902, and Dr. T. B. Hyslop suggested to Dr. Stoddart to use it instead of ether in his microtome. It gave great satisfaction and was the more valued as the laboratory was now found to be unusually well ventilated. Dr. Stoddart reports: "It is no exaggeration to say that after a morning's work in the laboratory I have felt as if I had been for a blow in the country." Unfortunately, a great rise in the price of liquid air has prevented further researches, amongst others some I had planned. Now what was it made the difference? Apparently only 66 gallons, 10 cubic feet of air, were used in a morning. No one can surely urge that it was the cooling effect of this 0·8 grain of air. I submit it is more likely that we shall find the explanation in what Dr. Stoddart says about the purification of the air as it is liquefied. At one stage impurities, being condensed, settle out, impurities "with a stench like a London fog," as he says. I submit it was the freedom of some of his laboratory air (but how little) from the "smells" or "the organic matter" the books mention in the air that accounts for the difference.

And now to go back to ventilation with ordinary air. We have agreed that in ships 1300 feet per head per hour are as much as there is any use asking for. How are we to get that? The first rule of ventilation must be emphasised: "Do good by stealth." As the Greek sage said, λαθε βιωσας, escape notice throughout your life, otherwise you will find yourself considered a nuisance. A ventilation current that attracts attention to itself ruins its own usefulness by its too great zeal, gets itself disliked, and is probably at once put out of existence. The exceptions occur in the tropics, where a current slightly cooler and with some drying power is greedily welcomed. There is obviously at every temperature a velocity and a cooler temperature of ventilating current that would be just tolerable, slower as the temperature was lower, and conversely. I suppose the limiting condition to be the amount of loss of heat they produce in the time. Dr. Nocht of Hamburg, in his very valuable book for doctors of ships, "Vorlesungen für Schiffsärzte," says that no velocity above six feet a second is endurable; it must be low. People often say that sailors do not like air, that it is no use giving them ventilators as they will only close them up. To talk like this argues a narrowness of view. It is not air men object to, but cold air, especially damp cold air with its higher specific heat, and consequently greater chilling effect; cold air they will certainly exclude if they can. To meet this difficulty, in the first place give them more inlets, break the current up into smaller sections of less velocity, and if you really want to do them well warm the incoming air. The misery of cold is infinitely more painful, more acute than that of gradual suffocation, which is rather a soporific.

The most ready means of ventilation at sea is perflation, popularly known as a blow through. Here we take advantage of the existing wind or of the draught produced by the onward course of the ship. The air is collected by cowls, which direct it through shafts. Also, it may be sent below through temporarily fitted canvas shoots called wind-sails, or in calm weather by wind-scoops, in the ports. This is a very satisfactory method when available, as it supplies most cheaply enormous volumes of air to flush out and dry up the

[2] Gatewood's Naval Hygiene for the United States Navy, Nocht for the German Navy.

[3] THE LANCET, May 17th, 1902, p. 1385.

decks below. Often it is unavailable, because there is no wind, often because with the air rain- or sea-water would be carried down.

The official ventilation of emigrant ships is by perflation. Each statute adult is allowed 2½ square inches of inlet and 2½ square inches of outlet ventilator. His 1300 cubic feet must pass through these with a velocity of 20·8 feet per second, cruelly too fast. The German emigrant regulations only requires 1 square inch in each per person. Nocht points out that in calm weather, with the ship going at the low speed of 10 knots only, that means a current of 16½ feet per second, too fast for comfort and only giving 400 cubic feet per hour. There is more wind against the west-bound ships, so they have better air-supply when they are carrying most passengers, i.e., across the Atlantic.

The wind then fails us, and we have to bring our air in for ourselves, and the methods we employ are classed as natural or artificial, as Dr. Shaw has well observed, in proportion as they cost nothing specially or as they require money or energy definitely expended upon them.

Air becomes lighter when heated, also when it takes up water. Hence it is that on a damp day we say we feel the air heavy, not because the air is heavier but because, being lighter, it buoys us up less and it takes us a trifle more exertion to stand up and support our own weight. We it is are heavier.

The weight of a cubic foot of dry and saturated air at 30 inches barometric pressure, and at various temperatures, is given in the following table from Galton :—

Weight of 1 cubic foot of Air. Bar. 30 inches.

Temp. Fahr.	Dry air.	Air saturated with moisture
32°	566·85 grs.	565·58 grs.
40°	557·77 ,,	556 03 ,,
50°	546·82 ,,	544·36 ,,
60°	536·23 ,,	532 84 ,,
80°	516·39 ,,	509·97 ,,

Persons living in a room heat its air by convection off their persons, and, by respiration, reduce its density further by heating it more and adding moisture, and increase its density by replacing its oxygen by carbonic acid.

A.—A cubic foot of air (bar. 30 inches), temperature 60° F. (wet bulb 55°=humidity 71 per cent.), before inspiration, weighs 533 grs.

B.—A cubic foot of air (bar. 30 inches), temperature 98° F. (wet bulb 88°=humidity 61 per cent.), before inspiration, weighs 492·8 grs.

C.—A cubic foot of air (bar. 30 inches), temperature 98° F. (wet bulb 98°=humidity 100 per cent.), expired, weighs 496·15 grs.

So if a man breathed in an atmosphere like the sample *A* his expired air, *C*, would rise away from him, being now 7 per cent. lighter, but if he breathed in an atmosphere like the sample *B* the expired air would tend to fall, as being now 0·8 per cent. heavier. Dr. Shaw has given careful attention to this question, and finds that the temperature at which the reversal takes place is in the neighbourhood of 81° F. In a paper read to the Epidemiological Section of the Royal Society of Medicine on "A Disease of Overcrowding in Ships,"[4] I tried to explain by this principle, stagnation about 81° F., the enormous prevalence of respiratory disease which occurred in a ship at that temperature.

Persons, like the other surfaces in a room, radiators, walls, windows, &c., alter the temperature of air in contact with them, setting up convection currents. These convection currents are most important, and Dr. Shaw has done great service by showing how often ventilation schemes have miscarried through neglect of this great law—every person or surface warmer than the air of the room causes an upward current, every surface colder than the air in contact with it causes a downward current.

In ships the run of the ventilation currents is very complicated, and so little understood that an acute friend of mine, a lawyer in very successful practice at the Bar, told me that as a result of a large experience in cases where compensation was claimed for damages to cargoes through insufficient ventilation, he had come to the conclusion that air travelled in a ship always in the direction contrary to that you would expect. The same idea appears in Romeril's book, "Sanitation in the Mercantile Marine," where he says it is well known among seamen that the smell of bilge water and offensive cargoes works to windward, and Dr. Nocht also mentions the old advice to ventilate a sailing ship by turning the cowls on the weather side to act as exhausts. He also recalls an experience of his own showing that the air-currents in the saloon of a steamship, most unreasonably, travelled from aft forward, though there was a good breeze from ahead. These all only mean that the factors influencing ventilation have been incompletely observed and appreciated. The results are surprising, but we do not believe that the natural laws act erratically, only that we do not take enough pains to trace out and allow for all the factors in the problem.

I was once told by a chief constructor that in designing the steering engine compartment of a second-class cruiser years ago he had arranged a large trunk at the forward end to supply fresh air, taking it in the course of the natural drift from forward aft, expecting that the uptake would be through a shaft further aft to a cowl on the poop he provided. But in fact the ventilation went the other way. The trunk forward was the uptake, and whenever the door into it from the space under the poop was opened, the officers' quarters were flooded with oily smell. Why? Well, he explained it that the trunk was at the fore end of the compartment, close to the warmer bulkhead next the engine-room, and that just under the trunk was the blazing hot steam-pipe to the steering engine, so the air thereabouts was greatly heated and insisted on rising at once through the trunk, compelling air to replace it to come down the after shaft. The principles of ventilation were being obeyed by the unconscious air, just as much on board ship as ashore, but in the planning of the complicated structure of a ship, too little consideration had been given to them.

Another example of apparently perverse ventilation may be quoted from my last ship at sea. To ventilate her mess deck in a head sea, with all hatches and sidelights forward shut, it proved best to take the air in aft and let it out forward. The head wind as it blew aft got caught against the after screen, and, and banked up there, much of it escaped down the hatches and streamed forward along the main deck. One such day, when the sea was lessening, the captain shipped a cowl, with its back to wind and sea, on the fore bitts right forward; this acted as an exhaust, relief of pressure occurred, and splendid ventilation of the mess deck and main deck was established, not as one would expect from forward aft, but from aft forward.

In all navies nowadays[5] ships are so divided up by bulkheads that natural ventilation and windsails are becoming things of the past. The ordinary forecastle of merchant ships, the place where the crew live, is by no means an easy place to ventilate. Forecastles are generally two in number, for the sailors to starboard, for the stokers to port. They are roughly wedge-shaped, each like a right-angled triangle, the side-lights in the hypothenuse, the door either in the base or in a little recess excavated at the base end of their perpendicular sides, between the two forecastles; this is preferable. They have been greatly improved in recent years; this improvement is to be traced through Dr. W. Collingridge's paper in THE LANCET of May 5th, 1894, p. 1111; Romeril's book on "Sanitation in the Mercantile Marine," 1898; and Dr. Wright's paper in the Journal of the Institute for 1904, p. 442. The evil-smelling forepeak is no longer entered through the crew's quarters; the paint store is cut off by an air-tight bulkhead, and its door is on the upper deck. The hawse pipes or cable pipes are often air-tight, more often than formerly; still the need for good ventilation remains clamant. Many a forecastle one has visited in which the atmosphere was more oppressive than one would expect to find in a bad back-to-back house. The men need only have 72 cubic feet each, and in this in harbour they are all eating, smoking, and sleeping. By-and-by, when these ships wear out, everyone will have 120 cubic feet. As to ventilators, they are small, perhaps only one, sometimes there are two, but always opening overhead, never carried down to the deck. There is also in cold weather the chimney of the stove, and there is the door, usually so close to the stove that the air-supply of this latter comes from the door and does not draw foul air out of the forecastle. Then

[4] THE LANCET, May 1st, 1909, p. 1233.

[5] For the American Navy see Gatewood's Naval Hygiene, for the German Navy see their Health Report for 1906-07.

there are the sidelights, generally of necessity closed at sea, and not opened in harbour because so small, the air coming in through them would do little good. It is difficult to find places for ventilators, space on the top-gallant forecastle overhead is very small. In one small ship I saw there was an 8-inch cowl for the seamen's mess-deck, right forward; there was none for the stokers, for where that would have come up, beside the steam capstan, a man had to stand to work the capstan engine. As the mate said when I suggested another ventilator: "There isn't much room up here when we have wires all over the place and are working in the dark." I would suggest a goose-neck ventilator right forward, 6 inches in diameter, continued down to within a foot of the deck for supply of air, and an uptake, also 6 inches, as far aft as possible, just to open through the roof for an uptake. With the stove lighted and the door and sidelights shut both would act as inlets. This latter ventilator might be replaced in some ships by an opening in or over the door. Ventilators are not much good if they have to be closed at sea; but there are water-excluding ventilators like Utley's, so widely used for cabins and holds; they are very reliable. I was told when taking passage in the *Campania* that they never give any trouble or got out of order; I have never chanced to see one in a forecastle.[6] They are expensive and they do increase weight but are helpful; and ventilation saves money. Dr. S. Barwise, in the *Journal of the Royal Sanitary Institute* for January, 1889, notes that a large mill at Blackburn had increased its output 2¼ per cent. since they had put in adequate ventilation, and the opinion of the owner was that the expenditure had been a wonderful investment. Also Carnelley found that £20 spent annually in mechanical ventilation for 1000 scholars gained £125 improvement in government grants; and you know what Parkes told us about horses, and what I heard about horse ships.

An Utley ventilating side-light is supposed to be equivalent to 15 square inches of ventilator in the deck; they must be good or there would not be 600 in the *Mauretania* and *Lusitania*, where it is so expedient to cut down weights. Besides, there are other water-excluding ventilators, as Sugg's.

If forecastles were kept clean they would need ventilation less, but the first step towards getting them cleaner would be, in my opinion, to give them more light by fitting larger side ports (that means probably heavier frames and stronger scantlings). Then take the bunks away from the side of the ship, where they obstruct the light and involve greater risk to the crew in some cases of collision. To put them against the inboard side would probably, however, mean enlarging the forecastle. In a German ship I have seen the bunks arranged like the teeth of a comb. After we have got larger side-lights and the bunks away from the ship's side, if we could get the exposed surfaces of iron covered with varnish and cork it would be well, or they might be cased in wood. Then if that wood were smoothly finished and painted white the men could see the dirt clearly, and in a year or two great improvements would be noted. The stone, brown, and grey paint I see do not force people to wash them, and give them little satisfaction when they do; whitewash I think positively degrading.

Crew accommodation is, I am glad to see, being put aft. The most commodious crew space I have seen was in a huge cargo boat in London, under the poop. The best crew space I remember was in quite a small Swedish timber-carrying steamer. It was aft, and under the upper deck. It was wood-lined all round and overhead, painted white enamel. The berths were, it is true, round the ship's side. They had larger cubic space, electric light, and, most marvellous of all, I must mention it though outside my present subject, a fixed washing basin with a four-gallon supply tank over it. It gave me an idea of comfort, that crew space, I have never felt before. This Swedish ship had also the best water-closet for the men I have seen, just as it might have been for passengers, and kept clean. Owing to position there could be no ventilators through the deck, and they would have been useless even if fittted, because under the deck cargo of wood the ventilators were in the panels. If the ship is to be wired for electric light the ventilation is quite simple: estimate for an extra lamp and replace it by a propeller fan, and put it at an opening in the bulkhead to extract the foul air as in a laundry. The usual employment of a table fan, to make an eddying of the air round the compartment, does little good to ventilation. The ventilation requirements of forecastles would be further reduced if wash places were separately installed, as contemplated by the Merchant Shipping Act of 1906; there would be less drying to be done by the air, and then if they only had good water-closets, merchant seamen would be no worse off, unnecessarily, than their brothers who are housed under the conditions generally prevailing ashore; their discomforts would then be only those essential to their employment.

The stokeholds of ships can be generally well ventilated everywhere if baffles are fitted to distribute the cool air through the whole space, for each 30 pounds of coal burnt in an hour brings down enough air for a man, but the bunkers where the coal-trimmers work are a problem. The engine-room is also a difficulty, for it has no through draught, and very hot "pockets" occur. I remember what seemed a tragic irony, an engineer in the merchant service getting heat stroke when attending to the refrigerating engine, which was in one of these backwaters. The principle is to exhaust from the hottest places by fans and shafts.

Various alterations of air occur in holds, best detailed by Nocht. We are all thinking of ferro-silicon, but that is a very special case I cannot touch. The risk to crews from offensive cargoes is nowadays much decreased, as bulkheads are iron and watertight. Nocht notices that there may be danger in entering newly-opened (and ill-filled I would add) holds, for certain cargoes of moist cellulose—e.g., rags, cotton, and paper—absorb the oxygen, and replace it with carbonic acid and perhaps marsh gas. This forms an explosive mixture with air when there is about 10 per cent. of it present. Maize and oats are apt to "heat," and coal sometimes spontaneously ignites, this latter event being usually heralded by a smell of ammonia. Ventilation is required to keep these processes in check and to keep the temperature down. This is managed sometimes by fans, and sometimes by shafts with cowls. I wonder why it is not sometimes done on the lines of the old experiment with a burning candle in a bottle with a long neck. If a diaphragm was slipped into the neck of the bottle ventilation was established, the up and down current no longer interfering with one another; if the diaphragm was removed the candle went out. If a temporary bulkhead or screen were fitted through the hold amidships, leaving a couple of feet clear below, air to get from one side to the other must pass all the way under that screen. A ship is hardly ever the same temperature both sides (action of sun and wind); if the two halves of the hold were separated the air on the sunny side rising would have to be replaced by cold air from the other, which must pass all through the cargo and the hold. At present I expect the change only occurs in that part of the hold upon the water line. It would be most useful in ships carrying grain in bulk or in bags. The hoped result would follow; I think so from Dr. Shaw's pregnant remark,[7] "Nature provides without difficulty a convection current wherever air is locally warmed." As the temperatures have little difference the currents would be slow, consequently the resistance would be small, and we might be able to make them come, to our advantage, from farther away.

Ventilation would also save money if applied to holds while they are being stowed. It follows from H Wolpert's observations (reported by Prausnitz) that a man who sweats as he works is doing less good work than if he were supplied with air, so much and so dry as to prevent the sweat from appearing. If air, then, in volume to prevent this sweating, were supplied to the holds they would be stowed more quickly, and the ships get away the sooner. An electrically-driven fan at the top of the hatch with a long and large discharge pipe is what is wanted, for with a pipe double the diameter the same power will send down four times the volume of air.

In the artificial ventilation, both of ships and houses, some people prefer the plenum, some the vacuum system, and the systems are sometimes (as happens with the sexes) pitted against one another as rivals. In fact, they show to much greater advantage when working together. If there is only one system, the pressure required to carry the air through

[6] Fleet-Surgeon (now Deputy Inspector-General) W. Tait mentions (Journal of Royal Institute of Public Health, 1905) that they were fitted in the new Royal yacht and there acted "most efficiently."

[7] Shaw: Air Currents and the Laws of Ventilation, 1907 p. 41.

the whole area must be raised twice as high above the normal as is necessary when the air has only to be forced halfway and to be sucked the other half; consequently the installation of power for the combined system is cheaper and the opening of doors and windows produces a merely local effect, whereas with a "single" system it may ruin the ventilation altogether if a window is opened in a tactless place. The Glover-Lyon appears to be an excellent example of the combined system; it emphasises the need for many apertures in order to prevent draught and the advantage of making large apertures. The trunks should be so arranged that they can be cleaned; the efficiency of ventilation may easily fall 20 per cent. through deposit of fluff on the sides. Besides, we all heard how streptococci fell out of the ventilators in that convalescent home at Broadstairs.[8] The trunks should also be as large as possible, for to double the supply costs nothing after the area of the shafts is doubled, the power will remain the same, but to get a double supply with the same shafts as before we must multiply the power by eight.

Extended accounts of the ventilation of the very largest passenger steamers have been given at intervals in the last three years by the Special Sanitary Commissioner of THE LANCET. The Cunard Company warm the *Mauretania* by hot air from thermotanks standing on the uppermost deck of all; these supply air to all parts of the ship, while the offices generally are exhausted by trunks leading to the funnel casings. The White Star warm all parts of the *Adriatic* by steam radiators, supply no fresh air, but extract the air from saloons, cabins, water-closets, and lavatories by fans. The ships of each company are plentifully supplied with Utley porthole ventilators.

The ventilating mechanisms are specially three: the thermotank, the sirocco fan, and the Utley ventilating sidelight.

The thermotanks, of which there are 65 in the *Mauretania* (situated, as I said, on the topmost deck), collect the purest air, warm it, and pass it through a fan at a temperature regulated nowadays automatically within 2°, and so it passes to the area of distribution. This machine can also be used as an exhaust, and prides itself that disinfecting gases can be distributed by its agency.

The sirocco is a fan, in principle quite distinct from any that preceded it, quite distinct from any of the flat or propeller fans we know so well. It is a multivane fan, has somewhat the shape of a tall hat, the 64 narrow vanes, each with a parallel twist, are arranged up the side of the hat, while the middle is empty. The ordinary fan takes air in and accelerates its motion in the same direction. The sirocco fan takes it in at the centre of the hat and throws it out at right angles round the periphery. For the same ventilating effect this is much smaller and lighter than the old fans, and uses up much less energy, hence its existing great popularity.

The Utley porthole ventilator (or, as they call it in Germany, the Utley "swimmer" or float) is essentially a passage over the top of the sidelight or scuttle, defended against the waves by cork floats, which are pressed by the waves against a seating so that no water can get through. As the water falls away, down come the corks, and the gangway for air is again left clear, I described this mechanism in THE LANCET of June 7th, 1902, p. 1597, where there is a figure.

The statistics of the ventilation in these large ships are interesting. There are in the *Mauretania* 65 thermotanks, each capable of supplying 33·3 cubic feet per second; this is in all a little over 9 tons of air supplied to the ship a minute. It looks very large, but does only work out at 800 cubic feet of air supplied every hour, artificially, to every person on board, and there is, besides, the natural supply through the Utley sidelights. The ventilation inlet in the cabins is 20 × 8 inches; 800 cubic feet will pass through this in an hour at a velocity of $\frac{1}{5}$th foot per second. This will cause no one discomfort from chill. This good ventilation, as Dr. Nocht remarks, draws passengers, and so is profitable to the owners. To this I need only add the wise conclusion of Dr. Collingridge: "The more comfortable and cleanly forecastles can be kept, the more contented and happy men are, the longer they will remain in the ship, and the more work can be got out of them."

[8] Brit. Med. Jour., March 26th, 1910, p. 770.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

HYOSCINE POISONING: PILOCARPINE AN EFFICIENT ANTIDOTE. A MAXIMUM DOSE.

BY T. GODDARD NICHOLSON, M.B., B.Sc. LOND., M.R.C.S. ENG., &c.

THE patient, a five-year-old boy, in response to an urgent summons, was seen by me in an unconscious condition, coupled with wild erratic convulsions of the limbs and face, the eyes, however, being fixed. Both pupils were widely dilated and the fundi seemed normal. There was no response to tactile or painful stimuli nor to bright light. The temperature was 100° F., the pulse bounding at 124 per minute, while the skin was hot, dry, and flushed. I catheterised him and obtained a small quantity of urine. I could obtain no history except that of a sudden onset after having had his evening meal of simple food some two hours previously. I ordered him at once a hot bath and mustard stupes to the back of his neck and soles while I returned for a stomach siphon and to test the urine. The latter was free from albumin and sugar. On my return the similarity of his condition to poisoning by the atropine group of alkaloids struck me, and as the belladonna plant grows in the locality I injected at once a quarter of a grain of pilocarpine hydrochloride. Within 10 minutes the condition improved, and by the next morning apparently a complete recovery was determined. All inquiries failed to discover the source of poisoning, and I was disposed to regard it as an autotoxæmia when three days subsequently the father brought me a tube which had contained tablets of 1-100th grain of hyoscine bromide and which the boy had found near his school. He had shared such as it contained as comfits, the larger portion (four or five) being taken by himself previous to the attack.

Regarding the maximum dose I may report the following incident. When engaged in the exploration of the Loangwa Valley in North-East Rhodesia during 1896 a witch doctor and his chief were captured by our Angoni and Atonga askari for having burnt live infants in the practices of their craft. They were tightly bound and conveyed to the base camp on the Loangwa foreshore. Their imprecations and ravings made night hideous, so much so that the indunas wished to kill them there and then. I promised to quiet them, and injected into each (both being big Sengas) the fortieth part of a grain of hyoscine hydrobromide. Within 15 minutes both were soundly anæsthetised, only slight twitchings of the extremities distinguishing their condition from that of sound sleep. So much so that their guards loosened their bonds, and in the early morning both bolted into the wilderness. Whether they escaped or were knobkerried by the infuriated Angoni (who are not torturers) I failed to discover.

Great Marlow.

NOTE ON A CASE OF HÆMORRHAGIC DIARRHŒA ACCOMPANIED BY GREAT EMACIATION.

BY J. GILROY, M.B., C.M. GLASG.,
MEDICAL OFFICER OF MIDDLEBIE.

ON May 13th, 1909, I saw a man, aged 23 years, who had been sent home from an adjoining town as unfit for duty. I attended him after this date up to the present time. Previously to his arrival home he had had medical attendance and was told he was suffering from dysentery, and a milk diet had been enjoined upon him. He gave me the impression of a person suffering from oligæmia. His temperature was over 100° F. During the daytime there was a hectic flush on his face. Pain in the abdomen was complained of, as also were hæmorrhoids. Stools were frequent; indeed, diarrhœa and bloody offensive motions were his great complaint. The motions, I found, were very offensive, and the hæmorrhage was profuse. On examination he had perceptible pain in the region of the left groin, and warm bran and salt bags, alternated often with a linseed poultice, were applied

from the day I first saw him, so constant was the pain as a symptom. The hæmorrhoids I found to be very trivial. I considered at first examination whether I might excise one prominent pile, but there was nothing indicative of any rectal state to show it as the seat of the dark and persistent bleeding. The usual remedies were ordered—pulv. ipecac., co. bismuth and ipecac., &c.—and persevered in. Eggs, milk, soup, and fish were allowed for a dietary.

I attended the case daily; it proved a very prolonged one. Indeed, his decubitus was unfavourable all through; it was as if pitched into bed. His tongue kept febrile and was covered with a creamy white fur. As up to August no improvement was noted I felt uneasy and cast about for extra remedies. I bethought myself of carrageen, or Irish moss, which proved a happy idea; it pleased the patient and ministered to his requirements as a food and as an astringent. I feel sure it is nutritious and is a useful agent in these diarrhœal states.

Passing on to August, 1909, the patient's state was bad. He was reduced in condition, bony prominences being ominously distinct. He got weaker, and in September was apparently sinking, when I decided to try tuberal, a serum I have used fairly often in my practice, particularly in cases of psoas abscess. The serum is Dr. Thamm's of Berlin, and I ordered in this case seven drops in the morning fasting, to be taken in some new milk. In November my note-book chronicles an improvement. It was admitted by the patient himself that his progress after this was slow but was in the right direction. His tissue development increased in a very gratifying manner. He is now at this date (August 29th, 1910) visibly putting on flesh and is getting really stout. He has not left bed yet for any length of time. He sits up and reads a little. Asking him, "What about the bleeding now?" he replies, with a breath of something bordering upon contempt, "There's none now." Surely a very pleasant result.

Ecclefechan, N.B.

MURDER BY MORPHINE AND CHLOROFORM; SUICIDE BY ILLUMINATING GAS.

BY A. E. L. CHARPENTIER, M.D. DURH., D.P.H.,
MEDICAL OFFICER OF HEALTH TO THE UXBRIDGE RURAL DISTRICT COUNCIL; MEDICAL OFFICER TO UXBRIDGE PARISH; SURGEON TO THE EDUCATION DEPARTMENT, THE POST OFFICE, AND THE METROPOLITAN POLICE.

CHLOROFORM is so rarely used for homicidal purposes that the following case may be worth putting on record for scientific and forensic reasons, although the events can no longer be called recent.

On June 18th, 1906, at about 5 P.M., I was called by the police to a cottage. On arrival the smell of gas was overwhelming. We opened all the windows and turned the gas off at the meter. On entering the front bedroom a woman, two children, and a man were observed lying on the bed. The woman and children were in their night-clothes in the bed, and over their faces was a large piece of cotton-wool, still smelling of chloroform. The noses and chins were blistered. They were dead but quite warm. The man was partially dressed, lying outside the bed-clothes breathing stertorously. His lips and cheeks were bright red coloured, and the pulse was rapid and feeble. He was carried out of the room, a hypodermic injection of strychnine was given, artificial respiration was performed, and oxygen was administered. His condition improved sufficiently for him to be moved on an ambulance to the infirmary, where he died about a week later from pneumonia.

In the bedroom I found a pint bottle containing a few ounces of chloroform; the gas bracket was broken from the wall, and a V-shaped cut was seen in the metal supply-pipe. Downstairs we found an egg-cup containing a little milk with a white deposit, and a dessertspoon containing a similar substance. A hypodermic pocket-case, supplied with the usual set of tablets, was on the table.

The necropsies on the woman and children.—In each case the post-mortem appearances were similar. The bodies were well nourished and all the organs were healthy. The hearts were pale and flaccid and the left side contained some clot in the two elder subjects, while in the case of the younger child the heart was full of clot. The bladders were fairly full of urine. The liver, stomach, kidneys, and urine were sent to the late Sir Thomas Stevenson in jars, sealed. He reported that there was a trace of chloroform in the blood and fluids of the bodies. In the organs of the woman he found three-quarters of a grain of sulphate of morphine, showing that more than a fatal dose had been administered. In the elder child he found half a grain and in the younger child one-third of a grain of morphine. He came to the conclusion that the three persons had died from chloroform and morphine poisoning, but could not say which drug actually caused death. The powder in the egg-cup and spoon was found to be sulphate of morphine.

It was shown at the inquest that the whole family went out for a drive in the afternoon. The bladders containing so much urine showed that the woman and children must have gone to bed early, possibly after the man had administered the morphine in milk. After they had gone to sleep he killed them by means of the chloroform, then, having cut the gas-pipe, he lay down to die with them. The man was a chemist and probably was aware of the impossibility of administering chloroform against a person's will or in ordinary sleep. Evidence produced at the inquest showed that he was insane.

Uxbridge.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

Vaccine Therapy.

A DISCUSSION upon Vaccine Therapy was inaugurated at a meeting of the Royal Society of Medicine on May 23rd by Sir ALMROTH WRIGHT. The opening address will be found on p. 863 of this issue of THE LANCET, and we subjoin here a brief summary of the debate that ensued, which will, we are glad to say, be published shortly in full in the Journal of the Royal Society of Medicine.

Sir WILLIAM B. LEISHMAN said in connexion with typhoid vaccine that in their efforts to improve typhoid vaccine—if that were possible—they had experimented with a large number of alternative vaccines. They had done that for some years now, and had come more and more to the conclusion that the phagocytic index was the most reliable test of the value of a particular vaccine. In regard to the ingestion of vaccines as being a possible alternative to inoculation, it was concluded that it was certainly possible to modify the amount of protective substances in the blood by giving vaccine in this way by ingestion, but the results were extremely irregular. The use of typhoid vaccine, not as as a prophylactic, but as a therapeutic measure in enteric fever, had been suggested often, and had been tried in various places. They had treated some cases with ordinary prophylactic vaccine. So far they had only got a comparatively small number of cases, but they were distinctly encouraging. In the ward in which cases were treated there was complete absence of the typical typhoid facies in the patients; they were rosier, seemed in good condition, and felt better. He believed vaccine treatment to be the greatest step forward that medicine had made of recent years and that it had immense possibilities before it. One of the most important keys to successful treatment was the question of dosage, and he did not see how to arrive at the appropriate dosage in the absence of frequent estimations of the opsonic index.

Dr. ARTHUR LATHAM said that vaccine therapy was a great addition to their methods of treatment, but that did not mean that it would displace the whole fabric of their clinical knowledge. He would say that from his own experience he was certain vaccine therapy did good, and he was equally certain it was capable of doing a great deal of harm if it was given in an unskilful fashion. He was in entire agreement with previous speakers in believing that a knowledge of bacteriology was essential to the clinician of the present day. He was equally of the opinion that the place for the bacteriologist was in his laboratory, and that the bacteriologist without clinical knowledge was out of place at the bedside. In the experience of them all staphylococcic infections yielded in most cases to appropriate vaccines, but even there failure sometimes occurred, and it might be added failure was more common if they confined their methods entirely to the use of

vaccines. There could be no question as to the value of vaccines in chronic pneumococcic and gonococcic infections. Their experience did not justify so dogmatic an opinion on the part likely to be played in the future by vaccination in acute pneumonia. Tuberculin was a most potent remedy. At the same time it could not be too emphatically stated that it was capable of doing irreparable damage if it was used without adequate knowledge and guidance as to dosage and spacing of doses. It was certainly more successful, or at any rate more rapidly successful, in non-pulmonary forms of the disease than in the pulmonary forms. He had seen what appeared to be permanent "cures"—that was to say, "cures" which were maintained for two years and upwards—in most desperate cases. Thus, three cases of acute tuberculosis under his care had recovered, in two of which there were no localising signs, and in one of which the patient suffered from tuberculosis of the peritoneum, hip-joint, knee-joint, shoulder-joint, and pleura, with fever to 105° F. In all the diagnosis was made by clinical methods and confirmed by means of the opsonic index. All three patients are without any evidence of ever having suffered from tuberculosis to-day, some two years or more after treatment. Tuberculin appeared to be a specific in any form of tuberculosis where there were no localising signs, and merely the symptoms of the disease were present, the diagnosis being backed up by a positive finding with the opsonic index. With regard to pulmonary tuberculosis, his experience was that they were faced with more severe limitations for vaccine therapy than in the non-pulmonary forms. In long-standing cases with fever they usually failed in the great majority of cases to effect permanent good; in some they did harm. The same was true of very acute cases. In both classes, however, they saw some striking instances of improvement which should be attributed to tuberculin rather than to coincidence. In early cases of pulmonary tuberculosis, and in chronic cases without much fever, his experience was that tuberculin was most valuable, and bore out the experience of other observers on the Continent and in America. The most striking statistics in that connexion were those of Ritter of the Edmundsthal Heilstätte, Hamburg, who, it should be mentioned, was using infinitesimal doses of tuberculin many years ago. In regard to the administration by the mouth, the method he employed was to give the vaccine suspended in a fluid isotonic with the blood on an empty and healthy stomach. To ensure that it was best to give the vaccine first thing in the morning. It was doubtful whether any appreciable quantity of gastric juice was brought to bear on a vaccine if it was given in that way, and, even if it was, no appreciable alteration occurred. It was stated that they could not trust oral administration because absorption must differ from time to time, and that one and the same dose in a given case might at one time be too small and at another too large. In answer to that he would state that clinical experience proved the contrary. He did not restrict himself to that method of administration. He often used the hypodermic method, especially when the stomach was disordered and the tongue furred. The oral method undoubtedly had great convenience on its side for the use of vaccine therapy in large institutions or in general practice. It was apparently probable that they would soon be able to cultivate the tubercle bacilli of consumptives by an easier and quicker process. If that occurred they would have an autogenous vaccine, and they would have better and quicker results. They were told that when the opsonic index remained level and within normal limits they might be satisfied with the immunity produced. Clinical experience did not bear that statement out. Certainly, in his experience relapses were much less common if the administration of vaccines was continued long after immunity had apparently been established. The greatest limitation of all would be the fact, if true, that vaccine therapy necessitated the use of the opsonic index as a guide. They seemed to have forgotten the enormous number of patients for whom such facilities were, for one reason or another, an impossibility. If the opsonic index must be used as a guide then the application of vaccines must be greatly restricted. They found one set of bacteriologists full of enthusiasm for the opsonic index of all organisms. They found others, perhaps in the same laboratory, who confessed themselves unable to give a reliable reading for the pneumococcus or the micrococcus catarrhalis. Criticism of the work of a great man often appeared ungenerous, but he must state his opinion that Sir Almroth Wright was wrong in his contention that the opsonic index was the only real guide that they had for vaccine therapy. His contention might, indeed, retard advance in the subject. It was clear that there was a definite relation between the opsonic index and the clinical symptoms and temperature, and that both could be used as a guide to the immunising process. His experience convinced him that clinical observation formed a good, and in most cases an efficient, guide for vaccine therapy. A dose of vaccine which was followed within 24 hours by a rise of temperature or an increase in the fluctuation of the temperature, and by an aggravation of symptoms, was too large. A dose which had no effect on the temperature or the symptoms was too small. A dose which was followed by a lowering of the temperature, or a diminished fluctuation of the temperature, and an improvement in the symptoms did good. When the effect of such a dose became less the dose should be increased in size. Those were simple rules, but they required careful observation and judgment. The best results of vaccine therapy, or indeed of any application in clinical medicine of the allied sciences, must come from the properly coördinated work of the clinician and the laboratory worker.

Professor R. T. HEWLETT said with regard to pulmonary tuberculosis he was very uncertain as to the value of vaccine therapy. He thought pulmonary tuberculosis could be divided into three classes of cases. There was one class which, even if the conditions were but moderately good, tended to do well. There was a second class which, if very well looked after and well treated and put under good conditions, also tended to do well. There was a third class which, do what they could, went downhill. And in this last class there were cases which ran a very long course—ten years, perhaps 20 years, with remissions. So it seemed extremely difficult to be sure as to whether tuberculin treatment was of service in pulmonary tuberculosis. With inoculation, accidents had sometimes happened which made one wish that oral administration could be adopted. Vaccine therapy was a somewhat clumsy imitation of Nature's methods of curing disease. The fact that the culture was sterilised by heat, for example, must necessarily destroy properties which were possessed by the living microbe. He suggested that probably microbial endotoxins might be more potent than sterilised cultures, and that their use was at least worth a trial. There was Besredka's method, which, according to him, was extremely successful for *prophylactic* vaccination, at any rate; it might be extended to vaccine therapy—namely, the treatment of microbes before injection with an immune serum; in other words, sensitising the microbes. Besredka claimed that *prophylactic* vaccination by this method gave results which were superior to the simple injection of bacterial cultures. Professor Hewlett thought that it was questionable whether the opsonic index method was going to be generally applicable. It also seemed that in a great many cases at least it might be done without by carefully noting the general clinical condition. But if you were going to have the opsonic method it must be done by someone whose technique was beyond reproach.

Mr. K. W. GOADBY made some remarks on the treatment of those diseases which affect the mucous membrane of the mouth and gums.

Dr. A. WHITFIELD said that as regards the value of the opsonic method for diagnostic purposes he was thoroughly convinced of its utility. What he might call an ultra high, an ultra low, or a variable index might be regarded as a sure sign of infection, though it might not show the prime cause of the disease. Further, if the index were taken on one or two occasions, an inoculation of the suspected organism given, and the index were found to exhibit a sharp fall, followed by a rise, they might be very positive that they were dealing with a case of infection with the organism inoculated. It was especially in tubercle that the defenders of the treatment regulated by the index said that one must always rely on this as a guide. He admitted that he held that view for a considerable time himself, but that was in the earlier days of his opsonic work. Sir William Leishman told them that in his investigations on the subject of typhoid inoculation he had found that the opsonic index was the most reliable guide as to the potency of a vaccine, but that was not the same as proving that the effect was directly an immunising one, merely showing a lasting disturbance of the serum. He did not think that he had yet evidence proving that those vaccines

which disturbed the opsonic index most had conferred the greatest immunity. Lastly, he wished to deal with the statement that the doses used had been determined by the opsonic index. This was entirely erroneous. The first doses before any opsonic variations were noted as the result of injection were obviously not so determined. He had also carried out an investigation of the opsonic index in a short series of cases which had been treated by the old method of giving massive doses of tuberculin R, and, although some of the indices were high and others low, none were strikingly either high or low, and it was absolutely impossible for him to diagnose from his results which of the cases was doing well and which badly. He entered an earnest plea for accurate and patient work in the proof of the causal relationship of every organism before it was used as a vaccine. That must often entail a careful research by both a competent histologist and a skilled bacteriologist. In one disease two different cultures were used for making what purported to be the same vaccine, which he was quite certain were completely independent organisms.

Dr. A. BUTLER HARRIS said that it was as important nowadays for the general practitioner to be able to work out the simple pathogenic infections which occurred every day in his practice as to be able to set a broken arm. He did not think the supplementary position of the bacteriologist to the clinician was desirable, either in the interests of medicine or of the scientific advancement of the individual. If vaccine therapy was to take the right place as the handmaid to both medicine and surgery, every practitioner, whether specialist or general, must of necessity be expert in rudimentary bacteriological technique. To condemn vaccine therapy in pneumonia because it was powerless to check a virulent invasion after the whole organism had been overrun was illogical and unreasonable. He thought the time was not far distant when results would show that the pneumococcus vaccine was to pneumonia what the diphtheria antitoxin had proved to be to diphtheria. With reference to tubercle, his experience in inoculating in phthisis had not been encouraging. Though carried out under the most rigid conditions of opsonic regulation, he had failed to produce better results than occurred with simply perfect resting conditions, such as Paterson had described.

Dr. J. KINGSTON FOWLER said that vaccines had been used for a long time in his wards at the Middlesex Hospital in all cases in which their employment appeared likely to be beneficial, including malignant endocarditis, bronchiectasis, pulmonary tuberculosis, gonococcal arthritis, some pneumococcal infections, and cases of catarrhal affections of the bronchi. He had had more considerable experience of the use in pulmonary tuberculosis of tuberculin, both in the manner of 1890 and in the fractional doses used in recent times, but he had not yet seen a case of that nature in which he was sure that benefit had been derived. He hoped, however, that he had still a mind open to conviction. The great advances of medicine in recent years had been made by the bacteriologist and not by the clinician, and he, at any rate, was anxious that the bacteriologist should have his full share of the credit. But nothing would, in his opinion, ever fit a man for the treatment of disease but clinical experience. No man could shut himself up in a laboratory for years and then come forth equipped for the treatment of disease.

Mr. S. MAYNARD SMITH said that he was a strong believer in the merits of vaccine therapy, because he had been able to show, to his own satisfaction, that he had had better results in certain surgical lesions treated with the aid of vaccine therapy than he had had in similar cases treated on the previously existing lines, without the aid of vaccine therapy. The surgical limitations included the fact that vaccine therapy could not give rest. Rest was as essential as it ever was in the treatment of tuberculous joints. Failing rest, the patient would be getting inoculations from his own joint; and therefore inoculations given by the vaccine therapist were likely to be interfered with, and their effect ill-regulated. Further than that, one might increase the opsonic power of a patient's serum with vaccine, but one could not make that vaccine penetrate to the middle of a tuberculous abscess. He knew tuberculous abscesses might sometimes clear up under vaccine therapy; they sometimes cleared up when not treated at all.

Dr. T. J. HORDER said that his own experience included so many successful cases that his impression of the great value of vaccine therapy was a very deep one—so much so that he should consider he was denying patients their best hope of recovery in a large number of infective conditions if he did not employ this principle of treatment. But the original claims of the bacteriologist were too extravagant. Here was a panacea at last. No need now for fresh air in the treatment of phthisis; London slums would serve, provided tuberculin and the opsonic index were available; the surgeon's art was now defunct—suppurations needed no knife, and even dread cancer promised to yield promptly to the immunisator's power. To-day the phthisis sanatoria were full, and some of the inmates were sent to them by immunisators themselves. And he saw no sign of diminished activity amongst surgeons. Five years ago, and even much later, it was taught that opsonic-index estimations were essential to vaccine treatment; indeed, without opsonic-index estimations it was held that he who used vaccine therapy acted dangerously, almost criminally. But to-day what did they find? The facts of vaccine therapy had outgrown the hypothesis of the opsonic index—a big argument in favour of the efficiency of vaccines. Many who originally held that the opsonic index must control the treatment, themselves employed vaccines in large numbers of cases successfully, with no such mechanical control at all. He thought they explained that by saying that the opsonic index had taught them what doses to give in certain cases. The clinician considered himself justified in rejecting this explanation. The cases were never sufficiently alike. If the index was necessary once it was necessary again. He regarded the doctrine of the opsonic index as the great, almost the sole, artificial limitation to the use of vaccine therapy. Vaccine therapy was an effective method of combating an important factor—it might be the *most* important factor—in the struggle between the tissues and many infecting agents. He believed, however, there were other factors in this struggle which were not touched by the use of the vaccines, and that this natural limitation did exist, though at present it was quite undefined.

Dr. D. W. CARMALT-JONES said that he had been associated with St. Mary's Hospital Inoculation Department for nearly four years, and he had seen some remarkably fine results; but no impression of unvarying success was left upon his recollection, and he feared that anyone who embarked upon vaccine therapy in that hope was laying up for himself considerable disappointment. He thought some very obvious limits were set to the usefulness of purely antibacterial treatment in disease, particularly in such a disease as tuberculosis, in which large areas of necrotic or caseous tissue occurred. No blood-vessels passed through such tissue, and blood serum containing 50 times the normal amount of immune bodies would produce no effect upon it. It might be laid down as an axiom that all sources of irritation should be removed at the outset of treatment. Vaccines had no power whatever to remove them, and they must be removed by surgical methods.

Dr. F. RUFENACHT WALTERS said his experience of vaccine therapy was almost entirely confined to the treatment of cases of pulmonary tuberculosis or phthisis in a sanatorium. Many of these recovered promptly and satisfactorily under the ordinary sanatorium methods, but there were many others that did not do so. In many cases the fever persisted or recurred and the treatment was therefore exceedingly tedious and apt to lead to much destruction of lung tissue. These he now believed to be chiefly, perhaps entirely, cases of mixed infection. Here one required something more than the ordinary hygienic methods adopted in sanatoriums. Treatment by antipyretics was apt to be disappointing, and he thought it was especially in this class of case that vaccine treatment was likely to be of considerable service. Until comparatively recently, owing to considerations of expense, it was only exceptionally that he employed vaccine treatment other than tuberculin; but lately he had been treating all the obstinate cases, and all those with high fever in which the existence of mixed infection was proved, with corresponding vaccines. His results were, to a very large extent, too recent to deal with now; he would have to leave many to a future occasion. Tuberculin, however, he had been using for longer chiefly in small fractional doses. Some people were of opinion that highly febrile cases of tuberculosis should not be treated with tuberculin, believing it to be a dangerous practice; but such was not his experience. He thought it was very largely a question of dose. Dr. Latham had pointed out that the appropriate minute doses of tuberculin

would bring down temperatures in febrile tuberculosis, and he could confirm that. He thought if they started with a tiny dose and felt their way—he was in the habit of relying partly on the opsonic index and partly on other considerations—they would find a dose which would reduce the temperature. There were, he believed, two classes of cases in which tuberculin was likely to be of service—those in which even the slightest exertion caused an overdose of auto-inoculation, and those in which a large amount of exercise had but little immunising effect. Another point was the administration of tuberculin by the mouth. He had seen several cases in which the method had been most successful, and many in which it had done some good without any ill effects. But there were two drawbacks which were sometimes met with. There were cases in which it caused digestive disturbances, such as pain in the abdomen and nausea; another drawback was the uncertain effect of a given dose.

Mr. W. DEANE BUTCHER said that the hypothesis of electro-vaccination or radio-vaccination had gradually grown up to account for a number of phenomena otherwise inexplicable. The first thing that led to the suspicion of the possible vaccinal action of the Roentgen rays was the fact that a number of skin diseases of totally different origin and nature seemed to improve under exceedingly small doses of the irradiation. The strongest evidence of the vaccinal action of electrical treatment was derived from a consideration of the various modes of attack on rodent ulcer. In the whole purview of medicine there was nothing more impressive or more certain than the cure of a small rodent ulcer by electrical methods. But the cure may be effected in many ways—by Roentgen rays, by radium, by ultra-violet light, by the high-frequency effluve, or by zinc ions. What was the common factor in all those cures?—cure, he said, for the process was not one of destruction but of repair. It was not merely a bactericidal action, nor was it merely a selective destruction of tissue. It was a biological recoil, the resentment of the cells of the organism to the insult of the ethereal vibration. The habitual defence of living cells to such an insult was exactly the same as that to a bacterial invasion—namely, the production of an antitoxin or other antibody. It was a true vaccination. The hypothesis then supposed that the ethereal waves contributed to the process of auto-vaccination by the production of opsonins, by the detachment of the side chains of Ehrlich, by facilitating the reaction of toxin and antitoxin, or by setting free the vaccine from its laboratory in the glands. That was rendered the more probable when they reflected that the toxin and antitoxin carried opposite electrical charges, one flowing down and the other flowing up the electrical stream. Not only so, but they had recently had evidence that the micro-organisms themselves might be carried along an electrical current. All that gave rise to more than a presumption that the therapeutic effects both of electro-therapeutic and radio-therapeutic treatment might be due to the production or liberation of vaccines. One of the greatest arguments in favour of the vaccinal hypothesis was the latent period which followed Roentgen or radium irradiation, and which preceded the reaction. That ominous pause was, to his mind, eloquent, and indicated that all the resources of the organism were being called upon to resent the insult. The reaction was not merely a physical or chemical one, but a biological reaction, in which the energy of the recoil might exceed the energy of attack.

Dr. H. LEWIS JONES said that the fact that blood changes occurred after X ray exposures was well shown by the action of X rays in leukæmia, and experiments had also shown that leucocytes react to serum from an X-rayed animal in a way which differed from their response to normal serum.

Dr. W. PARRY MORGAN said that specific treatment had been tried only in recent years. They had the two principles of passive and active immunity. The former first held the field, but it certainly had not been satisfactory. The latter had been responsible for brilliant results in other diseases, and the few records of its application in pneumonia were those of success. However, it had had but an imperfect trial, and he submitted that his experience showed that, although they might expect failures, further trial was altogether justifiable. There was no doubt that lobar pneumonia might be caused by different strains of pneumococci; hence they could not expect one vaccine to be efficient in all cases, and the method must not be condemned, as it was by some people, because certain cases did not react when treated with stock preparations. In many other diseases the opsonic index had been the guide to the resistance and to the dose, but in pneumonia he had been unable to use it for that purpose. That had been given as an argument against the use of the index for determining doses. It was quite unjustifiable to quote his failure with the pneumococcus as a reason against the use of the index in infections where its value had been proved. He thought that with care and judgment pneumococcal vaccine could be used with the conviction that only good could result.

Mr. J. COURTENAY MACWATTERS said that in his hands vaccine therapy had yielded such uniformly good results that he had formed the opinion that, in cases of localised bacterial invasion treated by this method, cure was almost bound to result in almost every case, if one could succeed in three things—viz., the isolation of the offending organism, the preparation and administration in suitable doses of a vaccine made from it, and in promoting the flow of the resulting highly opsonised lymph through the infected tissues. Where failure had occurred, it had been his experience that the fault lay with the would-be immunisator, and not with the method.

Dr. W. D'ESTE EMERY said he had had both successes and failures in many branches of vaccine treatment, but he thought it only fair to say that many of the failures and some of the successes had been in patients in whom ordinary clinical methods had been given a full trial and had also failed. Most of his results were obtained whilst he made use of the opsonic control, and since he had abandoned the method his results had been neither better nor worse. The curative action of a vaccine was due mainly to its reactive action, and to a much less extent, if at all, to an elevation of the opsonic index. As a practical result of that he did not believe it to be necessary or even advantageous to control the injections by means of the opsonic index. In giving a vaccine he was desirous of causing a local reaction, and of thereby benefiting the patient, not of raising the opsonic index. The danger of the negative phase he believed to be a fictitious one.

Mr. F. ASHTON WARNER said that he found it was practically out of the question to make use of the opsonic index as a matter of routine owing to the necessary expense which the work entailed and the disinclination of patients to pay the fees, so that in the majority of cases he had to depend on the clinical signs as a guide to the amount and frequency of the doses. But in dealing with tuberculin in cases of infected cervical glands he made it a rule to rely on the opsonic index as a guide and not on the condition of the glands as judged by appearance and palpation. For it was impossible to judge of the condition of the deeper glands in the chest, and consequently the superficial ones did not afford a reliable guide. He had made use of vaccines by the mouth and hypodermically, and, so far as his experience went, most satisfactory results were to be obtained by either method. Patients certainly preferred oral administration to the hypodermic, and especially children, so that in their case at any rate it was of great advantage to be able to dose them by the mouth. Another advantage was that in cases of acne the dose of vaccine might be taken at intervals with only occasional visits to the medical man, the dose being regulated in accordance with the local reaction, which could be noted by the patient—a distinct advantage to the patient when the treatment was lengthy. The simplest way to give vaccines by the mouth was to direct the dose to be taken in a sherry wineglassful of milk the first thing in the morning, on an empty stomach. The milk must be first boiled. He thought that brilliant results were to be obtained from the timely use of vaccines, and that they might with advantage be given by the mouth. Whenever possible, the opsonic index was to be used, along with the temperature and clinical conditions, as a guide to dosage.

Dr. A. C. INMAN said that vaccine therapy was not, and never would be, an empirical form of treatment; it was based on scientific facts, and was essentially an individual treatment. Every case approached needed investigation. In the diagnosis of the case he would insist on supplementing the clinical methods with the direct and indirect evidence derived from laboratory tests. Then, as regards treatment, they had of necessity to consider the effect of the bacterial invasion on the body, and the attitude of the body towards the infection. To help them in that respect they had three guides, a consideration of (1) the general condition of the

patient, symptoms, and physical signs; (2) the temperature curve, for evidence of intoxication and activity of disease; and (3) the investigation of the serum as regards its content in protective substances—evidence of response or failure of response to the infection on the part of the infected organism. Each of these was valuable by itself, but the three together were much more valuable. All three must be considered individually and collectively; none must be ignored. As to whether vaccines could be administered by the mouth, he invariably preferred the hypodermic method to the oral, and, when possible, he always employed it. But, from a consideration of the clinical results obtained by the oral administration of vaccines, from a study of the blood changes and modifications in the temperature curve which ensue, he was convinced that vaccines could be satisfactorily absorbed from the stomach. The relationship between the opsonic curve and the temperature curve was a very important question. He had published a series of observations which showed that there was a very definite relationship between the two. He did not hold that the temperature could give the whole information as to dosage and spacing of vaccines, but he did think that it gave them a very good mirror of what was happening in the blood, and should in no case be neglected. Similarly, it would scarcely be upheld that the opsonic curve given was the whole story of the immunising response on the part of the body, but it gave very valuable information and, when practicable, should not be neglected. It was scarcely practicable to institute four-hourly indices on any number of cases, and so he believed that in these cases the imperfect guide of the temperature curve must suffice, with occasional reference to the opsonic index when necessary.

Mr. ALEXANDER FLEMING said that the basis of the acne pustule was a comedo which had for many years been associated with a bacillus which had been called the Bacillus acnes. That bacillus was very common on the skin of all seborrhœic individuals, and could be seen in myriads if a film of a comedo be made. While authorities were more or less agreed as to the micro-organism of the comedo, there was some difference of opinion as to the causation of the pustule. That seemed to him clear proof that the acne bacillus was responsible for the suppuration in some of the cases. Further proof was obtained by the results of administration of vaccines of the acne bacillus.

Dr. DAVID LAWSON (Banchory) said that experiments supported the claim made by Latham and his colleagues that tuberculin administered by the mouth in cases of tuberculosis was absorbed and modified the blood content. At Banchory they had gradually substituted for hypodermic medication the practice of administering tuberculin by the mouth. Only on rare occasions and for special reasons was the needle employed. So far as they could see, by this change of procedure one had not in any way sacrificed or diminished the benefit which in suitable cases the administration of tuberculin undoubtedly conferred. In pulmonary phthisis the tuberculo-opsonic index was quite valueless as a guide to prognosis. Whilst the chest signs, or constitutional symptoms, were still little more than suggestive, it was becoming more and more the practice of physicians to obtain a series of tuberculo-opsonic observations of such patient's blood at rest, and with those showing a range which varied outside of normal limits the physician inferred the presence of tuberculosis and at once advised serious treatment. Others preferred to employ exercise with a view of inducing auto-inoculation and then observing the effect of that auto-inoculation on the patient's tuberculo-opsonic index. If the index after moderate exercise showed a marked increase in the altitude when compared with that of the blood taken before exercise, then the presence of tuberculosis might be assumed. Of the two methods, the latter had, in their experience, proved the more reliable. So frequently had he been able in such cases sent for treatment afterwards to confirm with certainty the diagnosis arrived at by such means that he had come to attach a very high value to this use of opsonic methods in the diagnosis of phthisis. Contrary to the experience of some, he had never found the exhibition of tuberculin in cases of pulmonary phthisis accompanied by pyrexia followed by the reduction of the fever or activity of the disease. He had seen it in gland cases act in that way, but not where the lungs were known to be involved. On the contrary, he had in more than one instance had occasion to believe that the pyrexia was unfavourably influenced by the vaccine. As a matter of practical procedure he had now abandoned the practice of administering tuberculin in lung cases where fever is present. In treating early cases of phthisis from the commencement by a combination of tuberculin administration and sanatorium treatment, and watching recovery take place, it had been found difficult, if not impossible, to allocate to the action of tuberculin its just share in promoting recovery. The difficulty was increased when they recalled the fact that for several years before they were using T.R. as a routine procedure one saw a very large proportion of cases get quite well by sanatorium treatment alone. There remained a certain number, however, drawn from this class, and also from a class of more serious type, where the recovery advanced to a certain point and then all progress appeared to cease. Many of those cases ultimately went wrong. It was in that particular case that one now recognised how great a service might be rendered by the careful, systematic, and persevering use of tuberculin. They had heard the opinion quoted with approval by pathologists that the use of tuberculin or vaccines in pulmonary phthisis was practically valueless. The average pathologist's experience of the treatment of phthisis was drawn from two sources. First, from the ordinary advanced and usually hopeless case which was to be found in the wards of a general hospital; secondly, from private patients, for the most part old-standing chronic cases who had placed themselves in the hands of the pathologist for vaccine treatment. Many such had eventually come under notice who had previously undergone more or less prolonged courses of treatment at the hands of pathologists who had judged of their cases purely from information derived from systematic opsonic estimations, had never examined their chests, and who did not see their patients for weeks at a time.

Mr. LEONARD NOON said that abundant proof was forthcoming that the opsonic power of the serum was increased by inoculation of heated vaccines. Most of the toxins which could be obtained in workable quantities were destroyed by heat, so that their heated vaccines were, generally speaking, free of these toxins, and probably, therefore, did not give rise to antitoxin production in the body. The heated vaccine was not, however, to be condemned on that score, for the presence of a notable quantity of toxin would limit the dose which could be employed with safety. With such a vaccine the toxin would be the predominant factor in determining the dose, and we should, of necessity, aim at producing antitoxic immunity, whilst other forms of resistance would be lost sight of. But these latter were the more important, because they were directed to the removal of the infecting agent. It was therefore an advantage to use an atoxic vaccine in what is essentially an antibacterial treatment. The attempt to induce antitoxic and antibacterial immunity by one and the same inoculation seemed to him only likely to lead to confusion and failure.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—The first meeting of the session of this society was held on Sept. 1st, Dr. F. Hinds of Worthing, the newly elected President, being in the chair.—Dr. E. Weatherhead showed a patient with an Abdominal Tumour whose history was as follows. He was a man aged 54 years, and had noticed the swelling about three months. There was pain in the epigastrium, especially after food, but no vomiting. He had lost flesh and had noticed that the lump increased in size. There was a mass visible in the right side of the epigastrium, which moved freely with respiration, and received a communicated impulse from the aorta. There was a considerable enlargement of glands above the left clavicle. The case was probably one of carcinoma of the pylorus, and was in too advanced a stage for operation.—Dr. Walter Broadbent showed a girl, aged 14 years, with almost complete ophthalmoplegia externa of the right eye, there being ptosis and no movement of the eye except very slight rotation by the superior oblique. This had come on suddenly three weeks before. The optic discs were normal. The girl had been under treatment for tuberculous disease of the tibia. She had also old ulceration of the palate, said to have been due to diphtheria, but more suggestive of syphilis. Probably the affection of the ophthalmic nerves was of this latter nature.—Dr. C. F. Bailey showed a boy, aged 12 years, who ten years ago had had a Tuberculous Abscess of the Neck. This had been opened,

and in the resulting scar keloid tissue had formed. This was removed four times, forming again after each operation. On the last occasion the keloid was very large and extensive. This was once more freely excised, and the wound left open, the boy being taken straight from the operation table to the X ray room, where a full Sabouraud dose was given over the open wound, which was allowed to granulate up. The result was a good sound scar without any sign of keloid. Later there developed slight keloid, but this has disappeared under repeated applications of X rays. The last operation was performed 18 months ago.—Dr. L. A. Parry read notes on two cases of External Anthrax. The first was in a Post-office servant who was engaged in cutting leather strips. He developed a malignant pustule on the neck, which was excised, but death ensued soon after. The second case was that of a young man who contracted anthrax on the wrist, which was freely excised within 24 hours. He made an uninterrupted recovery. The source of infection was uncertain. The treatment advocated was early and free excision. The prognosis was bad in those cases which were left untreated or in which the excision was left late.—Mr. G. Morgan read the notes of an unusual case of Gland Infection. The patient was a girl, aged 15 years, who complained of a sudden illness starting with chilliness and stiff neck. On examination there was found a large and tender gland in front of the sterno-mastoid on the left side. The throat was normal, but there were two loose carious stumps. The temperature was of an unusual kind, rising to 103° F., then dropping to normal for two or three days, then rising again to 103°. (The girl had not been out of England, so there was no suspicion of malaria.) There were several severe attacks of epistaxis during the course of the illness which were of obscure origin. The carious stumps were removed and the girl made a rapid recovery. In commenting on this case, Mr. Morgan pointed out that the special points of interest were as follows: first, the acuteness of the onset and the severity of the symptoms; secondly, the unusual type of the temperature; and thirdly, the alarming attacks of epistaxis. He also remarked that the lower gums were infinitely more potent than the upper gums and teeth in causing enlargement of glands and occasionally, of general sepsis. He was convinced that loose carious teeth were far more dangerous than fixed carious teeth. The reason why the glands draining the lower gums were so much more frequently affected was that they did not drain so well; also they were more exposed to strain and chill.—Mr. A. J. Martineau read a paper on a case of Frontal Sinus Disease. The patient was a woman, aged 60 years, who gave a history of two months' trouble on the right side of the nose and face. The symptoms were neuralgia, loss of smell, nasal obstruction, discharge, swelling of the face and orbit, and diplopia. On examination, the right side of the face was swollen and the right nostril was filled with a dark red friable polypoid mass. The hæmorrhage from the examination was so profuse that the mass was snared, scraped, and pulled out with forceps. The finger could then be passed into the cavity of the orbit and also into the antrum. The symptoms all pointed to a malignant growth, but a microscopical examination showed no signs of malignancy. Only three months have passed since the operation, and the subsequent history will be watched and reported to the society.

THE death is announced of Monsieur Gustav Moynier, president of the International Red Cross Committee, at the age of 84. He has presided at the meetings in Geneva since the foundation of the society in 1864.

THE FATHER OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.—According to the *Standard*, the Royal College of Surgeons of England has received an intimation from Miss S. A. Steet, of South Hampstead, that her father, Mr. George Carrick Steet, who is the oldest Fellow of the College and is also London's oldest medical man, is enjoying fairly good health, though somewhat of an invalid. Mr. Steet is 92 years of age, and his memory and mental faculties are quite unimpaired. He became a Member of the College in 1840, and took the Fellowship in 1849. He was chief medical officer at the General Post Office for 20 years, and retired in 1891. He was also consulting medical officer to the Spanish Consulate in London.

Reviews and Notices of Books.

A System of Operative Surgery by Various Authors. Edited by F. F. BURGHARD, M.S. Lond., F.R.C.S. Eng., Teacher of Operative Surgery in King's College, London; Surgeon to King's College Hospital; Senior Surgeon to the Children's Hospital, Paddington Green. In four volumes. Vol. IV., pp. 687. London: Henry Frowde; Oxford University Press: Hodder and Stoughton. 1909. Price 36*s.* net per vol., or £6 net per set of four vols.

THIS is the last volume of this important System of Operative Surgery, and it deals mainly with those operations which may reasonably be considered to belong to special departments. It commences with Operations upon the Female Genital Organs, and these have been divided into the abdominal gynæcological operations dealt with by Mr. J. Bland-Sutton, and the vaginal gynæcological operations the account of which has been written by Dr. J. Phillips.

Mr. Bland-Sutton commences his chapter on abdominal section by some general directions for the preparation of the patient and of the materials used in the operation. It is certainly interesting to note the opinion expressed as to catgut as a suture material, especially in connexion with much present-day practice. The author says: "I regard it as an unsatisfactory and dangerous material"; and again: "The most dangerous and unreliable suture material for the abdominal incision is catgut." The second chapter deals with ovariotomy. Mr. Bland-Sutton never punctures a cyst before removal, even though it may require a very long incision to remove the cyst entirely. On this follow two chapters on hysterectomy and operations for extra-uterine gestation. The account of hysterectomy might, we think, reasonably have been more detailed. Operations during pregnancy and labour are next dealt with. A useful chapter is that devoted to the after-treatment, and to the risks and sequelæ of abdominal gynæcological operations. We are glad to see that attention is devoted to the great risks of injury to the ureter during the performance of these operations. We feel sure that it is an injury which occurs more frequently than many operators imagine.

Dr. Phillips's article on Vaginal Gynæcological Operations is very fully illustrated. He first deals with operations and injuries to the perineum and pelvic floor. Then follow descriptions of operations upon Bartholini's glands, of the methods of passing uterine sounds, of curettage of the uterus, and dilatation of the cervix, and lastly is described vaginal hysterectomy.

Mr. M. S. Mayou is responsible for the section on Ophthalmic Operations. He first treats of the preparations for operations on the eye, and describes the general considerations as to the making and healing of wounds in the globe. A very good account is given of the operations upon the lens; the descriptions are detailed, and the illustrations are numerous. The chapters on operations on the cornea require no comment. We think it would have been well if Mr. Mayou had explained a little more fully the reasons why in any individual case one operation should be chosen more than another, for he leaves the matter doubtfnl, as, for instance, in the question of the choice between simple enucleation, evisceration, Mules's operation and Frost's operation. The section on operations of the eyelid is good, but the account of the method of performing electrolysis is decidedly too brief to be of any value.

Operations on the Ear have been described by Dr. Hnnter F. Tod. This section occupies more than 170 pages, and in

this fairly ample space he has succeeded in giving a very good account of this important and comparatively modern branch of surgery. The accounts of the methods of examining the ear and performing the minor operations on the external meatus are given very clearly and need no further mention. Naturally, the most important portion of this section is that which deals with operations on the mastoid process; the account is very satisfactory, and the illustrations are for the most part very informative. Students always experience much difficulty in understanding the anatomy of the middle ear, and therefore in the account of the operations it is always advisable for a description to be given of the anatomy. But while we are glad to see that Dr. Tod has included amongst his illustrations one intended to demonstrate the anatomy of the middle ear, unfortunately, the illustration is by no means as clear as it might be; we consider it would have been better if an illustration larger than life had been given. The very difficult subject of operations upon the labyrinth has been adequately dealt with. The considerations which should govern the mode of treatment of an infected lateral sinus are well described, and we thoroughly agree with the author that the jugular vein should be tied if the symptoms point to the onset of a general infection of the circulation from the infected sinus. The arguments against this treatment are devoid of foundation, and we may express our entire approval of the manner in which Dr. Tod has dealt with the whole subject. The chapter on operations for intracranial abscess of otitic origin is also very good.

Mr. W. Douglas Harmer is responsible for the section on Operations on the Larynx and Trachea. We find here a good account of the methods of operating by direct laryngoscopy. Mr. Harmer discusses very temperately the various operations which have been employed for the treatment of malignant disease of the larynx, and he claims that thyrotomy is the best operation for early malignant disease, whether carcinoma or sarcoma, so long as it remains intrinsic. He shows that the percentage of complete cures is high and compares favourably with almost any other operation for similar conditions in other parts of the body, and he claims the condition of the patient after thyrotomy is very satisfactory. We agree that the operation, though appreciated in this country, does not at present receive that recognition abroad which it deserves.

The last section of the book deals with Operations upon the Nose and its Accessory Cavities and has been written by Dr. StClair Thomson. Apart from the excellence with which the operations are described, the most noticeable feature of this section is the high standard of the illustrations provided. They serve to make clear the descriptions of the text. If we may select one portion of the article for special notice we should like to speak in high praise of the account of the methods of dealing with deviations of the septum of the nose. The story of the operations on the frontal sinus is also well told. Perhaps it might have been well to devote a little more space to the description of the operations for pharyngeal adenoids when it is borne in mind how extensively this operation is performed by those who have not devoted especial study to this branch of surgery. It is an operation which is often carried out inadequately and unsatisfactorily, and therefore we think that a fuller account might have been given. This is, however, a very small matter, and does not detract from the value of the section. There are five separate indexes, one for each section. We should have preferred an index to the whole work instead or as well.

In concluding our notice of the volumes of this System of Operative Surgery we may congratulate Mr. Burghard on the general high level which has been maintained.

Ophthalmic Surgery. By CHARLES H. BEARD, M.D. London: Rebman, Limited. 1910. Pp. 674. Price 22*s.* net.

THIS superficially attractive production is good, but it might be much better. Apart from the comprehensive but extremely tedious work in German by Czermak, there is no exhaustive treatise on operative ophthalmic surgery that enters into the elaborate discussion of details which is so useful and essential to the as yet inexperienced operator. Grimsdale and Brewerton's work describes most of the operations commonly employed, but conveniently as the methods are collected in comprehensive form, this manual lacks the exposition of minutiæ and the discrimination of precise indications for alternative procedure which are the preponderant requirements of the student in a work of this nature. Dr. Beard has succeeded in fulfilling these requirements to a very considerable extent, and we find little to quibble at in his methods and advice. These are the outcome of many years of experience and they will meet with general approval, though in these matters there is, of course, ample room for individual opinion, which will not always accord completely with the author's.

The literary style—if it is permissible so to degrade the term as to use it in this connexion at all—is appalling, even when judged by the standard of the average transatlantic scientific work. Expressions only to be described as slang of a peculiarly pungent type abound and detract from the dignity which should characterise the work, whilst adding nothing to lucidity of expression. Printer's errors, to use a hackneyed simile, are multitudinous as the leaves in Vallombrosa.

Having said thus much in detraction, we may turn our attention to some of the many merits of the book. It opens with introductory chapters on para-operative technic (*pace* our classical critics!) and instruments and their management. These matters are treated in considerable detail, stress being laid upon Landolt's canons of construction of instruments. The descriptions of operations follow in a series of chapters devoted to operations upon the appendages of the eye; upon the extrinsic muscles of the eye; upon the lids for ptosis, for entropion, and ectropion; upon the conjunctiva. The surgical treatment of trachoma; operations upon the globe; extraction of cataract; operations upon the orbit; and the methods for the removal of foreign bodies from the interior of the eye follow. In most cases the historical development of various operative procedures is passed lightly in review, sufficient information being conveyed to stimulate interest in the subject without overburdening the text. The author's predilections are stated judicially and the reasons given for the faith that is in him. His advancement operation, which may be regarded as a modification of Weber's single-suture operation, is a case in point. We are in full agreement with the opinion that a firm anchorage near the cornea is of prime importance in these operations. Iridectomy is discussed first in general terms, special indications in specific varieties following. Since the variations are so great—e.g., in iridectomy for optical purposes as compared with iridectomy for glaucoma—we think that a detailed description of each operation, though it might involve some repetition, would have been preferable. Extraction of cataract, with its attendant difficulties and accidents, is well discussed. Two pages of "don'ts" include many maxims of value; "don't get shaky" heads the list. In dealing with the "Indian" method of extraction of cataract in the capsule Dr. Beard voices the general opinion of judicious ophthalmologists in saying that "when the time arrives that the average operator can rid the eye at once of cataract, subcapsular cortex, and capsule with as little ultimate damage to the integrity of the organ as it now incurs from the best chosen of other methods, ophthalmic surgery will have made

an enormous step in advance. That such a time has not arrived no one can deny, and few, perhaps, are so optimistic as to believe that it is near."

Super-Organic Evolution: Nature and the Social Problem. By Dr. ENRIQUE LLURIA. With a Preface by Dr. D. SANTIAGO RAMON Y CAJAL. Translated by RACHEL CHALLICE and D. H. LAMBERT, B.A. Oxon. London: Williams and Norgate. Pp. xviii. + 233.

THE object of this book is to show that man will never free himself from his degeneracy so long as he lives in opposition to the harmony of universal laws; and in trying to find the key to the problem of how the fundamental principles of nature are infringed Dr. Lluria soon got on the track, for one day he said to himself, "The inheritance of humanity is nature, natural forces. Capital or *money* is but a limited resource, and it does not confer joy on man as a whole." His programme is divided into two parts, the first being to show how the social organism is in complete disaccord with the theory of evolution; the second, to prove how it is possible that a society organised according to these laws of evolution becomes susceptible of a rapid and indefinite development. Super-organic evolution is apparently the development of human society, the super-organic organism; and the results at which Dr. Lluria arrives are of a startling—indeed, of a revolutionary—nature. Dr. Lluria has evidently made a deep study of sociologists (Herbert Spencer, Haeckel), physiologists (Ramon y Cajal, Kölliker, and others), and physicists (Crookes, Mendeléeff, and others); he is a profound admirer of Darwin, though he holds his own ideas of "the struggle for life"; indeed, the number of authors quoted points to the assiduity of the writer, and the result of all this elaboration is a fantastic and Utopian dream of what the world will be when human nature has fully evolved, emancipated from the degrading influences which impede the correct working of its mechanism. The predicted paradise reads like a fairy tale. It is, indeed, difficult to travel with Dr. Lluria in his flights of imagination unless we are prepared, on returning to earth, to blot out all memory of things as we left them and to find that in the world of the future everything of a noxious nature will be eliminated—in his own words, "the family of the future will be love!" In order to realise the state of things held up in the chapter on the "medium" (universal mechanics), it is indispensable (says Dr. Lluria) for future communities to reconstruct their cities on sanitary principles, because cities and all their buildings are the result of an absurd social organisation. In a word, the whole of the present social medium is incompatible with the society of the future. Professor Ramon y Cajal seems to have been infected by Dr. Lluria's hedonism, for he says in his preface: "A time will come when the cosmos sets in motion an endless number of machines, and manufactures articles at ridiculous prices; when, having discovered the secret of chemical synthesis, the engineer of the future, without competing with the earth, elaborates the seed, gluten, albumen, sugar, and fat. What will it matter that love multiplies the species without end! There will be the human brain generously offering us new and saving inventions. The treasure of the inextinguishable solar ray will be able to produce shining fruits and golden ears." It is really rather difficult to believe that Ramon y Cajal is serious in his laudatory remarks, especially when he talks of "replacing the arbitrary hypotheses of Darwin and De Vries by the nerve theory of the inheritance of acquired qualities."

Among much that is obscure in phraseology, we fail to find proofs either that the proposed millennium is possible or probable; there is a somewhat confused mixture of facts and theories taken from different sources, but the conclusions drawn are little more than assertions, and we rise from a perusal of Dr. Lluria's book with a feeling of relief that geologic ages are likely to pass before the foretold cataclysm occurs. The translation of the book has been very readably performed.

Post-Mortem Manual: a Handbook of Morbid Anatomy and Post-Mortem Technique. By CHARLES R. BOX, M.D., B.S., B.Sc. Lond., F.R.C.P. Lond., F.R.C.S. Eng., Physician to Out-patients, St. Thomas's Hospital, &c. London: J. and A. Churchill. 1910. Pp. 335. Price 6*s.* net.

THIS little book is intended as a guide to students and practitioners in the performance of necropsies, and it is admirably adapted to this purpose. Beginning with a brief account of the instruments needed and with advice as to taking notes, it deals next with the external examination of the body and with the incision requisite to expose the viscera. The account then follows the steps of the usual routine method of making a necropsy. The opening of the chest is described and the morbid conditions likely to be found in so doing; and then each organ is considered in turn, the incisions for opening it are described, and the pathological conditions which may be found in it are enumerated. The same system is followed in the account of the abdomen and pelvis with their contents. The examination of the brain and spinal cord is next taken up and similarly treated, and is followed by a chapter on the morbid conditions that may affect the bones and joints. The scrutiny of the organs of special sense is dealt with in a separate chapter, very useful advice being given as to the methods to be pursued in this rather difficult stage of the proceedings. Finally, there are chapters on the special examination necessary in the case of newborn infants and on the mode of embalming a body.

We can hardly praise this little book too highly as excellently fulfilling the design of the author. We have indeed only one complaint to make, and that is in respect of its alternative title, "A Handbook of Morbid Anatomy." This it certainly is not, if the words imply, as we should suppose, a full and systematic description of the morbid conditions which may be found after death. These are enumerated, and rough descriptions of the general appearances are given in many cases, sufficient to put the reader on the look-out for them, and to assist him to some extent in distinguishing one from another; but this is much less than we should expect in a handbook of morbid anatomy. There are a few illustrations, chiefly showing the methods of incising the different organs. There is also a good index.

We heartily commend the book, which should find its way into all post-mortem departments.

Difficult Labour: a Guide to its Management. For Students and Practitioners. By G. ERNEST HERMAN, M.B. Lond., F.R.C.P. Lond., F.R.C.S. Eng. New and enlarged edition, with added chapters on Retroversion of the Gravid Uterus and Puerperal Eclampsia. With 180 illustrations. London: Cassell and Co., Limited. 1910. Pp. 547. Price 12*s.* 6*d.*

Dr. Herman's book on difficult labour is one of such excellence that we welcome the appearance of this new and enlarged fifth edition. The book has been revised throughout, a number of additions have been made to the letterpress, and further illustrations have been added. Accounts of eclampsia and retroversion of the gravid uterus have also been added, although these two complications of pregnancy do not really come within the scope of the work. The book preserves all the characteristics of the earlier editions. The author is nothing if not dogmatic, and while his position as an eminent specialist and teacher entitles him to be dogmatic, he hardly increases our respect for his authority when we find such a statement as "to expect to stop bleeding from

the uterus by applying a plug to the vagina is absurd." That it is possibly not a good way we admit, but to term a method of treatment absurd which at any rate is extensively taught at the present time by some of the most distinguished obstetricians in this country does not seem to us a very temperate or, indeed, useful statement. For an excellent account of what not to do and of the many fallacies that are ever present in the various methods of treating eclampsia we commend the reader to the chapter on that subject in this book. It is a matter of congratulation that Dr. Herman should have decided to add a chapter on retroversion of the gravid uterus and its incarceration. As he remarks truly, there is a vast amount of misconception about the usual results of such an accident, and upon these misconceptions a large amount of faulty treatment has been based.

The whole book is a credit to its author, and he does well, as he is a great admirer and a worthy disciple of the classical English writers on obstetrics, to remind us so often of the good work which has been done by them, with which many of the writers of modern text-books seem strangely unfamiliar. This fifth edition we can strongly recommend to all students and practitioners; it cannot fail to be of the utmost help to the former in their examinations and to the latter in their practice.

The Diseases of Children. By JAMES FREDERICK GOODHART, M.D., LL.D. Aberd., F.R.C.P. Lond., Consulting Physician to the Evelina Hospital for Sick Children; Consulting Physician to Guy's Hospital, &c. Ninth edition. Edited by GEORGE FREDERICK STILL, M.A., M.D., F.R.C.P. Lond., Professor of Diseases of Children, King's College, London; Physician for Diseases of Children, King's College Hospital; Physician to Out-patients, the Hospital for Sick Children, Great Ormond-street. London: J. and A. Churchill. 1910. Pp. 931. Price 15*s.* net.

THIS admirable manual of the diseases of children has reached its ninth edition and is therefore in no need of detailed review or even of commendation, since it has already taken a high place among standard works on the subject with which it deals. The present edition is the outcome of a thorough overhauling of the text by both authors, and it contains 100 pages more than the last. For the first time a few illustrations have been added. These are for the most part reproductions of photographs of characteristic examples of special diseased conditions, and they add to the value of the descriptions given in the text. The subject headings are also given in larger and thicker type than in previous editions, and the cover is of a deep red colour in place of the green of previous editions. In other respects the general character of the book remains the same, and it retains the personal note in much of the descriptive matter which gives it a special interest and value as a record of wide experience. In the preface Dr. Goodhart explains that Dr. Still must be understood to be the predominant partner when the plural "we" is used in the text, but that where possible he is made to speak in his own name, since a good deal of his own work in regard to special subjects is embodied in the book.

Every student commencing the study of the diseases of children would do well to read the introduction to this book, since it abounds in wise practical hints in regard to the methods of examining children. The important question of feeding is also dealt with in a thoroughly satisfactory manner, and the group of diet diseases, which form so large a proportion of the disorders of early life, are treated fully. The interesting conditions of recurrent vomiting and congenital hypertrophy of the pylorus are both considered at some length and their diagnosis is carefully discussed. The subject of infantile paralysis is also described in an interesting manner, and the results of recent work upon its nature and probable infective origin are incorporated. An interesting account of the pyelitis of infancy is given, illustrated by two temperature charts. In connexion with tuberculosis the value of the newer methods of diagnosis by means of tuberculin is briefly discussed.

In summing up our opinion of this book we may say that it has been brought up to date, and that it remains, as it has been throughout its previous editions, a valuable practical handbook for the student, and one which, after qualification, he will do well to retain on the shelves of his professional library.

LIBRARY TABLE.

The Housing, Town Planning, &c., Act, 1909 (9 Edw. VII. ch. 44), with Introduction, Full Explanatory Notes, and Index. By W. A. CASSON (of the South-Eastern Circuit) and ATHELSTAN RIDGWAY, LL.B. Lond., Barrister-at-Law. Second edition. London: Charles Knight and Co., Limited. Pp. 148. Prices, net, 15*s.* per doz.; single copies, paper, 2*s.*; cloth, 2*s.* 6*d.*—This volume, which has already found sufficient appreciation to warrant the issue of a second edition, is, as its title and range of prices indicate, designed as a handbook for the officials and members of local councils, to whom has been entrusted a very wide discretion in the carrying out of Mr. Burns's most valuable statute. It is well calculated to prove useful as such in many respects. Its introduction is clearly written, and its explanatory notes, anticipatory as in such circumstances the comments of the legal editor are compelled to be, are designed to serve as a warning with regard to difficulties likely to arise in practice and to assist in the elucidation of those due to the form in which the draughtsman has embodied the new law. We note with cordial assent a protest by the editors in their introduction against the objectionable system of legislating by cross-reference, which renders so many Acts of Parliament absolutely unintelligible to anyone not equipped with a library of statutes. Part I. of the Act dealt with is referred to as an extreme example of this, and a codifying measure is suggested. Mr. Casson and Mr. Ridgway are to be congratulated on the whole, but they do not appear to have realised the usefulness of an extra lucid and complete index for the guidance of persons not lawyers in handling a new subject. Looking at their index from the point of view of the medical officer of health anxious to ascertain his new duties, we do not find any reference to him under the letter M, although he figures unexpectedly under C as an officer employed by the County Council. Turning again to the important topic of rural housing, we note that the functions assigned to rural district councils do not appear under that title, but are scattered under headings suggested by the powers dealt with. We beg to recommend as a principle of indexing in works of this kind that all bodies and all individuals should be able to get readily upon the track of those provisions which most intimately affect themselves.

Errors of Refraction and Their Treatment. By CHARLES BLAIR, M.D. Durh., F.R.C.S. Eng. Second edition. Bristol: John Wright and Sons, Limited. 1910. Pp. 106. Price 2*s.* 6*d.* net.—The fact that this little book has reached a second edition shows that there is demand for such works. It comprises in somewhat elaborated form the details of errors of refraction and their treatment, such as are included in any manual of ophthalmology. Thus the estimation of visual acuity, emmetropia, accommodation, convergence, asthenopia, ametropia, hypermetropia, myopia, astigmatism, presbyopia, strabismus,

and anisometropia are treated in succession, and a few final remarks are made about the examination of patients and the constituent parts of spectacles. The work is in every respect sound and reliable, the teaching is in accordance with the principles inculcated in the best schools, and there is an absence of that lack of judgment and superfluity of exaggeration which so often mar brochures of this well-known type. We cannot avoid the impression that it caters for a class which demands a royal road to knowledge —and practice—whilst they are unable or unwilling to traverse the arduous and thorny path which alone leads to success; as against this feeling we must set the fact that in a workaday world everyone has not time to know all about everything. It is absolutely essential that practitioners should be familiar with simple ophthalmology, and this work will tell them much and form a good introduction to more.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XL., No. 6. August 15th, 1910. London: C. F. Clay, Cambridge University Press. Price 3*s.* 6*d.*—The contents of this number are: 1. The Question of Hæmolysis in the Liver, by Leonard Findlay, M.D. Glasg., of Glasgow. Dr. Findlay finds that the blood of the hepatic vein contains more red blood corpuscles per cubic millimetre than that of the portal vein, and in accordance with this more hæmoglobin. No trace of hæmoglobin was found in the serum. There is no evidence that hæmolysis takes place in the liver. 2. The Transformations in the Fats in the Hen's Egg during Development, by Elizabeth C. Eaves, from the Institute of Physiology, University College, London. Her experiments show that there is a loss of fat during development, the first step being the formation of double linkages. 3. Periodic Breathing at High Altitudes, by C. Gordon Douglas, B.M. Oxon., Fellow of St. John's College, Oxford. The altitudes at which his experiments were carried on were 300 feet, 7000 feet, and 10,700 feet The causative factor responsible for the periodicity of breathing observed is ultimately deficiency of oxygen. 4. The Determination of the Total Oxygen Capacity and Blood Volume at Different Altitudes by the Carbon Monoxide Method, by C. Gordon Douglas, B.M. Oxon. 5. The Action of Tetrahydropapaveroline Hydrochloride, by P. P. Laidlaw, M.A., B.C. Camb., from the Wellcome Physiological Research Laboratories. 10 milligrammes intravenously administered to a rabbit were followed by greatly accelerated action of the heart and a quicker rate of respiration. It greatly relaxes the muscular tissue of the uterus and reduces the tone of the bronchiolar muscle. 6. The Colour-blind Margin of the Blind Spot and the Scotometer, by John Berry Haycraft. The instrument used is described. Where the limits of the blind spot have been defined it is found that blue is the colour first recognised outside of that limit. The order in which the other colours are recognised varies in different cases. Red appears first grey, then yellow, then orange, and finally red. Green appears first grey, then yellow, and finally green. This number contains also the Proceedings of the Physiological Society for June 18th, 1910, and for July 9th, and the index and table of contents of Vol. XL.

Ophthalmology. Edited by H. V. WÜRDEMANN, M.D., and A. M. MACWHINNIE, M.D., Assistant Editor, with a large staff of subeditors. Published in England by George Keener and Co., 16, Red Lion-square, London; in the United States at 411, White Building, Seattle, Washington. Vol. VI., No. 4. July, 1910 Price 6*s.* 6*d.*—In addition to copious abstracts from English and continental journals and some reviews, this number contains 13 original articles. Amongst them is a suggestion by Dr. R. Denig for a mode of operation for chronic glaucoma applicable to such cases as do not yield to iridectomy. The operation consists in inserting a flap of conjunctiva removed after an iridectomy through the corneal wound and drawing it through the anterior chamber and through a perforation made in the cornea 2 millimetres from the corneal margin. It appears as though the conjunctiva would aid in forming a cystoid cicatrix, and will at all events maintain a permanent drainage that might prove of advantage in chronic cases of glaucoma. Dr. J. H. Claiborne, under the title of "Things that have Happened," gives an amusing account of some exceptional cases that have occurred in his practice. Dr. William Phillips discusses the treatment of a form of amblyopia named "argamblyopia," due to the restraining influence of congenital astigmatism. Dr. E. E. Blaauw gives a historical account of the treatment of diseases of the lacrymal apparatus, from which it appears that the oldest mention of the operation for lacrymal fistula occurs in the laws of Hammurabi, King of Babylon, 2250 B.C., in which the severe edict is promulgated that the physician who in opening a lacrymal tumour causes the loss of an eye shall have his hands cut off. Dr. F. H. Koyle gives the details of an interesting case in which considerable repair of the cornea followed after a burn. Several isolated cases are also recorded, and Dr. J. Hirschberg contributes an article on "A Plagiarised Text-book of Ophthalmology by Mr. William Rowley." This number also contains numerous abstracts from foreign journals, a table of contents, and an index to Vol. VI.

MELÆNA.—In reviewing a book by Mr. B. G. A. Moynihan on "Duodenal Ulcer" last week it was suggested that the word melæna was plural and not singular. Mr. Moynihan has written to us quoting "Copland's Dictionary," "Murray's New English Dictionary," and the "Century Dictionary," all of which agree that the word is the feminine singular, the word "nosos" being understood.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

GLASHAGEN MINERAL WATER.

(AGENCY: FEATHERSTONE AND GRAY, 9, FARRINGDON-AVENUE, LONDON, E.C.)

THIS interesting mineral water may be described as a natural soda water since its chief constituent is bicarbonate of soda, the salt occurring naturally in the spring at Glashagen, near Doberan in Mecklenburg. One advantage of the water is that it is not excessively mineralised, as, according to our analysis, the total mineral constituents amounted to 7·5 grammes per 10 litres. The water is practically free also from calcium salts. The following constituents were estimated, their amounts being given in grammes per 10 litres: sodium bicarbonate, 6·40; magnesium bicarbonate, 0·07; calcium bicarbonate, 0·64; sodium chloride, 2·0; silica, traces; and ammonium chloride, 0·0036. From this analysis the antacid properties of the water are evident. On examination for organic matters there were some indications of the presence of vegetable products, but there was no suggestion whatever of any animal-derived matters. The water is singularly fresh and clean to the palate and is pleasantly charged with carbonic acid gas. It is practically free from iron and sulphates and therefore mixes perfectly with wines and other alcoholic beverages. Further analysis elicited the presence in traces only of potassium and of bromine. The water clearly belongs to the class of alkaline

saline waters which are oftentimes prescribed with advantage in gastric catarrh and in chronic catarrh also of the urinary organs.

CELLASIN.

(MEAD, JOHNSON, AND CO., JERSEY CITY, N.J. AGENCY: MAY, ROBERTS, AND CO., CLERKENWELL, LONDON, E.C.)

Cellasin is a remarkable product if the claims made in its favour can be substantiated, and evidence obtained in our own laboratory is on the whole unopposed to these claims. We had no difficulty, for example, in demonstrating the disintegrating action of cellasin on both starch and sugar. It resolves sugar into lactic acid, and consequently starch may be transformed into the same product. On keeping a solution of cane sugar to which a little bicarbonate of soda had been added with a small quantity of cellasin at 100° F., the development of lactic acid was soon evident, and after 24 hours the liquid gave definite reactions for lactic acid. It is claimed that since this action proceeds in the presence of an antiseptic the change is due to an enzyme and not to bacteria. In a similar experiment cellasin was found to convert 17 times its weight of starch in two hours at the same temperature. Cellasin, again, has the property of emulsifying and resolving fats in alkaline media. It may be observed that cellasin is unaffected by acid fluids of the strength of the gastric juice. It passes through the stomach, therefore, with its activity unaffected, to be then available in the alkaline conditions further along the alimentary tract. Cellasin is soluble in water rendered alkaline by sodium bicarbonate, but is only slightly soluble in a neutral or acid fluid. It is stated to be a ferment prepared from the cultivation of fungi, the enzymes being expressed free from cell attachment by suitable means, and for administration in malnutrition is prepared in tablet form. It is mentioned favourably in connexion with tuberculosis and other wasting diseases.

VALIER CHEESE.

(W. H. ROBSON, PURTON, WILTS.)

We are quite prepared to accept the statement that this cheese is made from pure new milk into which a fine culture of lactic acid bacilli has been introduced. On placing at all events a small crushed sample of the cheese in milk and incubating at 100° F. the acidity of the milk developed until in 24 hours it had quadrupled over the initial quantity of acid present. Apart from that fact the cheese has an excellent flavour, recalling the elegance of fine old English cheese. The condition of the cheese was sound; its flavour was smooth and free from any suggestion of "bite"; we found it easily digestible, a quality which is not surprising, seeing that scientific care is given to its preparation.

VEGETABLE CHARCOAL PREPARATIONS.

(J. L. BRAGG, LIMITED, 14, WIGMORE-STREET, CAVENDISH-SQUARE, LONDON, W.)

The very singnlar adsorptive and absorptive properties of well-prepared charcoal suggest its therapeutic value. The quality of the charcoal, however, must be unimpeachable, and it requires preparing with care in a special way. We have examined charcoal which appeared to be quite inactive and therefore of no use for therapeutic purposes. In a series of experiments made with Messrs. Bragg's preparations the evidence was very clear as to their adsorptive and absorptive properties at any rate *in vitro*, and there is no reason to think that they would not similarly be effective *in vivo*. Bragg's charcoal, for instance, absorbed ammonia and absorbed also and deodorised snlphuretted hydrogen in solution in water. It further removes the tannin from tea, and many of the poisonous alkaloids are absorbed by charcoal. The application of this property to the removal of gas or acrid prodncts of indigestion is thus obviously indicated, and in many cases the use of charcoal in some forms of flatulent dyspepsia has been attended with satisfactory results. Its action may continue in the bowel and there possibly control flatulent conditions. Charcoal is evacuated from the body unchanged. We examined two charcoal powders, one being more finely powdered than the other, and in the one case the mineral matter amounted to 6·67 per cent. and in the other to 4·19 per cent. This contained calcium carbonate and a relatively small amount of phosphate. Animal charcoal, of course, gives a large residue of phosphates. The preparations included charcoal in capsules (in an oily vehicle) and charcoal also in an agreeably tasting chocolate envelope.

DIGESTIN.

(AGENCY: BURGOYNE, BURBIDGES, AND CO., 12 AND 16, COLEMAN-STREET, LONDON, E.C.)

Digestin is described as a digestive ferment procured from the okazaki fungus, which belongs to the aspergillus family, and is prepared in the pharmaceutical laboratory at Somei Sugamo, Tokyo, Japan. On examination it proved to be a fine yellowish powder practically soluble in water. Experiments showed that it had a remarkably powerful action on starch, reducing starch paste almost instantly into a limpid fluid and converting it finally into sugar. A quantitative experiment showed that digestin was capable of transforming no less than 100 times its weight of starch into sugar in an hour kept at body temperatnre. We were not so successful, however, in the experiments in which we placed digestin in contact with finely powdered beef freed from fat. There did not appear to be any marked digestive action upon protein either in weak alkaline or acid fluid. It is stated, however, that digestin will liquefy into assimilable form 100 times its weight of milk, converting it almost into peptone, and that also it will liquefy animal fibrin to the extent of 100 times its own bulk and vegetable fibrin 10 times the amount in about two hours. Digestin is recommended in cases where the nutritive processes need assistance, as in wasting diseases.

PURE CHINA TEAS AND BLENDS.

(THE MAZAWATTEE TEA COMPANY, LIMITED, TOWER-HILL, LONDON, E.C.)

We have examined these teas and the results are quite in accordance with the description given of them. Two specimens consisted of pure China tea and two of China teas blended with other teas. Infusions made with these teas proved satisfactory to the palate and free from roughness. China teas in our experience can be distinguished by chemical tests from Ceylon and Indian teas, and such tests applied to these teas readily differentiated them. Those persons who are careful as to the quality of the tea they drink may use these teas and blends with confidence.

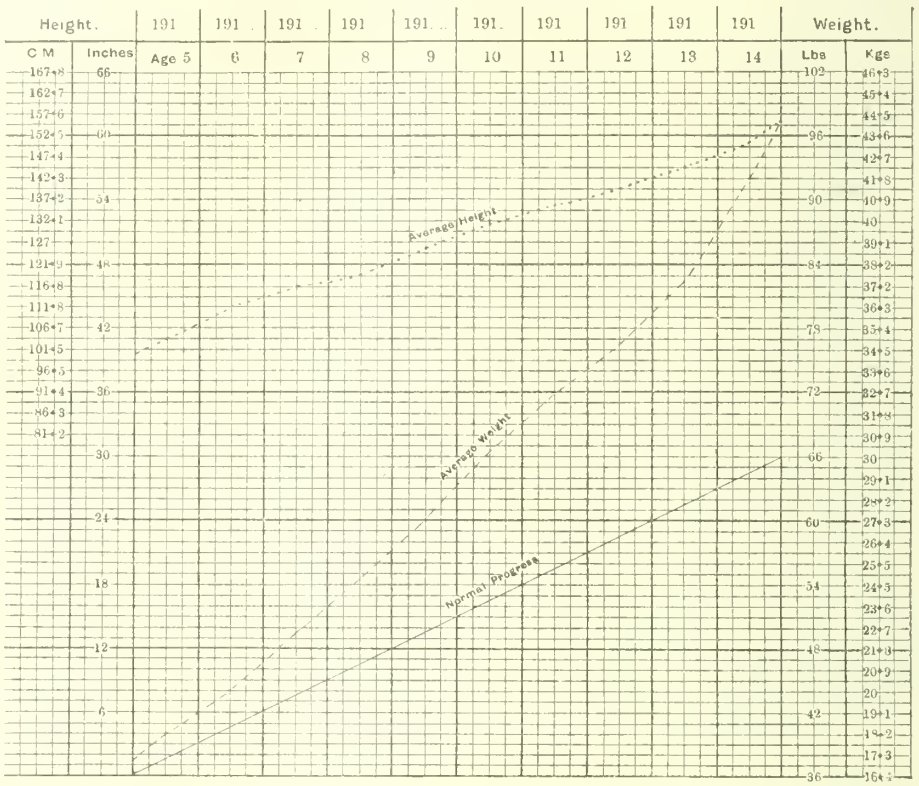
BOLINGBROKE HOSPITAL.—At an extraordinary general meeting held recently the governors of Bolingbroke Hospital, Wandsworth Common, resolved to repay the £5000 which the trustees of the late Mr. Benjamin Weir in 1907 advanced to the hospital, under the authority of the Charity Commissioners. It may be remembered that opposition to the action of the Charity Commissioners recently arose on account of the allocation to the Bolingbroke Hospital of funds bequeathed by Mr. Weir for the benefit of Streatham medical charities.

COLONIAL MEDICAL SERVICES.—*West African Medical Staff:* Dr. A. E. Horn has been selected for temporary special service in the Colonial Office. Dr. F. Ross has been selected for an appointment in Southern Nigeria. *Other Colonies and Protectorates:* Dr. J. W. Eakin, district medical officer, Trinidad, has been transferred from Port of Spain South to Port of Spain East. Dr. C. L. Eyles has been appointed Assistant Colonial Surgeon in British Honduras. Mr. F. A. de Verteuil, district medical officer, Arima, Trinidad, has been appointed District Medical Officer, Port of Spain West; and Dr. H. S. Sugars has been selected for appointment as a medical officer in the Straits Settlements.

New Inventions.

THE A. L. GRAPH MEDICAL CARD.

Mr. Fred. Smith, Halifax, sends us copies of medical chart cards, which he has drawn out for the use of school medical officers at their inspection of school children. The cards have been adopted by the school medical officer and are in use in the borough of Halifax. The illustration is of the graph, and needs no explanation. Average values are taken from the figures of the Anthropometric Society (Proceedings of the British Association, 1883). In addition to the graph the cards have spaces for noting causes of irregularity of attendance, nature of clothing and footgear, state of hearing, speech, mentality and vision, and on the reverse of the card spaces for age, standard or class, cleanliness and condition of body and head, and the results of detailed physical examination. Cards for girls are coloured green and for boys white. The "normal progress" line has reference to the advance in class or standard, and allows of a rise of three squares per class per year. The card is published by J. Arnold and Sons, Limited, Leeds.



Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 15th, 1832.

HYDROSTATIC BED FOR PATIENTS AND INVALIDS.

(*Abridged from the 5th Edition of Dr. Arnott's "Elements of Physics," now in the Press.*)

IT is to mitigate all, and entirely to prevent some, of the evils attendant on the necessity of remaining in a reclining posture, that the hydrostatic bed described in the following account is intended. It was first used in the case of a lady, who, after her confinement, passed through a combination of low fever, jaundice, and slight phlegmasia dolens of one leg. She rested too long in one posture, and the parts of the body on which she had rested all suffered: a slough formed on the sacrum; another on the heel; and in the left hip inflammation began, which terminated in abscess. These evils occurred while she was using means to invigorate the circulation, and while her case was watched with affectionate assiduity. She was placed upon the bed contrived for invalids by Mr. Earle, with pillows of down and air, and out of the mattress of which portions were cut opposite to the sloughing parts. In spite, however, of all endeavours, the mischief advanced, the chief slough enlarged, another slough and a new abscess were produced, and her life was in imminent danger.

Under these circumstances, the idea of the hydrostatic bed occurred to me. Even the pressure of an air pillow had killed her flesh, and it was evident that persons in such a condition could not be saved unless they could be supported without sensible inequality of pressure. I then reflected, that the support of water to a floating body is so uniformly diffused, that every thousandth of an inch of the inferior surface has, as it were, its own separate liquid pillar, and no one part bears the load of its neighbour, and that the patient might be laid upon the surface of a bath over which a large sheet of the water-proof India-rubber cloth was previously thrown, she being rendered sufficiently buoyant by a soft mattress placed beneath her. Such a bed was immediately made. A long trough, a foot deep, was lined with metal, to make it water-tight; it was about half filled with water, and over it was thrown a sheet of the India-rubber cloth. Of this sheet the edges (touched with varnish to prevent the water creeping round by capillary attraction) were afterwards secured in a water-tight manner all round to the top of the trough, the only entrance left being through an opening at one corner, which could be perfectly closed. Upon this dry sheet a suitable mattress was laid, constituting a bed ready to receive its pillow and bedclothes, and not distinguishable from a common bed but by its surpassing softness. The patient was laid upon it; she was instantly relieved; sweet sleep came to her; she awoke refreshed; she passed the next night much better than usual; and on the following day all the sores had assumed a healthy appearance; the healing from that time went on rapidly, and no new sloughs were formed. The down pillows were needed no more.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 17, 1910.

Public Health Administration in British South Africa.

Now that the unification of British South Africa has become an accomplished fact, progress along the various lines of material development natural to a young and vigorous nationality may confidently be anticipated. But we must not be surprised if progress seems sometimes to halt. The vast country has been peaceful for some eight years past, but it must not be forgotten that for nearly three years previously all civilisation was at a standstill; while in the period that has intervened since there has been too much turmoil and unrest, social, political, and economic, to allow of the gradual and steady evolution that alone can be of permanent value. But the time has arrived for definite and substantial advances in the amenities of life, and it is this fact which suggests to us the need for considering the position of sanitary administration in British South Africa; for if there is one thing more certain than another in the development of States it is that the future will lie in the hands of the population which knows best how to control and maintain its public health. As the opening of the first Union Parliament by H.R.H. the Duke of CONNAUGHT will furnish a landmark in the constitutional history of British South Africa, so the assembling of the South African Medical Congress under the same Royal auspices will be a fresh starting-point in its public health history. It is not to be supposed that the members of the medical profession are the only body of men competent to lay down the lines of this advance and to carry it out: two other professions, the engineering and the legal, must give their assistance. But the foundations on which real progress in public health must be established consist in a sound knowledge of physiology, pathology, and the prevention of disease: which matters are primarily the business of the medical profession. The advances that have hitherto been made have been brought about primarily at the instigation and through the efforts of medical men trained in, and conversant with, the methods of sanitary science; and often, strange as it may appear, in opposition to the opinions of statesmen and men of affairs in other respects of the highest attainments and capacity. It is necessary, therefore, that the leaders of our profession should possess, in addition to professional skill and expert knowledge, a considerable amount of influence with the community such as can only, in ordinary circumstances, be assumed by official position. And here it is that we regret to find the present position in South Africa to be far from satisfactory.

By the Act of Union, which came into force on May 30th last, the whole of the general administration of the former colonies—Cape Colony, Natal, Orange River Colony, and Transvaal—which are now termed provinces, has been concentrated under the Union Government, a few purely local affairs only being dealt with by the provincial authorities. As with other departments of civil government, the department of public health is placed directly under the central authority at Pretoria. The duties with which this department is concerned include the control of epidemic disease and the prevalence of syphilis, port health administration, the care of lunatic asylums, lepers and leper asylums, the maintenance and control of local authorities in carrying out their public health duties, the direct care of the public health where no local health authority exists, the collection and tabulation of births, deaths, and vital statistics, the organisation of medical research, and the management of all matters relating to the medical profession and the practice of medicine, including in this the allied callings of dentists, chemists, midwives, and nurses. Cape Colony is the only province that has had a public health department for any considerable time. There, under Dr. A. J. GREGORY, has been evolved an effective health administration, the value of which was so well recognised that it had been constituted a regular Government department, to which have since been referred other matters appertaining to local government. The medical officer of health of the colony was the head of the department, with rank and status as such in the Civil Service. After the war public health administrations were organised in the other colonies, that in the Transvaal having powers similar to, but not so extensive as, those possessed in Cape Colony, and here Dr. GEORGE TURNER was appointed the first head. When responsible government was instituted in 1907 the new Colonial Secretary practically abolished this department, and a medical officer of health was appointed with apparently little or no powers of administration or control, his duties being merely advisory. Natal has a public health department definitely established, with the health officer of the colony at its head under the Colonial Secretary; there is also a Board of Health having advisory functions. Orange River Province has a public health department under the medical officer of health, subordinate to, and comprised within, the department of the Colonial Secretary. There is, therefore, no uniform system in existence, although there is excellent precedent in the country itself for the maintenance of an effective public health administration which would place the sanitary needs of the populace before any purely political exigencies or sentiments. The medical profession in British South Africa have recognised the importance of establishing public health administration on a sound basis under the Union, the effects of the retrograde movement in the Transvaal having become manifest. No one has voiced this feeling more clearly than Sir KENDAL FRANKS, the well-known Dublin surgeon, who now practises in Johannesburg. Sir KENDAL FRANKS has delivered addresses to the medical profession at Cape Town and other centres, pointing out the unsatisfactory position occupied by medical men in a political aspect. He mentions that on the general committee of the Johannesburg Hospital the medical staff were represented by three advisory members, *without votes;* that a commission of inquiry into the management of the hospital was

appointed (composed almost exclusively, strange to say, of the members of the management committee themselves), who recommended "that the honorary medical staff be not represented on the existing hospital committee or on any future hospital committee in any capacity"; and still more extraordinary, that although a Transvaal Medical Council was appointed by statute in order to administer the Medical Act, about a year later a Bill amending the Medical Act was brought in, without any intimation of the fact to the Medical Council, and when they protested against some of the clauses their protest was ignored and the clauses were passed. Unfortunately, it is not only in the Transvaal Province that the intention of depriving the medical profession of its legitimate position in the State has been manifested. Before the union took place, and while details of administration were being discussed in various centres, the virtual abolition of the Transvaal Public Health Department was fully considered by various branches of the British Medical Association and other medical associations in South Africa; definite resolutions were passed and forwarded to the Government asking that in the new Union Government a portfolio of Public Health should be established, either by itself or in conjunction with some other portfolio, to be held by a Minister of the Government. In spite of this, and with complete disregard of the very successful medical administrative experiences in Cape Colony, when the Union Government was established last June the administration of public health was allocated to the Department of the Interior, along with "all matters in relation to the public service, immigration, registration and control of Asiatics, statistics and census, elections and preparation of voters' rolls, Government printing and stationery, asylums, libraries, museums and observatories, naturalisation and passports, archives, arms and ammunition, and all such matters as are not assigned to any other department." The Minister to whom is committed this extensive charge, General SMUTS, is also responsible for the department of Mines and the department of Defence. Failure to appreciate the real importance of preserving the health of the community could hardly be more complete.

That the medical profession, as a whole, in South Africa does not obtain from the general community the consideration which is its due we must acknowledge, with Sir KENDAL FRANKS; that in official circles it has received a set back in the treatment that has been accorded to Dr. GREGORY at the Cape and Dr. TURNER in the Transvaal it is also impossible to deny. We are convinced, and we believe every impartial inquirer into the facts will allow, that the official course of action which has been taken is, all personalities apart, unwise in the true interests of these provinces and of the Union as a whole. As regards the want of courtesy and consideration to the medical profession, of which Sir KENDAL FRANKS gives instances, such things are not unknown in older and more settled communities. Our brethren in South Africa may feel assured that they have our sympathy, if only because in this country, too, the medical man suffers from official ignorance and neglect. We trust that many British medical men will visit Cape Town for the South African Medical Congress which is fixed for an early date in November, probably the 3rd. The voyage takes 17 days, and can usually be taken without experiencing much rough weather. The climate is most agreeable and exhilarating. For those who are lucky enough to be able to escape from our winter fogs and slush no more pleasant or varied holiday could be desired. The Union festivities at Cape Town, the grand scenery of the Victoria Falls, the battlefields, the mines, the near view of the development of the new South Africa, will all be of great interest to the visitor, and we are assured that a warm welcome would be extended by our professional brethren in the Union to visitors from home. We also feel that this would be an occasion for showing sympathy and support that would be highly valued by our colonial friends in present circumstances, and we trust that there will be much interchange of counsel and courtesies between the practitioners of the Old Country and the new Union.

The Aftermath of the Holiday.

IT is within the experience of a very large proportion of those who take holidays—and nowadays holidays are taken by nearly everyone as a matter of routine—that when the holidays are over the holiday-maker feels none of that exhilaration, none of that increase of energy, which he expected, and, indeed, had a right to look for, as the outcome of his freedom from work. In place of these pleasant sensations he feels exhausted, disinclined for exertion, and lacking in energy; in fact, very much as he felt before his holiday began. In some cases the change is definitely for the worse; the subject feels less apt for work, less capable of undertaking any exertion, mental or bodily—in a comprehensive and popular word, he is less "fit" than he was before he broke off work. Such a result is frequently seen—so frequently that it cannot be regarded as a casual occurrence, but rather as a natural result that might have been predicted from the conditions under which the holiday is often taken. That holidays are needed none will gainsay, and yet they are a comparatively modern idea. Many of our ancestors went from one year's end to another without any break in the course of their duties; in professional circles, outside the bar, vacations were unrecognised; while the commercial man who absented himself from his counting-house on the plea of obtaining a change of air would have been considered mad. May we adduce in support of this the evidence of JOHN GILPIN'S wife, who complained—

> "Though wedded we have been
> These twice ten tedious years, yet we
> No holiday have seen"?

In spite, however, of the custom of our predecessors it will be generally acknowledged that holidays are needed at the present time, and from this it must be concluded that we live more strenuous lives than those who went before us, while remembering also that we demand much more to make us happy. It is the pathetic side of elaborated civilisation that while we can get more we perpetually want so much more. Modern life is carried on at a tension unknown a century or two ago, while travelling facilities enable us at reasonable expense to visit all parts of the world which an abundant literature has already introduced to our knowledge. We need more holidays than men needed in the past because our lives are fuller and because opportunity has

bred the want, but it must not be forgotten that once upon a time—a time when the day's work was leisurely—Saints' days were very numerous, and formed a series of pleasant breaks in the working routine. It may be laid down as certain that holidays are needed now for those who live by their work; and many idle people slave so strenuously at being idle that they too want surcease from their exertions.

We may take it, then, as proved that there is a real necessity for rest among all classes whose labour, when they are at work, is not of an intermittent sort. Why, then, do so many holiday-makers fail to derive that benefit from their holidays which they might reasonably expect? The answer is obvious, though the circumstances which it implies are always easily to be avoided. The holiday, as only too often taken nowadays, is not a rest at all. The man who has been chained to a desk for 11 months of the year, and who has taken no more exercise than suffices to carry him to his office day by day, suddenly commences a violent outdoor existence; he walks or boats, or cycles for many hours every day; or he travels by train immense distances, remaining cramped in a crowded and ill-ventilated railway carriage for long spells at a time. He climbs mountains who has for the rest of the year had no more practice in climbing than is implied in negotiating the stairs of his house or the steps of his railway station. When a man makes such a sudden change in his life and exerts himself so intensely and with so little interval for the transition, can there be any room for surprise that this mode of holiday-making does not send him back refreshed? We would not for a moment suggest that exercise, even violent exercise, is in itself harmful at times for a sedentary man. It has been well said that the best rest is change of occupation, and this opinion we endorse fully. Therefore, he does well who, having been accustomed to little exertion during the working months of his year, spends his holiday in outdoor exercise, but he only too often misses the essential point. All change should be gradual. The body must have time to adapt itself to the changed conditions. A few days will not be misspent if they are devoted to a gradual increase in the amount of exertion undergone. Day by day the amount of exercise may increase in quantity, until it may become really great, and if this precaution be taken the result will be far superior to that which would have followed if no preparation had been made, and not only will the sensation of well-being be more clearly marked, but the physical exertion which can be accomplished will be markedly greater. The first essential to a holiday that is to do lasting good is that the change from the sedentary life to one of energetic outdoor exercise shall be made gradually. But this precaution is really only half of the matter. It is equally important that the return to the sedentary life should be gradual also, and then the reaction which so often results from a holiday will not occur. It will be noted that we are not discussing the risks of sudden and serious collapse from over-exertion, but only accounting for the disappointing feeling of fatigue that too often closes the holiday season of the busy man. Of course, the sudden undertaking of violent exercise is not without possible harm on the physical side. Tissues which have been unaccustomed to great strain are ill-adapted to endure it, and in no small number of cases permanent harm may follow. The heart of a man who has done no climbing for many months or even years is very liable to be strained unduly by even one great climb. All forms of physical exercise may produce a similar strain, but it is probable that no other form of exercise produces it so promptly as mountain climbing.

It may seem odd that we should think it necessary to point out such obvious things to our readers, but it is a fact that medical men are sadly deficient themselves in the prudence that they would inculcate in others. Nor is a holiday only unrestful and unprofitable where the physical exertion has been excessive. All excess is mischievous, and the man who gives himself too much to think about while he is away will not be truly making a holiday. A common fault and one productive of much after-fatigue is to go too far. Nowadays the passion to go as far as possible from home is so widespread that it is of little use to speak against it, and the facilities of travel are so great that it is useless to imagine that people will not take advantage of them. But long journeys must be taken with discretion. Protracted sitting in railway carriages is actively mischievous in many conditions, and especially is it harmful to let a long and wearisome journey immediately precede the return to work. The natural tendency is to utilise every possible moment for the holiday, and to such an extent is this carried that often the arrival home is timed for the morning of recommencement of work. Far better is it to allow a day or two at home before work begins again. Long journeys, moreover, generally mean great expense, and we are certain that anxiety as to money actively interferes with the advantages of many holidays. The man who is tormented with the necessity for strict economy while he has placed himself in an environment where that economy cannot be practised, and where a certain mild recklessness of daily expenditure will alone make life tolerable, is not extracting value from leaving off work—he is only exchanging one set of worries for another. Full physical value can only be obtained out of a holiday by a hardworking man if he graduates his bodily labours, working up to his maximum and working down from it before his return; full mental value will be greatly advanced by relief from money troubles. This last is a point that medical men do not always consider in their recommendations to their patients.

Medical Examinations under the Workmen's Compensation Act.

AT the Westminster County Court not long ago considerable discussion took place as to the alleged cause of the refusal of a workman in receipt of compensation under the Workmen's Compensation Act, 1906, to submit himself to medical examination when requested to do so by his employers. The refusal apparently had not been absolute, strictly speaking, but had been caused by the unwillingness of the workman to be examined by the particular medical practitioner whom his employers had designated for the purpose, and in his refusal he was supported by his

solicitors, who made it a condition that any examination by the gentleman named should take place in their office and in the presence of a member of their firm. At the conclusion of the argument which took place upon this occasion the county court judge held that the workman had refused to fulfil the condition imposed by the Act, and granted the employers' application based upon that refusal, but with regard to the result of the case referred to we do not now concern ourselves. The question whether a medical examination can take place in the presence of a layman in the circumstances indicated without its effectiveness being impaired is one of considerable importance. If it were possible that it should so be made without the truth being obscured, even though the medical man might be impeded to some extent and might personally prefer to be alone with his patient, there would be reasons to commend the innovation, and possibly a certain weight of public opinion in its favour.

In the instance which we have mentioned, and which we may take as being typical of what may happen at any time in county court districts far from Westminster, the medical man who was to examine the workman on the employers' behalf was Dr. R. J. COLLIE, who is a Doctor of Medicine and justice of the peace, holding the appointment of medical examiner to the London County Council and the Metropolitan Water Board, and of Home Office medical referee. In these official capacities Dr. COLLIE has had very considerable experience of the physical circumstances in which working men claim payment from their employers under the most recent Workmen's Compensation Act, and at the same time a large number of workmen have made the acquaintance of Dr. COLLIE. That gentleman fills posts which correspond with similar ones in other industrial centres and so cannot be said to occupy a unique position, and he has never, as far as we are aware, expressed any opinion upon workmen's compensation and its claimants which could be stigmatised as eccentric or peculiar. Like many others, however, who hold offices parallel to his own, he has become aware, as the result of his experience, that workmen having had placed before them by Act of Parliament the temptation to exaggerate their accidental injuries and to deceive medical men as to their incapacity for work, frequently yield to that temptation and become "malingerers." Like others also, and again guided by experience, he has found that with a view of ascertaining the truth, and in order that compensation may not be awarded to persons who are in greater or less degree ingenious impostors, the medical man who tests their claims on behalf of the employer has to exeroise his observation and to pit his own ingenuity against theirs in a manner which must always be distasteful to him but which is essential to the performance of his duty. He has, for example, to ask questions the full import of which will not be understood at the moment by the person replying, or to suggest rather than to command physical movements the painless execution of which in an unguarded moment will "give away" the malingerer. Dr. COLLIE has had considerable success in detecting cases in which the workman has enjoyed or sought to obtain compensation to which he was not entitled, and not long ago he embodied some of his experiences in a paper read before the Stratford branch of the British Medical Association. On this occasion he made many useful and practical suggestions to medical men doing work similar to his own, and he opened his observations by defining the first duty of a medical man, when called upon to examine in a case of claim for compensation for injury, as being "to assure himself on the question of imposture." This may perhaps be regarded as a somewhat infelicitous manner of commencing an essay which may some day be laid before the writer in the witness-box as material for cross-examination, but the perusal of the context will satisfy the reader that the precaution suggested was amply justified by the facts at the author's command, and that the ascertainment of the truth was the only object which he had in view in making his recommendations. At the hearing, however, of the application to which we have referred a "dead-set," to use a popular phrase, was made against Dr. COLLIE. He was accused of unfair methods, of hectoring, and of browbeating the unfortunate man delivered over to his mercies in his own consulting-room, and the presence of the workman's solicitor was put forward as the only condition which could be reasonably relied upon to ensure fair play. There was, we need hardly say, no admission on the part of Dr. COLLIE that any of the statements made were true, and no credence will be given to them.

We have referred to the above case as being typical of others which may occur at any time in other parts of the country because we have no reason to believe that either the success or the zeal of Dr. COLLIE in seeking to protect the just interests of employers is peculiar to himself, and because we are further inclined to consider that the incidental rather than essential feature of the discussion to which we have last alluded is one of some importance in determining what the attitude of the medical profession should be towards any proposal to introduce any third person as a matter of legal right into the consulting-room in which the injured workman is examined. It seems to us that the mere fact that antagonistic interests are involved and that flat contradictions of fact may arise in the sworn testimony of two persons suggests that if it were possible without preventing the efficacy of the examination it would be advantageous to the cause of justice that a third person should be present, and that that person should occupy a position of quasi-judicial independence; but at the same time be capable of understanding the proceedings. No objection should, we think, be raised to the injured workman's medical adviser being present, but the presence of a solicitor representing the examinee seems to us repugnant to the object of the examination—which is to elicit the truth. It would be impossible to prevent interruptions, and perhaps wrangling, which would render the proceedings farcical, and, again, where dispute afterwards took place as to the facts of the examination there would be two witnesses to one. The solicitor would be quite capable of understanding much which escaped the notice of his client and a warning cough would often be sufficient. It may therefore be

suggested that whenever the workman anticipates treatment unfairly prejudicial to his case at the hands of the employer's medical man he should have it in his power to insist on the presence of a medical referee, who would have the qualification of being able to appreciate the result of the various steps taken by the medical examiner, and who would consequently assist in establishing the truth afterwards in a more satisfactory manner than the registrar of the court or any other non-medical official.

In making the above suggestion we do not express any opinion as to the necessity for any change beyond saying that it is manifestly undesirable that there should be any genuine misgiving in the workman's mind as to the fairness of the treatment which he will receive in claiming the full measnre of that which the law allows him. He is not to blame because the legislature has treated him so kindly that he or his dependents may obtain compensation for the effects of his own wilfnl misconduct, if only those effects are sufficiently severe. Nor is it his fault that he has had granted to him compensation much needed by him in cases of genuine and nnavoidable injury side by side with the temptation to court "accidents" by negligence and to prolong and exaggerate the incapacity resnlting from them. On the other hand, none can blame the employer if he, on his side, seeks to minimise the heavy expense recently added to his burdens, and in the circumstances if it should be found desirable to have any third person present at medical examinations made by either side the cost should be borne, not by the employer or by the workman, but by the public. We speak of a medical examination made "by either side" because we would remind advocates such as the gentleman who denonnced the methods of Dr. COLLIE that there are two sides in these proceedings. If the workman reqnires protection against the medical man provided by the employer it may be urged that the employer also may need to be safegnarded against the medical adviser of his injured servant. If the former is to be observed and checked in the examination by which he prepares himself to give evidence, why not the latter? The one is liable to be accused of being too severe or too insidious in the methods by which he tries to ascertain the truth, but the latter is equally open to the allegation that he is too lax in his procedure or too indifferent as to whether he may be deceived or not. No doubt other plans may be put forward in addition to that which we have suggested to frustrate the attempt at malingering by the workman, and at the same time to exclnde any doubt as to the fairness of his treatment. One of these prevails in Germany, and is referred to with approval by Dr. COLLIE in the paper mentioned above. In Germany the suspected malingerer has to enter a hospital for the purposes of observation, and such a system, coupled with the power to inflict a severe penalty upon the would-be deceiver, would be perfectly fair and reasonable. It would do much, moreover, to remove from the working-classes the stigma which their more honourable members no doubt resent, but which must rest upon them when out of the claims made for compensation a substantial number are found to be supported by exaggeration and deceit.

Annotations.

"Ne quid nimis."

FOOD PRESERVATIVES.

IN a report recently presented to the Sanitary Committee of the Corporation of London Dr. W. Collingridge, the medical officer of health, revives once more the very serious question of the unrestricted employment of preservatives in food. In his opinion, in all cases where preservatives are added to articles of food and drink, not only the nature of the drug nsed, but the amount, should be notified to the purchaser, and further, he would make the use of any preservative in milk a penal offence. There can be little doubt that the neglect of the Government to give practical effect to the recommendations (although in the opinion of a number of authorities these recommendations were not forcible enough) of the Departmental Committee on the Use of Preservatives in Food, which reported in 1901, has been responsible for the present practice of adding preservatives to food without discrimination of any sort being made. The worst aspect of the present position in our opinion is the use of powerful antiseptics to give tainted articles of meat an appearance of soundness. Dr. Collingridge presents a serious instance of this kind. The following suggestive hint is given, for example, in some instructions for use sent out by the makers of a certain dry antiseptic food preservative: "The required quantity varies according to the class of article, a superior article reqniring less than an inferior one." Since, as Dr. Collingridge points out, these instructions relate to the use of this material in the manufacture of sausages, pork pies, &c., the above quoted passage can only mean one thing—viz., that inferior meat (? tainted meat) can be used if a larger amount of the preservative is added. Again, certain preservatives intended for keeping milk contained carbonate of soda, which is, of course, present with the view of neutralising any lactic acid formed which naturally cnrdles the milk. As is pointed out, the development of the bacteria is in no way hindered by the nse of carbonate of soda which must be regarded as harmful, seeing that it permits of a milk being in an advanced stage of decomposition without the appearance indicating the fact. The list of preservative powders sold for the preservation of various kinds of foods is really appalling, and something ought to be done to prevent the widely prevailing practice. The variety of food so treated is so wide, in fact, that it is possible that the consumer may be confronted with chemicals at every single meal of the day. He may have borax for breakfast, benzoates for lunch and tea, and salicylic acid for dinner. It is conceivable in such a case that, even if limits were placed upon the quantity of preservative present in each article of food, by the end of the day the individual would have taken a good average dose of a probably irritating drug. In the matter of the use of preservatives in food there is clearly something wrong with a very important branch of our public health administration, and our legislators should see that more efficient measures are applied for the protection of the public from an injury which it is impossible for them to guard against. We commend particularly to the notice of our legislators the following sentence in Dr. Collingridge's report: "I may add that some advertisers are ready enough to quote from the report of the Committee on Preservatives in Food when it suits their purpose, but suppress anything it may contain that is against their interests." The present legislative machinery, if it cannot stop the abuse of preservatives, shonld obviously be scrapped and new works installed.

RAINFALL AND SUNSHINE: JUNE TO AUGUST, 1910.

—	*Days with rain.	Difference from average.	Total fall.	Difference from average.	Number of hours of sunshine.	Difference from average.
			ins.	ins.		hrs.
London	50	+11	6·2	−0·9	413	−105
Manchester	50	?	12·3	?	395	?
Liverpool (Bidston)	53	+ 7	9·1	+1·0	530	?
Nottingham	49	+ 2	7·4	−0·1	446	−178
Birmingham	42	− 1	8·8	+0·8	394	−85
Buxton	45	+ 3	14·9	+2·7	521	?
Harrogate	47	+ 2	10·3	+2·3	480	−82
Bath	44	+ 7	12·5	+4·7	508	−81
Nairn	58	+ 7	8·5	+1·2	393	?
Aberdeen	50	0	5·6	−2·3	448	−55
Scarborough	48	+ 5	8·2	+0 8	407	−102
Skegness	45	?	7·9	?	467	?
Yarmouth	42	+ 2	7 0	−0·1	543	?
Felixstowe	45	?	6·8	?	586	?
Clacton	39	+ 4	5·8	+0·2	510	?
Margate	43	+12	8·4	+2·5	458	−132
Folkestone	40	?	6·9	+0·3	578	?
Brighton	46	+ 8	7·1	+0·8	555	−121
Sandown, Isle of Wight	43	?	7·9	?	529	?
Weymouth	40	?	6·9	?	523	?
Bournemouth	39	?	8·8	?	546	?
Jersey	43	+ 8	9·3	+2·4	589	−145
Scilly	58	+11	8·8	+1·9	555	−129
Pembroke	57	+13	9 7	+2 1	542	−84
Aberystwyth	—	—	—	—	435	?
Llandudno	50	+ 7	9·3	+1·8	567	+11
Rhyl	49	?	8·5	−1·6	573	?
Southport	49	?	10·7	+1·9	576	−10
Blackpool	48	+ 8	11·7	+2·9	606	+54
Birr (Ireland)	60	+10	11·2	+1·7	430	−21

* Days with at least 0·01 inch.

The three summer months which ended with August deserved nearly all the recrimination which was heaped upon them. They possessed, however, some favourable features, not in spite of, but because of, their very unseasonableness. If they refused the agriculturist the usual hot spells, with a shade temperature of 80° and above, to make his hay and give him an early harvest, and sent him instead a cool, humid atmosphere, dull skies, and inopportune downpours, the lack of ordinary heat and the frequent cleansing of the atmosphere did much to limit the amount of illness due to the usual summer maladies and maintained the death-rate at a relatively low figure. Almost everywhere the rain was more frequent than usual and the aggregate quantity was above the average. The only places without notable excess of rain were London and Aberdeen, but in the metropolis the number of days on which rain fell was 11 in excess of the normal. Over the kingdom generally a measurable amount of rain was recorded on rather more than half the number of days in the period, the smallest figures being 39 at Bournemouth and Clacton and 40 at Weymouth, and the largest 58 at Nairn and the Scilly Isles and 60 at Birr (King's County). At places along the western coasts of Ireland and Scotland rain was, of course, more frequent and also heavier. Among the localities with the lowest total fall was London, with 6·2 inches, the only places with a lower figure being Aberdeen and Clacton. The highest figures were in the Peak region, represented by Buxton, the north-west of England, Bath, and central Ireland. Considering the great number of days on which rain fell the total amounts were not excessive, and this is partly due to the fact that really violent thunderstorms were relatively few. During a hot summer an occasional bad thunderstorm sometimes brings an inch or two of rain over a wide area within a few hours. Figures are hardly needed to show that the summer lacked sunshine any more than they are to prove that it was lacking in warmth. Of all the principal meteorological stations there are only two without a deficiency—generally very large—of the welcome and valuable asset of sunshine. The fortunate spots with an excess were Blackpool and Llandudno, and at the former resort the total number of hours was higher than at any other place. In London, where the bright summer of 1908 yielded 616, and the poor summer of last year 473 hours, there were only 413 hours. At Bournemouth there were 65 hours less than in 1909, and as many as 258 less than in the summer of 1908. Over the country as a whole the figures were between 100 and 200 hours less than during the summer of last year. The unusual lack of summer warmth was, of course, directly due to the almost continual prevalence of cyclonic disturbances which followed each other from the Atlantic with monotonous regularity. For more than a week early in July there was a break in the cyclonic procession from the ocean, but it was only the north-western parts of the kingdom which reaped much advantage in sunshine and warmth, the south and east remaining very cloudy and cool. Considered generally, the mean temperature of the summer was not much below the average. This was, however, entirely owing to the comparative warmth of the nights, very few of which were cold, and many had a temperature above the average. It was the low temperature of the afternoons that was so marked, the shaded thermometer scarcely reaching to 80° in any part of the kingdom, and seldom touching 70°. On a great number of afternoons the readings of the thermometer were between 6° and 10° below the average.

COMPLETE DESTRUCTION OF THE CERVICO-DORSAL PORTION OF THE SPINAL CORD BY A REVOLVER BULLET, WITHOUT INVOLVEMENT OF SYMPATHETIC OCULAR FIBRES.

A CASE of considerable interest from several points of view is recorded by Dr. Victor Cordier of Lyons in the July number of the *Archives de Neurologie*. A young healthy woman, aged 18 years, was shot in the right side of the neck by a bullet from a Browning revolver at a distance of about seven feet, and instantly fell, paralysed and comatose. When examined a quarter of an hour later, at the Hôtel Dieu, she was found to be breathing stertorously, 22 respirations to the minute; the pulse was full, regular, and of high tension, its rate being 80. There was absolute paralysis of all four limbs, with abolition of both cutaneous and deep reflexes. Two hours later the state of coma came to an abrupt termination; the patient began to speak, moved her head easily and without pain, and partook of nourishment readily. The opportunity was taken to make the examination complete. In addition to the quadriplegia there was anæsthesia to all forms of stimuli up to the base of the neck—i.e., to the fourth cervical distribution; the eyes were investigated with the greatest care, and the palpebral apertures were noted as being normal, the pupils were of medium size and equal, and their reactions also were perfectly normal. The cilio-spinal reflex was normal on the two sides. An attempt was made the next day to explore the spine for the bullet, but under the anæsthetic the patient succumbed 24 hours after the injury. At the post-mortem examination the bullet was found

to have penetrated the intervertebral disc between the sixth and seventh vertebræ, and to be lodged in the former. The spinal meninges were perfectly intact, but on incising them at the level mentioned the cord was seen to be completely disintegrated and reduced to a state of pulp, from the fourth cervical to the sixth dorsal segment. The cervical sympathetic was dissected out in the neck and found to be intact. Considering the large extent of the destruction of the cervical cord, it is remarkable that cardiac rhythm and respiration were so little distnrbed, comparatively speaking, and the absence of conscious discomfort on the part of the patient during the hours after the recovery from the state of coma is also noteworthy. Of interest from the point of view of military and legal medicine is the nature of the medullary lesion. In the case of spinal wounds caused by projectiles of modern type as a rule either the cord is cut across or fragments of bone are driven into it, or both meninges and cord are simultaneously destroyed. In the present instance another type of lesion, one by no means infrequent, has occurred, a sudden and violent shock producing, as it were, an "explosion" inside the theca but leaving the membranes themselves intact. Apparently the extent of the damage depends on the velocity of the projectile. There can be little doubt that the cause of the destruction of medullary tissues is the violent impact communicated to the cerebro-spinal fluid enclosed in the meninges. In some reported cases even the cerebral hemispheres have been profoundly injured by larger projectiles striking the spine. In view of the site of the lesion the absence of all ocular disturbance is astonishing. The cilio-spinal centre of Budge is probably of secondary importance compared with the bulbar centre for the sympathetic innervation of the pupil and eyelid.

SISTER PROFESSIONS.

ON Sept. 7th at the Church Congress which was held at Halifax, Nova Scotia, Sir Dyce Duckworth read a paper on the Ministry of Healing. In this paper he briefly sketched the attitude of the British medical profession in regard to a matter that at one time threatened to be a subject of contention between the sister professions whose members in their several ways minister to man. There is now evidence that the movement which sought to associate medical men and ministers of religion in a direct and personal ministry of healing by resuming the early chnrch methods of prayer, laying-on of hands, and anointing with oil, has been arrested by the general body of the Chnrch refusing to be led aside from the path of progress. "As a body," said Sir Dyce Duckworth, "our profession holds the Christian Faith, and intends to maintain it. We are in no degree averse from the aid that can often be rightly given by ministers of religion, and we are commonly desirous of securing it in all appropriate cases. We know of no healing of properly authenticated organic disease which has ever occurred in response to spiritual treatment alone." Sir Dyce Duckworth went on to point out that the means of healing which have become available in the course of centuries must be regarded as direct gifts of thc Spirit, and that we have to look forward, and not too much back, if we are to make progress and to securc further spiritual gifts. In summing up his paper, he said that as "priests of the body" we gladly welcome any inspiration and assurance that may come from appropriate ministration at the hands of any Christian minister as a reinforcement of onr professional efforts, but we are not prepared to act as anointers or thaumaturgists ourselves or to sanction any such efforts as substitutes for the practice of legitimate medicine in cases of diseasc. "As physicians we witness for a robust Christianity that will stand four-squarc to all assaults upon the Faith, and believe that such a temper is the one which alone is destined to win its way and spread the simple Gospel of Christ the world over." In conclnsion, he expressed the hope that he had uttered nothing in the address which might lead his audience to think that he was uplifted with professional pride or claimed too much for legitimate medicine.

RADIUM.

As was announced in our colnmns last week, Madame Curie and M. Debierne reported to the Academy of Sciences, Paris, on Sept. 5th that they had succeeded in isolating radinm in the pure metallic state. It is interesting to record that it is a little over a hundred years ago (1807) when a similar announcement was made in regard to the isolation of the two now familiar metals, potassium and sodium, by Sir Humphry Davy, and apparently Madame Curie and her colleague have isolated radium by the same agency, namely electricity. They prepared an amalgam of mercury by the electrolysis of a radium salt. The resulting amalgam was next placed in a quartz tube and distilled in hydrogen under pressure and high temperature. The mercury was then found to have left a thin coating of brilliant metal behind which proved to be radium. As might be expected, the metal acts with great energy; it decomposes water, oxidises rapidly in air, is attracted by iron as though by some magnetic property, and burns paper when placed in contact with it. Radium is thus no longer a hypothetical metal.

FRESH ANIMAL SERUM IN THE TREATMENT OF HÆMORRHAGE.

IN the *Yale Medical Journal* for June Dr. Charles T. Beach has called attention to the value of fresh animal serum in the treatment of hæmorrhage. Schmidt, the discoverer of fibrin ferment, proved that this substance existed in abundance not only in the clot formed on coagulation of blood but also in the serum that separated. In 1907 Weil, a French writer, turned this fact to account and controlled hæmorrhage in hæmophilia by increasing the coagulability of the blood by means of the injection of fresh animal serum. Since that time several observers have used serum, usually with good results. In some cases the antitoxic serum for diphtheria has been used, but without striking success, for, as Weil has shown, the fibrin ferment of blood begins to decompose in about two weeks and then becomes progressively less active. Weil found that the serum of any animal injected under the skin or into a vein reduced the coagulation time of the blood in a subject of hæmophilia, but, with the exception of horse and rabbit serum, animal serums were toxic to man; human serum could be used successfully. Dr. Beach reports three cases in which serum was used as a prophylactic and five cases in which it was used to stop hæmorrhage, two of the latter being examples of hæmophilia, with success. Thus a man bled freely for several hours after tonsillectomy in spite of the usual treatment. Rabbit serum was injected, and within half an hour the bleeding diminished, and soon afterwards it ceased. In two cases of jaundice from cholelithiasis serum was injected and operation performed with little bleeding. In a case of herniotomy oozing from the wound continued for a week after the operation. There was a history of hæmophilia. After injection of serum the oozing stopped, and the coagulation time of the blood fell from 20 to four minutes. A woman had hæmorrhage from the nasopharynx for a week, which was not controlled by packing. Rabbit serum was injected while the nares were packed and the hæmorrhagc ceased. It is evident that fresh serum

is a valuable hæmostatic, which may succeed when other remedies fail.

CAPSICUM AND CAPTURE.

THE question whether it is justifiable to bring a quarry to book by means of a suffocating substance has been raised in a recent police case in which the pursued kept the police at bay for four hours in a barred room. Capture was at length effected by placing some smouldering cayenne pepper under the door, the fumes produced being so irrespirable that there was nothing for it but to yield. The magistrate condemned the action of the police, and although the plan succeeded there can be little doubt that the magistrate's view was right, inasmuch as even in the interests of justice the police are not entitled except under great provocation to injure the health of the accused party. The ruse is an old one, but cayenne pepper fumes are decidedly more effectual than mere smoke. Cayenne pepper on smouldering gives off one of the most irritating acrid fumes known. Capsaicin, the chief constituent of the fume, renders respiration well-nigh impossible owing to its intensely irritating properties. As little as half a grain volatilised in a large room will cause all who respire the air of the room to cough and sneeze, and only those who have experienced this property of smouldering cayenne can realise how really diabolical are its effects. The air is impossible to breathe and yet its chemical composition is unappreciably interfered with, oxygen still being present in the usual life-supporting quantity. Similar methods of forcing resignation have played their part in the history of nations in the past, but in this humanitarian age they must be regarded as unpermissible.

MEDICAL ADMINISTRATION IN TRINIDAD.

CONSIDERABLE interest has been aroused in Trinidad by the proceedings of a commission appointed by the Governor of that colony to inquire into the circumstances of an alleged case of plague admitted into the Colonial Hospital at Port of Spain in May last. It appears that the patient, named Sampson, was admitted on May 14th and died on the 16th, and that the hospital staff, from the symptoms of the illness, from the presence of bipolar Gram-negative bacilli in gland tissue obtained by puncture, and from the post-mortem appearances, arrived at the diagnosis of bubonic plague. It was alleged that the surgeon-general of the colony, though notified of the diagnosis, and frequently informed of the progress of the case, did not visit the patient during his illness, and did not declare the case to be plague until May 19th, three days after death had occurred; and that in the interval the usual precautionary measures with regard to contacts and disinfection were not taken. Sundry other matters reflecting on the adequacy of the staff of the Colonial Hospital, on the methods of its administration, and on the conduct of the surgeon-general were also brought before the commission. This was appointed on June 8th last, under the presidency of Mr. Justice A. D. Russell, and concluded its inquiry on August 10th. Pending the publication of the commissioners' report it would be improper to express any opinion as to the merits of the case; but one circumstance that was stated in evidence, and not controverted, calls for remark. Dr. H. L. Clare, the surgeon-general of the colony, is consulting surgeon to the Colonial Hospital at Port of Spain: when the supposed plague patient was admitted to the hospital, the medical man in charge considered the case clinically to be plague, and took all the necessary measures as regards isolation, &c., using also all the means of diagnosis at his disposal. Apparently, and in the circumstances quite naturally, in view of the important issues involved, he was anxious to have his diagnosis confirmed, and Dr. Clare was urgently requested to visit the patient and give his opinion. This he did not do. We do not know what reasons Dr. Clare may have had for not complying with the request, but if the name and office of consulting surgeon are to have any meaning at all it appears to us that a case of suspected plague, in the circumstances that existed in Trinidad at the time, was exactly one in which it was the duty of the consulting surgeon to attend without delay, give advice, and take responsibility.

CHOLELITHIASIS IN A PATIENT 21 YEARS OLD.

GALL-STONE disease is very rare in patients under 30 years of age, and though cases have been reported even in children they are extremely rare. Even from 20 to 30 old cholelithiasis is seldom met with. In the August number of the *American Journal of Surgery* Dr. A. E. Sellenings of New York City has reported a case where the patient was 21 years old. He had had no previous symptoms pointing to gall-stones, but he was one day suddenly seized with severe pain in the right costal region and with nausea and vomiting, but no jaundice was present. When seen on the third day of illness the abdomen was markedly rigid in the region of the gall-bladder, and there was an increased area of dulness. The temperature was 100° F. and the pulse 82. It was decided to operate, and the gall-bladder was found greatly distended, and when incised much fœtid muco-purulent material was evacuated and 14 stones were removed. The patient recovered rapidly. The bacillus coli was found in the contents of the gall-bladder.

THE AMYOTROPHY OF ACUTE AND CHRONIC RHEUMATISM.

MUSCULAR wasting is a possible complication of every arthropathy, acute, subacute, or chronic, whatever be its cause. The atrophy may be so slight as to escape notice, or it may be so profound as to dominate the clinical picture and surpass in importance the articular lesion which has provoked it. Amyotrophy consecutive to a joint affection was known to Hippocrates, but it remained for surgical and medical investigation during the latter half of last century to analyse the phenomena and suggest theories of their pathogenesis. In *La Semaine Médicale* for July 20th M. Klippel and M. Weil of Paris published a very interesting article on the subject, giving a historical *résumé* and a review of the various hypotheses that have been put forward, and at the same time indicating the poverty of our pathological knowledge of a matter which seems in recent years to have been, comparatively speaking, neglected. Muscular atrophy of rheumatismal origin may be slight, moderate, or severe. The first degree is commonly met with in subacute rheumatism and is characterised by the curious fact that, as a rule, of all the peri-articular muscles only one atrophies. It has long been recognised that contact with a diseased articulation does not affect equally the muscles concerned, and the view was advanced by Charcot that the extensors are apt to suffer most. M. Klippel and M. Weil believe from their clinical experience that for each joint there exists a muscle of election which is the first and may be the only one to undergo changes. At the shoulder it is the deltoid, at the elbow the triceps, at the hip the gluteus maximus, at the knee the quadriceps. Disease of the sterno-clavicular articulation causes atrophy of the pectoralis major, of the metacarpo-phalangeal joint of the thumb, the flexor brevis pollicis. Sometimes the atrophy of the satellite muscle is only partial. In the moderate degree of articular amyotrophy all the muscles surrounding the joint are involved. Thus the whole thenar eminence atrophies where the metacarpo-phalangeal joint of the thumb

is concerned, or the muscles of the thigh and leg in the case of the knee. In the severe degree the remarkable feature is the invasion by the atrophic process of muscles which are situated at some distance from the diseased joint, and are not directly connected with it. Thus generalised atrophy of the musculature of the inferior extremity has been observed as the sequel of an injury to the joints of the foot; gonococcal rheumatism of the left hip-joint has been followed by a similar atrophy of the whole limb; gonococcal arthritis of the right wrist has been the cause of a muscular atrophy of the whole arm, including the shoulder muscles. A still more interesting instance is the case where four weeks after a rheumatic attack invading the shoulder- and the knee-joints on both sides generalised muscular wasting set in, all the limbs and the trunk becoming affected, and only the muscles of the face being left intact. The intensity of this atrophy is not, as a rule, proportional to the duration of the arthritis. Its pathogeny is a vexed question. The theory of functional inactivity is open to grave and obvious objections. The theory of insufficient nutrition of the muscles owing to impairment of the circulation by the articular swelling is equally unsatisfactory. Direct invasion of the muscles by the inflammatory process, or through a neuritis of the intramuscular nerves, is not a hypothesis that has much evidence to support it. To-day most observers favour the theory of the nervous origin of the amyotrophy, some supposing that there is a primary medullary lesion which precedes both the arthritis and the atrophy. But undoubtedly the least unsatisfactory view is that which assigns the atrophy to a secondary place, reflexly produced viâ the spinal cord from the primary arthritic affection. Sometimes the changes in the cord may be purely dynamic, but distinct pathological evidence has been brought forward of material lesions in the anterior horns of grey matter, associated with the arthropathy and determined by it. The way in which the articular inflammation acts on the centres in the cord is still unknown. Among the various clinical symptoms directly revealing the fact that the cord is affected in very many of the cases under discussion are painful muscular spasms occurring at intervals, trophic changes, alterations in reflectivity, myœdema, and in particular muscular fibrillation.

A FRENCH INSTITUTE OF COLONIAL MEDICINE.

THIS institute has been founded to afford to French medical men and others (for it appears from our Paris Correspondent not to be narrowly confined to Frenchmen) theoretical and practical instruction in tropical maladies. The conrse lasts abont two and a half months and the first session will commence on Oct. 13th, ending with the end of the year. Our Paris Correspondent informs us that the new institute has been attached to the Faculty of Medicine of Paris, and that the course will terminate, like the courses in tropical medicine in this country, in an examination and the award to successful students of a diploma in "Colonial Medicine of the University of Paris." The theoretical instruction and laboratory courses will be given at the Faculty of Medicine and the clinical instruction at the hospital at Auteuil (L'Hôpital des Dames Françaises). The various instructors are already appointed; the course of technical bacteriology and hæmatology will be given by Professor Roger, that of parasitology by Professor Blanchard, and that of surgery in tropical countries by Dr. Morestin, while ophthalmic affections will be considered by Dr. Lapersonne, general epidemiology by Professor Chantemesse, tropical pathology and tropical hygiene by Dr. Wurtz, and dermatology by Professor Gaucher in collaboration with Dr. Jeanselme. The cost of the course, including that of practical work in the laboratory, is a little over £7, and there is no fee for entering for the examination. The institution of this diploma is a proof that the French are recognising, as we have for some time recognised in this country, that in the public health of colonial possessions more than half their benefit lies. The toll of valuable life exacted by many of the tropical possessions of the European nations has been in the past so hideous as largely to wipe out the value of those possessions. This fact is now becoming obvious to our rulers, and we may expect in the future that every highly civilised power, when extending its influence to tropical regions, will take pains to safeguard the lives of those whom it sends out and to promote the general health of the community.

PAUPERISM IN ENGLAND AND WALES.

THE half-yearly report of pauperism in England and Wales, issued by the Local Government Board, shows that pauperism was higher in 1909 than in the preceding year until the middle of September, after which a decrease occurred as compared with the corresponding period of the previous year. On Jan. 1st, 1910, the paupers relieved were as follows: Unions in London, 30·3 per 1000; outside London, 25·8 per 1000; and for England and Wales, 26·4 per 1000. If the special classes of insane and casual paupers are included the aggregate of the in-door and out-door relief list is 809,842. Those relieved as ordinarily able-bodied paupers amounted to 142,535 (about 15 per cent. of the total), the not able-bodied, aged, and infirm to 412,896 (43 per cent.), and those relieved as lunatics or idiots 116,508 (12 per cent.), an increase of 1639 over the number relieved on Jan. 1st preceding.

WE regret to announce the death of Mr. John Langton, consulting surgeon to St. Bartholomew's Hospital and the holder at different times of every important office in the Royal College of Surgeons of England short of the Presidency. Mr. Langton, of whom we shall publish an obituary notice later, died at his residence, 20, Bentinck-street, Cavendish-square, on Sunday, Sept. 11th.

THE opening meeting of the Pupils' Physical Society, Guy's Hospital, will take the form of a conversazione, which will be held in the Wills Library on Friday, Oct. 7th, at 8.30 P.M. Sir Samuel Wilks, Bart., who will be supported by the honorary vice-presidents of the society, will receive the visitors, who will consist of past and present Guy's men and other members of the profession.

THE winter session at the University of Liverpool will commence on Oct. 4th, when an inaugural address will be delivered by Professor A. B. Macallum, professor of physiology in the University of Toronto. On the evening of the same day a dinner of the Faculty of Medicine will be held, the chairman being Professor F. T. Paul, chairman of the Faculty.

Mr. Edwin Robert Wheeler, M.B., B.S. Lond., medical officer to the British Consulate-General at Yokohama, has received permission from the King to accept and wear the order of the Sacred Treasure of the third class, which has been conferred upon him by His Majesty the Emperor of Japan, in recognition of valuable services rendered.

Professor Howard Marsh, Master of Downing College, Cambridge, will deliver an address and distribute the prizes on the opening of the winter session of the Leeds Medical Schools on Oct. 4th.

THE PIONEER IN THE HYGIENE OF VENTILATION.[1]

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I WISH to draw attention to the life and work of a great Englishman whose discoveries, although fully appreciated by those few persons who are versed in biological history, are not nearly so well known at the present day as they might be.

It has happened again and again in the history of discovery that some most important advances in a particular science have been made by persons not engaged in the professional pursuit of that subject. No doubt the formal recognition of public health as a science is of quite recent date, but there have always been those who have recognised the paramount claims of that branch of knowledge now embodied as hygiene or preventive medicine. Medical men, as might be expected, have in all ages been interested in measures which tended to the welfare of the community as distinguished from that of the individual only. But persons who were not medical men at all have, from time to time, either made suggestions of permanent value as touching the health of the people, or, going farther, have actually made contributions to the science of such a kind that without them progress in that science would have been greatly delayed. The truth of this is strikingly brought out in the life of one of the name of Stephen Hales, a clergyman of the Church of England, and a man who had neither studied medicine nor taken a medical degree, but who was nevertheless the first person in this country to make any serious attempt to provide for the systematic supply of fresh air to places where it could not enter by natural means.

The Reverend Stephen Hales, M.A., D.D., F.R.S., was *the* pioneer in the hygiene of ventilation. Mankind apparently did not arrive by "the light of nature" alone at a knowledge of the supreme importance of ventilation. Purely natural instincts *have* guided mankind to some results of great practical importance as regards health; he has long known that certain things are non-edible, certain waters non-potable, but as regards the quality of the air to be breathed and what constitutes impure air, the natural teachings are exceedingly ambiguous. The "natural man" is all right so long as he remains under the open heaven, but as soon as he surrounds himself with four walls he seems not to know he must constantly keep changing the invisible air around him. No doubt it is that because it is out of sight that air is also out of mind, but the fact is there are vast multitudes of people who never conceive of air as a real thing, as real as their meat and drink and just as necessary to be kept fresh. Doubtless the unpleasantness and even danger of moving air known as a draught is the reason why so many persons prefer not to attempt to have any fresh air at all. Even our most capable architects have by no means solved the problem of giving us plenty of fresh air without the concomitant of a draught. All living things vitiate air on breathing it even once, and all living things subsist by the absorption of oxygen. This oxygen being continually abstracted from the air breathed must be renewed from outside sources; thus air *must* be changed. Plants as well as animals need oxygen, and this was what Hales grasped, although he wrote and worked years before oxygen was discovered by Priestley and Lavoisier, and without knowing of Black's discovery of respiratory carbon dioxide. Hales in England and Leeuwenhoek in Holland, neither of them medical men, were about the beginning of the eighteenth century probably *the two* persons who saw more clearly than anyone else in Europe the prime necessity for ventilation—that is, the constant change of air in the neighbourhood of living beings. Hales did a very great deal else in science besides devising ventilators; he was a pioneer in the experimental method in both vegetable and animal physiology a hundred years before physiology as an experimental science existed in this country; as a benefactor to mankind it is not too much to say he is conspicuous in the first half of the eighteenth century. We know little indeed as to his capabilities as a pastor of men's souls, but it is certain he had great solicitude for their bodies; he introduced a water-supply into the village of Teddington; he actually contrived to ventilate the parish church, while his pamphlet against the abuse of alcohol is probably the first of its kind in England—"A Friendly Admonition to the Drinkers of Gin, &c.," published in 1734. This alone would enable him to rank as a pioneer in the advocacy of measures of practical hygiene.

Hales knew that air must be changed, whether air for plants or air for animals, air over grain in granaries, or over water stored for drinking purposes, or air enclosed in hothouses, or air in mines or in holds of ships, or in prisons or around timber or gunpowder: air must be changed. He knew that fresh air was inimical to putrefaction, mouldiness, mustiness of every kind; he invented an apparatus for blowing air through drinking water stored in ships. Hales had the most definite conceptions as regards this necessity for oxygen without knowing what it was in the atmosphere that sustained life and without knowing in anything like its fulness the meaning and importance of Black's discovery that animals exhaled carbon dioxide from their lungs. For Black's discovery was published only some seven years before Hales died, and it is certain that Hales was not indebted to Black, but, on the contrary, Black was profoundly indebted to Hales. For he wrote: "I was partly led to these experiments by some observations by Dr. Hales in which he says that breathing through diaphragms of cloth dipped in alkaline solution made the air last longer for purposes of life."

In order to appreciate Hales's place in connexion with the discoveries in the chemistry of ventilation, allow me very briefly to recapitulate certain fundamental discoveries made both before and after his time. Carbon dioxide gas was discovered under the name of "*gas sylvestre*" by the Belgian chemist, van Helmont, about the year 1640. Van Helmont thought that when wood was burnt its "spirit," to which he gave the name of "gas," disappeared in a volatile form. The next contribution to the chemistry of ventilation was made by Thomas Willis (1621–75), who clearly laid it down that three things coöperated in the act of respiration—namely, a continual access of air, a constant supply of combustible material, and the continual removal of the products of combustion, for Willis clearly identified chemically the burning of a flame in air and tissue-respiration in a living animal. In 1660 the Hon. Robert Boyle performed the fundamental experiment as regards respiration and ventilation when he showed that long before a vacuum was perfect a sparrow and a mouse had both died and the flame of a candle had gone out. Boyle knew that something besides watery vapour rendered air unfit for further breathing. G. A. Borelli about 18 years later in Italy was the first to estimate what we now know as the "tidal air"—that is, the volume of air taken in and sent out at each breath, an important datum in connexion with ventilation problems. The Cornishman, Richard Lower, had before 1669 perceived that the expired air was noxious and must be removed; were there no need for this change, he writes, "we should breathe as well in the most filthy prisons as amongst the most delightful pastures." The next contribution was made by the Oxford man of science, John Mayow, who, working between 1668 and 1674, virtually discovered oxygen in a physiological sense. He named it "nitro-aerial particles," but he clearly understood that something which was absorbed by the air in breathing produced animal heat, and that that something was the same thing which was the cause of chemical combustion. Mayow died in 1679, and in England nothing was done as regards respiration or ventilation until Hales rediscovered a great deal that Lower and Mayow had known quite well. In some respects Hales was less of a chemist than Mayow, but he caused hygiene to advance to a vastly greater extent because he applied what little theoretical knowledge he had to the solving of problems of very definite practical utility. Less of a physiological chemist than Lower and Mayow, he was nevertheless the discoverer of a method of sustaining respiration in the absolutely irrespirable atmosphere of coal-mines and burning houses. He even suggested that his apparatus might be serviceable to divers; he was the father of all such as descend into "fire-damp" and "after-damp" and "choke-damp," &c., provided with an independent supply of air in an apparatus capable of absorbing one's carbon dioxide. He was the Jubal "of all

[1] The opening lecture in the class of Hygiene (Stage II.), delivered at the Midland Institute, Birmingham, on Sept. 15th, 1910, and fully illustrated by diagrams and portraits.

such as handle" the rescue-apparatus. But we must not imagine that although Hales devised such an apparatus he was acquainted with all the properties of carbon dioxide. For just as Van Helmont in the seventeenth century worked with the carbon dioxide of combustion without being acquainted with all its properties, so Hales in the eighteenth worked with the carbon dioxide of respiration without realising all that was involved in his researches on it. Respiratory carbon dioxide was discovered by Professor Joseph Black of the University of Glasgow in 1754. In point of time nitrogen was the next constituent of the atmosphere to be identified. This was also by a Scottish Professor, Daniel Rutherford, of the chair of Botany at Edinburgh; the year of this was 1772, the man a maternal uncle of Sir Walter Scott. Within two years more oxygen was separated by Joseph Priestley from mercuric oxide under the name of "dephlogisticated air." By 1775 Priestley had found that this gas supported both combustion and respiration, but he did not fully understand all that was involved in his discovery; as we are all aware, it was Lavoisier who knew what he was working with when he had, by the end of 1774, isolated oxygen gas and given it the name which has ever since clung to it. The details of the life of Stephen Hales are neither numerous nor romantic. The son of Thomas, eldest son of Sir Robert Hales of Beckesbourne, Stephen was born in 1677 near the pleasant village of Beckesbourne in Kent, not far from Canterbury. His mother was Mary, daughter and heiress of Richard Wood of Abbots Langley. At the age of 19 he went to Corpus Christi College, Cambridge, where he graduated M.A. and took his B.D. degree in 1711. His early scientific leanings may be inferred from his having studied anatomy, chemistry, and botany as a recreation. As a student he managed to make a cast in lead of the lungs of a dog, and he constructed a "planetarium in brass" or orrery as it was called on Newtonian principles.

Having taken Holy Orders, Hales was presented in 1710 to the perpetual curacy of Teddington in Middlesex; it was here that he carried out by far the greater number of his experiments. In 1718 he was elected a Fellow of the Royal Society, and 22 years later he was awarded the Copley medal, the highest honour in the gift of that learned body. In 1732 Hales was appointed one of the trustees in the newly founded colony of Georgia. In 1735 he was elected one of the eight foreign members of the French Academy in room of the late Sir Hans Sloane at the time of his death President of the Royal Society. The date of Hales's marriage is uncertain; it is thought to have been about 1719; his wife died childless in 1721; he did not marry again. Until within a year or two of his death Hales communicated the results of his manifold researches in the form of papers to the Royal Society. He published independent treatises as well; his classical "Vegetable Statics" saw the light in 1726, and the equally famous "Hæmostatics" or Vol. II. in 1733. Both were dedicated to George II.

Although, then, Hales made researches in, and wrote extensively on, vegetable and animal physiology, on chemistry, medicine, and surgery, it is as a pioneer of sanitation that he must ever live in our grateful remembrance. He did not approach problems in ventilation from the purely theoretical side, but he designed workable apparatus on the principle of the bellows for drawing the air from places particularly badly situated as regards air-supply. The earlier and smaller forms were worked by hand, the latter and larger were driven by a windmill, but the construction of them all was essentially the same as that of bellows for church organs. Hales gives the velocity of the air outflow from these bellows as 6¼ miles per hour.

Hales's first paper on the importance of ventilators in mines, hospitals, prisons, and ships was read to the Royal Society in 1741. In this paper he speaks of "the rancid vapours from human bodies" which inclines us to think that even at this early date there were glimmerings of a distinction between respiratory carbon dioxide and noxious vapours exhaled from the skin and lungs. Certainly it is very interesting to be told that the latest opinion is that the headache and distress of ill-ventilated places are due not so much to carbon dioxide *per se* as to the moisture, the heat, and the volatile organic effluvia. But Hales had grasped the important fact that breathed air must be got rid of and sent outside into the ocean of the atmosphere. At the date of which we are speaking, to be sent to prison was practically to be condemned to die from gaol fever; prisons did not seem to have been ventilated in any way whatever. When a Lord Mayor of London, two judges, and an alderman had all died from gaol fever caught at the Old Bailey sessions, a committee of the Royal Society was appointed to report upon the state of ventilation in the gaols. Hales was one of this committee; it reported that Hales's ventilators should be installed, and by 1749 they were in working order at the Savoy Prison. Between the years 1749 and 1752 four prisoners died there from gaol fever, compared with 50 to 100 per annum previously. In 1752 the ventilators actuated by a windmill were introduced into Newgate Prison; from each apparatus ducts led to 24 cells or wards. The mortality in subsequent years was very markedly decreased.

In 1753 Hales wrote an article in the *Gentleman's Magazine* on the applicability of his ventilators to army hospitals and private houses. Nowhere was his invention appreciated more than on board ship. Ships were at this time floating strongholds of death; what between scurvy and ship fever due to poisoning by bad air, only the most robust men survived for any length of time. By 1755 Hales was able to report improvement to the Royal Society in a most interesting paper with the following title, "An Account of the Great Benefits of Ventilators in many instances in Preserving the Health and Lives of People in Slave and other Transport Ships." Hales received most gratifying reports from ship captains as to the enormous change for the better which had been introduced into the conditions of life in the Mercantile Marine. Thus a Captain Thomson under date, London, Sept. 25th, 1749, writes: "All agreed the ventilators were of great service. The men did not need to be urged to work them. 200 men aboard for a year, pressed men from gaols with distemper, all landed well in Georgia. This is what I believe few transport or any other ships can brag of, nor did I ever meet the like good luck before which ..... I impute to the benefit received by the ventilators." Similar reports came from a Captain Ellis, who made a number of voyages in slave transport ships; he had at one time under his care as many as 312 negro slaves who were all landed alive and well at Bristol. Equally encouraging reports came from the transport ships to Nova Scotia.

Through the instrumentality of the French man of science Du Hammel, Hales contrived to have his ventilators installed in certain prisons in France where English prisoners were confined. The reverend sanitarian closes his paper of 1755 with these words: "..... they little consider that it is a high degree of putrefaction (that most subtle dissolvent in nature) which a foul air acquires in long stagnating which gives that pestilential quality which is called the gaol-distemper, and a very small quantity or even vapour of this highly attenuated venom, like the infection or inoculation for small-pox, soon spreads its deadly infection." Hales is, of course, writing of typhus fever; the pathologists are still uncertain as to the etiology of this fever, but practical sanitarians have all but banished it from Great Britain. We ought not to forget that the initial intelligent stages of the war against typhus fever were undertaken by Stephen Hales; he saw perfectly well that the question of its abolition was bound up with the problems of ventilation generally.

[A drawing of the first artificial breathing apparatus which was capable of absorbing the exhaled carbon dioxide was here thrown upon the screen. Dr. Harris proceeded:]

You will note that it is nothing more than a bladder divided into compartments by four partitions of flannel or linen soaked in a solution of potash. To use the particular form which I show you, the nostrils had to be closed, as they have to be in all mouth-breathing forms of similar apparatus. This particular form held only between 4 or 5 quarts of air, but Hales thought that one containing a gallon of air could support respiration for at least five minutes. Now, it seems to me particularly interesting, in view of the prominence which life-saving apparatus has obtained at the present day, in view of the fact that the Government has already legislated in regard to their use, and is about to legislate on a still larger scale, to know that before 1726 a practical attempt had been made to construct an artificial respiration apparatus. This simple invention is the humble parent of all the various ingenious forms of life saving apparatus at the present day—the Fleuss, the Draeger, the W.E.G., the "Meco," and others—which enable men to remain for upwards of two hours in atmospheres not merely poisonous but actually deadly. As I have told you,

it was this invention of Hales that inspired Black to discover respiratory carbon dioxide. This is not the place to refer even in the most general way to the enormous amount of work which Hales did in founding the science of experimental botanical physiology, but at least you ought to know that it is to him we owe the mercury manometer. Every junior medical student knows that it was Hales who first experimentally demonstrated the magnitude of the arterial pressure of the blood in the living animal (mare), but he made experiments over the whole field of animal physiology, and was well acquainted with previous work both in England and on the continent. He might have been a practising surgeon, so interested was he in the subject of stone in the bladder. In physical science he wrote on earthquakes and invented an instrument for determining the depth of the ocean. He also invented a method for dredging harbours.

In private life Hales was very modest, approachable, genial, and full of pastoral charity. The poet Pope, his neighbour at Twickenham, to whose will he was a witness, had the highest opinion of him personally. Sir J. E. Smith, his contemporary, said of him: "His philosophy was full of piety"; and from all we can gather, although his sermons were very dull, he was by no means lax in the performance of his duties as the pastor of his flock.

In closing this very imperfect account of Hales I cannot do better than quote what is carved below the marble monument to his memory in Westminster Abbey which was erected by the Princess Dowager of Wales, mother of George III.; it will at least let you know what contemporary opinion of him was: "..... above the dead prophet divine Wisdom proclaims—'he was skilled in helping men's troubles, he too in tracing God's works; no lapse of time will weaken your praise, great Hales! or your titles, England is proud to enroll you amongst her noblest sons, England who can boast a Newton.'"

While we congratulate ourselves on having attained to an understanding of the principles of ventilation; on having abolished typhus fever from our hospitals, prisons, and ships; on having devised apparatus for sustaining life in irrespirable and deadly atmospheres, let us not forget that the initial stages in the comprehension of these things were worked out, not by any high placed, well-paid, public official, but by a modest amateur, the scientifically-minded country clergyman, Stephen Hales.

THE BENENDEN SANATORIUM AND INDUSTRIAL INSURANCE FOR THE TREATMENT OF PHTHISIS.

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AND

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MEDICAL SUPERINTENDENT, BENENDEN SANATORIUM.

THE first sanatorium of the National Association for the Establishment and Maintenance of Sanatoria for Workers suffering from Tuberculosis was opened at Benenden in March, 1907. It now contains 68 beds in the main building attached to the administration block, 20 beds in a cubicle pavilion, 11 beds in a second pavilion, and 2 beds in a chalet. The first of these separate buildings (for 20 beds, built and furnished for £900 on Mr. West's designs) was erected by subscription among Post Office servants and was handed over to the association by Mr. Herbert Samuel on Sept. 12th. The second was built by friends of the late Countess Cadogan and is to be handed over shortly. The chalet was given by Dr. Foster Owen and is the one exhibited by him at the Whitechapel Exhibition of the National Association for the Prevention of Consumption. The beds are self-maintained, almost entirely by workers' organisations, the largest and most successful of these being the Post Office Sanatorium Society, organised by Mr. C. H. Garland, its secretary, who is also chairman of the association. This society maintains 35 beds, the cost of insurance being under ½*d.* per week per member (2*s.* per year), the society being a voluntary organisation of postal servants and the subscriptions being deducted by arrangement with the Postmaster-General at the rate of 1*s.* per member half-yearly. The figures of this society prove that 2000 men subscribing ½*d.* per week can easily maintain one bed, admitting an average of three patients a year, and pay all office expenses and the cost of travelling from any part of the kingdom. The London Hospital Saturday Fund retains 15 beds, the Hearts of Oak Benefit Society five beds, the Club and Institute Union two beds, the Manchester Unity Order of Oddfellows five beds, the South London District of Foresters (by a voluntary association), the Royal Oak Benefit Society, the Typographical Association, the Amalgamated Society of Railway Servants, and the Railwaymen's Convalescent Homes one bed each, and the Southwark borough council (under special rules defining the class of patients) five beds.

The friendly societies are unable, under their Acts of Parliament, to erect buildings for such purposes, and, in the present financial position of these societies, the funds available for maintaining beds are limited and have to be most carefully considered. All acquainted with friendly societies' work know that a great number of voluntary levies are continually being made, and it is a question still, after seven years' strenuous education of the members and executives of these societies, how far it is possible for large voluntary associations to be formed inside them for the insurance of phthisis treatment. The only one existing is that in the South London District of Foresters, organised by Mr. Chapman, and it is believed that the educational effect of this insurance in this district has already considerably reduced the annual cost of consumption to the ancient Order.

As advisory physician to the council and as medical superintendent of the institution we always insist upon the educational aspect of the sanatorium, following Dr. Newsholme. This institution in relation to the industrial classes is best defined by the title of a paper contributed to THE LANCET some years ago by Mr. Garland and Dr. Lister—"A National School for Consumptives." This phrase, for which Dr. Lister was responsible, expresses, we venture to think, the point of view that should be adopted in the proposed provision of State-supported sanatoriums. The results so far show that over 80 per cent. of the patients discharged from Benenden in an "arrested" state of their disease are in full work (after six months to two years). Some of those not doing any work are in good health, but out of employment for other reasons.

There is no doubt that the danger of not being employed on discharge causes a certain amount of late application, patients waiting until the disease is comparatively advanced, among the members of all the affiliated societies except that of the Postal Society, whose cases apply earlier, and who can obtain up to six months' leave for treatment with the approval of Mr. A. H. Wilson, the chief medical officer of the Post Office. The postal workers are also selected "lives," and hence, perhaps, more resistant. In addition, the Postal Society has caused a definition of the disease, drafted by Dr. Lister, to be hung in every post-office of the kingdom, with the approval of the present Postmaster-General, Mr. Herbert Samuel, and his predecessors, the present Lord Derby and Mr. Sidney Buxton. The association and the Postal Society are largely indebted to these gentlemen. Fear of the loss of employment on entering a sanatorium is also a factor in producing advanced cases which have to be rejected, the evil day being postponed and money wasted on quack medicines until too late. Postal servants enjoy the advantage of long sick leave, reinstatement if they respond well to treatment, and special allowances by the State in case they are unfit for further service. Few workmen can get such terms from their employers, and the fear of their position on discharge from the sanatorium is also a cause of late application for treatment.

Intelligent understanding by general employers of the enormous educative value to early cases of residence in a sanatorium and its effect on the health, not only of the individual but on his fellow workers (as shown by Mr. Chapman in the Foresters), should be one of the objects in the campaign against industrial tuberculosis. The danger of extra claims (for "aggravation of existing disease") under the Employers' Liability Act and Workmen's Compensation Act which may be feared by some employers does not seem to have arisen in the Postal Service, and is not a

very frequent incident in general insurance claims, even among the large number of untreated cases that exist among workmen. The occasional attitude of employees themselves to sanatorium cases in their ranks, in some cases refusing to work with patients on their return from treatment as "arrested," is also only to be remedied by education. It is not uncommon for applicants for admission to Benenden to be warned even by their medical attendants of the danger of going to live among other cases for a time. This is curious, seeing that so many medical men who have fallen victims to the disease find safety in living with consumptives in sanatoriums, and in regard to the Benenden cases, whose medical attendance is largely by contract work, there is obviously no sordid motive in the advice. The insistence on the infectivity of consumption in newspaper articles and in ill-expressed propaganda is also responsible for the exaggerated popular fear of sanatoriums and of the consumptive patient. For a full solution of the problem presented by the working-class consumptive insurance for treatment is only a minor weapon. A combination of medical, charitable, social, and administrative (probably legislative) efforts is necessary. The sanatorium, whether voluntary or State-supported, has its 'place as a school for the consumptive and an object-lesson to the community. For the industrial classes it should be reduced, as at Benenden, to its simplest terms, and should always aim at turning out the arrested case fit for work. There will be ample scope for private effort during many years to come in the remedying of those conditions which render the disease infectious in the homes and workshops.

THE POST OFFICE PAVILION.

The Postmaster-General, Mr. Herbert Samuel, M.P., who was accompanied by Mr. Sydney Buxton, M.P., the Postmaster-General in the late administration, visited the Benenden Sanatorium on Monday, Sept. 12th, and formally presented a pavilion of 20 beds which has been erected and equipped by the voluntary subscriptions of Post Office servants who are members of the Post Office Sanatorium Society. The presentation was made on behalf of the subscribers to the National Association for the Establishment and Maintenance of Sanatoria for Workers suffering from Tuberculosis, the Benenden Sanatorium being the first institution belonging to the association. The story given above of the Benenden Sanatorium in relation to industrial insurance and the treatment of phthisis, which has been kindly supplied to us by Dr. Lister and Dr. Wilkins, explains the function of Monday last, which was a very successful one. Mr. C. H. Garland, chairman of the association, presided at a luncheon given in connexion with the ceremony, at which Mr. Herbert Samuel eulogised the work of the association freely, saying that he found that of the number of the patients who came early into the sanatorium two-thirds had the disease arrested, while of these four-fifths were in full work two years later. Mr. Sydney Buxton pointed out that the Post Office service branch, which numbers 45,000 men, were to be congratulated upon their powers of self-help, for the scheme of building had only been launched a twelvemonth. Mr. Garland presented the Postmaster-General with a silver key, and after luncheon that gentleman unveiled a brass tablet commemorating the gift of the building.

INTERNATIONAL CONGRESS OF PHARMACY.

THE Tenth International Congress of Pharmacy, which was held in Brussels during the first week in September, was in many respects the most important international gathering of pharmacists which has been held since the London meeting in 1881. A number of foreign Governments sent official delegates, and pharmaceutical associations from all parts of Europe were represented. The Governments which sent official delegates were those of the United States, France, Italy, Spain, Russia, Norway, Denmark, Sweden, Holland, Greece, Hungary, Japan, China, the Argentine Republic, Guatemala, Chili, Haiti, San Salvador, and the Ottoman Empire. The British Government was not directly represented, but the Pharmaceutical Society of Great Britain sent two delegates, Mr. Edmund White, a member of the Council, and Mr. E. S. Peck, one of the honorary secretaries of the British Pharmaceutical Conference.

The most important subjects under consideration were the standardisation of drugs and galenical preparations and the approximation of analytical reagents, and in respect of these two matters it was the purpose of the Congress to further the work which is being done in the direction of the international unification of potent drugs. Dr. A. Schamelhout, the general secretary of the Congress, in opening the debate on Analytical Methods, pointed out that different methods of analysis give different results; for instance, an opium which gives 10 per cent. of morphine when tested according to the fourth edition of the German Pharmacopœia, gives 12 per cent. when tested according to the third edition. It is therefore hardly possible to lay down international standards for drugs unless the methods of standardisation in the various pharmacopœias are brought into line. Accordingly, he asked the Congress to agree to certain principles on which the work of the international unification of methods of estimation should be proceeded with. After a long discussion, in which a large number of delegates took part, it was decided, on the motion of the representative of the French Government, to request the Belgian Government to summon an international congress for the unification of methods for estimating potent drugs, and to recommend that for the estimation of alkaloids preference should be given to gravimetric methods. There was also a long discussion on the question of the international unification of the composition of reagents, at the conclusion of which it was unanimously decided to recommend pharmacopœial authorities to adopt as far as possible normal reagents or some multiple of normal.

The decisions on these questions constituted the most satisfactory part of the work done by the Congress, but other subjects of universal interest were also dealt with, as, for instance, the sale of proprietary antiseptic preparations and disinfectants. This subject was introduced by a Belgian pharmacist who urged that the sale of these products should be under public control. In the course of the discussion Mr. Peck took the opportunity to refer to the fact that the testing of disinfectants was one of the subjects considered at the Cambridge meeting of the British Pharmaceutical Conference, and while agreeing that it was desirable that the sale of disinfectants should be properly regulated, he pointed out that the English manufacturer of disinfectants seemed to favour that method of standardisation which gave the best result for his own product. The Congress unanimously decided to recommend that proprietary disinfectants should not be sold until they had been officially tested both chemically and bacteriologically. A number of other recommendations were also made, one of which was that the proportion of active principles or the bactericidal power should be stated on the package, and another that the names and addresses of the manufacturer and seller, together with the date of manufacture, should appear on the label.

A debate on proprietary remedies dealt mainly with the question of a system of price protection, from which it would appear that pharmacists have given up all hopes of abolishing proprietary remedies, but are not anxious to sell them except at a profit. Strong protest, however, was made against proprietary remedies advertised in an objectionable manner. Another subject dealt with was the position of pharmacists in regard to pharmacopœial revision. Mr. Vaudin, a Paris pharmacist, urged the desirability of there being a large representation of pharmacists on the committee charged with the preparation of an International Pharmacopœia. He stated that the commission entrusted with the compilation of the forthcoming edition of the German Pharmacopœia consisted of 26 members, of whom one-half are medical practitioners and one-half pharmacists; the revision committee of the Pharmacopœia of the Netherlands is composed of ten members, of whom three are practising pharmacists; the last edition of the Belgian Pharmacopœia was compiled by a commission of nine members, three of whom are practising pharmacists; in France and in the United States pharmacists have a large share in the work of pharmacopœial revision. In the course of the discussion Mr. White explained that in Great Britain pharmacists were not directly represented on the pharmacopœia committee, although they had always been ready to assist the committee with advice on pharmaceutical matters, but he expressed the opinion that on a

commission entrusted with the compilation of an International Pharmacopœia medical practitioners and pharmacists should be equally represented. Most of the other subjects brought forward were of purely pharmaceutical interest, but mention may be made of two papers in which the authors expressed the opinion that courses on the macroscopy, microscopy, and chemistry of natural and pathological secretions should be instituted in schools of pharmacy.

It is interesting to note that, following the example set by the International Medical Congress at Budapest, the Pharmaceutical Congress decided to form a permanent international association, whose headquarters will be at The Hague.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 7921 births and 3795 deaths were registered during the week ending Sept. 10th. The annual rate of mortality in these towns, which had been 12·1 per 1000 in each of the two preceding weeks, declined last week to 11·7 per 1000. During the first ten weeks of the current quarter the annual death-rate in these towns averaged only 11·4 per 1000, and in London during the same period the death-rate, calculated on the probably over-estimated population, did not exceed 10·5 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 3·2 in Hornsey, 5·2 in Walsall, 5·5 in King's Norton, 6·3 in Walthamstow, and 6·3 in Willesden; the rates in the other towns ranged upwards to 18·5 in Stockton-on-Tees, 20·5 in Hull, 21·3 in Tynemouth, 21·4 in Preston, 22·5 in Grimsby, and 24·4 in Middlesbrough. In London last week the reported death-rate did not exceed 10·8 per 1000. The 3795 deaths registered last week in the 77 towns showed a decrease of 145 from the low number recorded in the previous week, and included 623 which were referred to the principal epidemic diseases, against 720 and 703 in the two preceding weeks; of these 623 deaths, 465 resulted from diarrhœa, 51 from measles, 50 from whooping-cough, 28 from diphtheria, 17 from scarlet fever, and 12 from enteric fever, but not any from small-pox. The mean annual rate of mortality from these diseases in the 77 towns last week was 1·9 per 1000, against 2·2 per 1000 in each of the two preceding weeks. No death from any of these epidemic diseases was registered last week in Hornsey, Hastings, Reading, Smethwick, Wallasey, Rochdale, or Dewsbury; the annual death-rates therefrom ranged upwards, however, to 4·0 in Sheffield, 6·3 in Grimsby, 7·3 in Hull, 7·4 in Preston, and 8·3 in Middlesbrough. The deaths attributed to diarrhœa in the 77 towns, which had risen from 115 to 527 in the five preceding weeks, declined again to 465 in the week under notice; the highest annual death-rates from this cause during the week were 3·3 in Barrow-in-Furness and in Sheffield, 3·4 in Wigan, 5·6 in Grimsby, 6·5 in Hull, 6·8 in Middlesbrough, and 7·4 in Preston. The fatal cases of measles, which had been 77 and 68 in the two preceding weeks, further fell last week to 51, the greatest proportional mortality from this disease being 1·1 in Oldham and 1·3 in West Hartlepool. The deaths from whooping-cough, which had decreased from 79 to 57 in the four preceding weeks, further declined to 50 last week, the highest death-rate from this disease being 1·6 in Gateshead. The 28 fatal cases of diphtheria exceeded by 12 the number in the previous week, and included 10 in London and 2 each in Walthamstow, Manchester, and Newcastle-on-Tyne. The 17 deaths from scarlet fever showed a slight decline from the numbers in other recent weeks, and included 3 in Liverpool, and 2 each in London, Bolton, and Hull. The 12 fatal cases of enteric fever were 5 fewer than the number in the preceding week; of these 12 deaths, 3 occurred in London and 2 in Stoke-on-Trent. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 1423, 1447, and 1455 at the end of the three preceding weeks, had further risen to 1462 at the end of the week under notice; 183 new cases were admitted during the week, against 143, 159, and 183 in the three preceding weeks. The 1009 deaths from all causes in London last week included 114 which were referred to pneumonia and other diseases of the respiratory system, showing a slight decline from the numbers in the three preceding weeks, and being 10 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 24, or 0·6 per cent., of the deaths registered during the week in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Manchester, Leeds, Sheffield, Bristol, West Ham, and in 55 other smaller towns; the 24 uncertified causes of death in the 77 towns included 3 in Birmingham, 3 in Liverpool, 2 in London, 2 in Hull, and 2 in Sunderland.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 865 births and 473 deaths were registered during the week ending Sept. 10th. The annual rate of mortality in these towns, which had been 13·3, 13·6, and 13·3 per 1000 in the three preceding weeks, declined to 13·0 in the week under notice. During the first ten weeks of the current quarter the death-rate in these towns averaged 12·7 per 1000, and exceeded by 1·3 the mean rate during the same period in the 77 largest English towns. The annual death-rates in the week under notice in the eight Scotch towns ranged from 12·0 in Leith and 12·3 in Edinburgh to 14·2 in Greenock and 15·3 in Dundee. The 473 deaths from all causes in the eight towns last week showed a decrease of 10 from the number in the preceding week, and included 69 which were referred to the principal epidemic diseases, against numbers rising from 44 to 93 in the five preceding weeks; of these 69 deaths, 51 resulted from diarrhœa, 8 from whooping-cough, 5 from diphtheria, 3 from scarlet fever, 1 from measles, and 1 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·9 per 1000, and corresponded with the rate from the same diseases in the 77 English towns. The deaths in the eight towns attributed to diarrhœa, which had increased from 20 to 68 during the six preceding weeks, declined again last week to 51, of which 29 occurred in Glasgow, 13 in Dundee, 3 in Edinburgh, 2 in Paisley, and 2 in Leith. The 8 fatal cases of whooping-cough showed a decline of 2 from the number in the previous week, and included 6 in Glasgow. The deaths from diphtheria, which had been 6 and 7 in the two preceding weeks, declined last week to 5, of which 2 were registered in Glasgow and 2 in Leith. The 3 fatal cases of scarlet fever occurred in Glasgow. The deaths referred to diseases of the respiratory system in the eight towns, which had been 49 and 47 in the two preceding weeks, further fell last week to 42, but were 17 in excess of the number in the corresponding week of last year. The causes of 18, or 3·8 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 633 births and 334 deaths were registered during the week ending Sept. 10th. The mean annual rate of mortality in these towns, which had been 17·1 and 15·2 per 1000 in the two preceding weeks, declined to 15·1 in the week under notice. During the first 10 weeks of the current quarter the annual death-rate in these Irish towns averaged 16·0 per 1000; the mean rate during the same period did not exceed 11·4 in the 77 largest English towns and 12·7 in the eight principal Scotch towns. The annual death-rate during last week was equal to 17·0 in Dublin, 13·7 in Belfast, 13·0 in Cork, 20·4 in Londonderry, 17·8 in Limerick, and 23·4 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was 12·1 per 1000. The 334 deaths from all causes in the 22 town districts last week were slightly fewer than the number in the preceding week, and included 43 which were referred to the principal epidemic diseases, against 74 and 47 in the two preceding weeks; these 43 deaths were equal to an annual rate of 1·9 per 1000, which was also the rate from the same diseases in the 77 English towns, and in the eight Scotch towns. The 43 deaths from these epidemic diseases in the Irish towns last week included

3 from diarrhœa, 5 from measles, 4 from whooping-ough, and 1 from enteric fever, but not one from small-ox, scarlet fever, or diphtheria. The deaths attributed diarrhœa in the 22 towns, which had been 54 and 9 in the two preceding weeks, further declined last week 33, and included 10 in Dublin, 13 in Belfast, and 2 each Cork, Londonderry, and Waterford. Three of the 5 deaths om measles were registered in Belfast, and 3 of the fatal cases of whooping-cough occurred in Dublin. he deaths in the 22 towns last week included 38 which were eferred to pneumonia and other diseases of the respiratory ystem, against 50 and 40 in the two preceding weeks. The auses of 10, or 3·0 per cent., of the deaths registered last eek in the Irish towns were not certified; in the 77 English owns the proportion of uncertified deaths last week did not xceed 0·6 per cent., while it was equal to 3·8 in the eight cotch towns.

THE SERVICES.

Royal Navy Medical Service.

THE following appointments are notified: Fleet-Surgeons: A. G. W. Bowen and E. Sutton to the *Magnificent*, n recommissioning; J. Mowat to the *Swiftsure;* and . M. May to the *Glory*, and for special service vessels. taff-Surgeons: J. G. Wallis to the *Glasgow*, on commissioning; C. R. Rickard to the *Æolus*, for voyage out, nd to the *Pandora*, on recommissioning; C. K. Bushe to the *Tangcs*, for Shotley Barracks; J. Thornhill to the *Æolus*, for oyage home; W. H. O. Garde to the *President*, additional, emporary; and J. P. Greenhalgh to the *Newcastle*, on ommissioning. Surgeons: J. H. Burdett to the *Racer*, dditional, for Royal Naval College, Osborne; A. C. Rusack o the *Superb;* F. R. Featherstone to the *Victory*, additional, or disposal; T. F. O'Keeffe to the *Pembroke*, additional, for isposal; W. C. Carson to the *Blenheim*, additional, for the *Swift;* F. C. Searle to the *Agamemnon*, on recommissioning; . H. Vickery to the *Pembroke*, additional, for disposal, on ransfer of the *Vindictive* to the 4th Division; W. L. Hawkins to the Royal Marine Division, Portsmouth; N. S. Heiklejohn to the *Victory*, additional; and P. D. M. Campbell to the *Juno*, on reducing.

Royal Army Medical Corps.

Colonel T. J. O'Donnell, D.S.O., has arrived home on eave from India. Brevet-Colonel F. J. Lambkin, from the Military Hospital at Rochester-row, London, has taken over harge of the Military Hospital at Bloemfontein. Lieutenant-Colonel R. S. F. Henderson, secretary to the Principal Medical Officer in India, has joined at Simla from Calcutta. Lieutenant-Colonel T. Daly, from Ferozopore, has been ppointed to command the Station Hospital at Dalhousie. Lieutenant-Colonel T. H. F. Clarkson has notified his ntention to retire from the service. Major O. L. Robinson, rom Meerut, has been placed in charge of the Military Hospital at Kailasia. Major C. J. Healy, from Queenstown, has aken over duty at Tipperary. Major C. E. G. Stalkartt as notified his intention to retire from the service. Major I. E. Winter and Major A. E. Smithson have been granted he higher rate of pay under the provision of Article 317 of he Royal Warrant. Major A. E. C. Keble has arrived home n leave from Gibraltar. An exchange on the roster for ervice abroad has been approved by the War Office between Captain W. J. Waters and Captain H. G. Pinches. Captain B. S. Bartlett, from Colchester, has been appointed for luty with the Northern Army in India, embarking on he *Dongola* from Southampton on Sept. 21st. Captain F. A. H. Clarke, on conclusion of his course of instruction at the Royal Army Medical College, London, has been posted to the Scottish Command, and has joined at Edinburgh for duty. Captain F. W. Cotton, on return from leave, has been appointed to Barrow-in-Furness. Captain J. T. McEntire, from York, has been posted for luty at Chilwell Park Camp. Captain A. S. Arthur, on eturn from a tour of service in India at Naserabad, has oined at Stobs Camp. Captain E. T. Potts has been transferred from Harrismith to Pretoria. Captain D. J. F. O'Donoghue has arrived home for duty from the West Coast of Africa. Captain R. B. Ainsworth has been appointed Specialist Sanitary Officer to the Southern Command. Captain P. G. Easton has been placed in medical charge of families at Aldershot. Captain A. R. C. Parsons has been selected as Specialist in Advanced Operative Surgery to the Scottish Command. Captain N. E. J. Harding has been placed under orders for service on the West Coast of Africa, embarking in October. Lieutenant J. W. Houston has been appointed a Specialist in the Prevention of Disease at Belgaum and placed in charge of the local laboratory. Lieutenant J. L. Wood, from Bareilly, has joined at Naini Tal. Lieutenant G. F. Dawson has been transferred from Meerut to Chakrata, accompanying the King's Royal Rifle Corps, to which he is attached for duty in connexion with antityphoid inoculation. Lieutenant P. C. Field, from Aldershot, has been posted to Woking.

Indian Medical Service.

Lieutenant-Colonel R. C. Macwatt, Residency Surgeon in the Western States of Rajputana, has been appointed to act as Civil Surgeon of Bikaner in addition to his own duties. Lieutenant-Colonel K. Prasad, civil surgeon of Bhamo, has been granted four and a half months' special leave. Captain H. Innes has been appointed to officiate as Civil Surgeon at Dacca during the absence on leave of Lieutenant-Colonel E. A. W. Hall. Lieutenant-Colonel D. G. Crawford, Bombay, has arrived home on leave. Major W. D. Hayward, police surgeon at Calcutta, has been selected to officiate as Medical Storekeeper to Government at Calcutta, vice Lieutenant-Colonel E. F. H. Dobson, transferred to Lahore Cantonment. Major R. H. Maddox, civil surgeon at Darjeeling, has been appointed to act as First-class Civil Surgeon during the absence on leave of Lieutenant-Colonel D. G. Crawford. Major G. McPherson has arrived home on leave. The services of Captain W. J. Frazer have been placed temporarily at the disposal of the Honourable the Chief Commissioner of the Central Provinces. Captain E. C. Taylor has been posted as Civil Surgeon of Miranshah. Captain A. J. V. Betts has been appointed to act as Deputy Sanitary Commissioner of the Western Registration District, Bombay, pending the arrival of Major J. L. Marjoribanks. Captain W. L. Tafford has joined the Civil Medical Department of the United Provinces. Captain M. Mackelvie, officiating civil surgeon of Puri, has been appointed to act as Civil Surgeon of Darbhanga, vice Lieutenant-Colonel J. G. Jordan on leave. Captain T. H. Gloster has been posted to the Bacteriological Department permanently. An exchange has been sanctioned by the Government of India and the War Office between Captain R. K. White, I.M.S., and Captain A. A. McNeight, R.A.M.C. Captain W. H. Boalth, special plague medical officer, Sagaing Division, has been posted for plague duty in the Meiktila Division, Burma. Captain G. Tate has been appointed a Specialist in Midwifery and Diseases of Women and Children to the 2nd (Rawalpindi) Division of the Northern Army. Captain C. Hudson, D S.O., has been appointed a Municipal Commissioner for Bangalore.

Territorial Force.

Royal Garrison Artillery.

Tynemouth: Surgeon-Major Hugh R. Bramwell, whose resignation was announced in the *London Gazette* of July 5th, 1910, is granted permission to retain his rank and to wear the prescribed uniform (dated Sept. 14th, 1910).

Royal Army Medical Corps.

3rd East Anglian Field Ambulance: Alexander Graham to be Lieutenant (dated July 7th, 1910).

3rd North Midland Field Ambulance: Martin Hallam to be Lieutenant (dated July 26th, 1910).

Attached to Units other than Medical Units.—Major Charles J. Marsh resigns his commission and is granted permission to retain his rank and to wear the prescribed uniform (dated Sept. 14th, 1910). Captain Philip J. Le Riche resigns his commission (dated Sept. 14th, 1910). Lieutenant Arthur N. Haig resigns his commission (dated Sept. 14th, 1910).

For attachment to Units other than Medical Units.—Henry Edward Sutherland Richards to be Lieutenant (dated June 15th, 1910). Charles Holt Caldicott to be Lieutenant (dated July 22nd, 1910).

Deaths in the Services.

Deputy Inspector-General Charles Morton, R.N. (retired), on August 22nd, in his seventy-seventh year. He entered

the service in 1854, becoming staff-surgeon in 1864, and fleet-surgeon in 1875, retiring with the rank of deputy inspector-general of hospitals and fleets in 1887.

Deputy Inspector-General John Jack, R.N., at Kensington, on Sept. 8th, aged 92 years. He was the oldest surgeon on the retired list of the medical staff of the service. He entered the Navy in 1842, and became a staff-surgeon in 1854, and a fleet-surgeon in 1867, retiring with the rank of deputy inspector-general of hospitals and fleets in 1875. He held the Gilbert Blane gold medal.

Deputy Surgeon-General Frederick Mackenzie Skues, late A.M.D., on August 13th, at Streatham, in his seventy-seventh year. He entered the service in 1855, becoming surgeon in 1868, surgeon-major in 1873, and brigade-surgeon in 1880, retiring with the honorary rank of deputy surgeon-general in 1882.

THE WOMEN'S SICK AND WOUNDED CONVOY CORPS.

The Women's Sick and Wounded Convoy Corps is a body of ladies organised by Mrs. St. Clair Stobart in connexion with the medical department of the Territorial Force. They undertake to serve wherever they may be required, either at home or abroad; in time of war their work will not be on the battlefield, but will commence when the wounded who have been brought from the front to the clearing hospitals have to be transferred from them to the stationary hospitals at the base. The Convoy Corps will nurse the patients during removal, whether by railway, by road, or by water, and will also do duty in rest camps and convalescent depôts. Their training will therefore include not only a certain amount of preparation for duty as nurses in military hospitals, but also instruction in the rudiments of military drill, in camp cookery, in laundry work, in the conversion of ordinary vehicles into ambulance wagons, and in riding. In pursuance of these objects a party of about 50 members of the corps have recently passed a week under canvas at Studland Bay in Dorsetshire, with Mrs. Stobart as commandant. Arriving at Swanage about midday on Sept. 1st they marched a distance of four miles to the camp, where the tents had been pitched by non-commissioned officers of the Royal Army Medical Corps (Territorials) under the direction of Captain Langford Lloyd, R.A.M.C. The organisation and daily routine of the camp were on strictly military lines. Reveillé was sounded by a female bugler at 6 A.M., and from 7 o'clock to 8.30 recruits' drill was practised under two sergeant-instructors. Breakfast was then taken, after which the time from 9.30 to 12 noon was devoted to stretcher-drill, bandaging, and field-work under Captain Lloyd and his assistants. Dinner lasted from 1.30 to 2.30 P.M., and from 2.30 to 3.30 P.M. instruction was given in some subject connected with the work of the corps, after which the remainder of the day was at the ladies' own disposal until the lights were extinguished at 10.15 P.M. A camp guard of eight ladies was on duty all night, sentries being posted as in an ordinary camp. The Women's Sick and Wounded Convoy Corps has the approval of the War Office and the British Red Cross Society; and the list of vice-presidents, which is headed by Sir Alfred Keogh, late Director-General of the Army Medical Staff, contains the names of many influential persons.

THE MILITARY FAMILIES HOSPITAL, DEVONPORT.

The building of the Military Families Hospital at Devonport is being reconstructed and considerably improved, and several additions are being made to it. A nurses' quarter to provide accommodation for five resident nurses is also to be erected. Previously only one nurse slept at the institution.

NIGHTINGALE MEMORIAL FUND.—The scheme initiated by Mr. J. Gadesden Wainwright, treasurer of St. Thomas's Hospital, for raising funds for a memorial to the late Miss Florence Nightingale, is progressing rapidly. Already several hundreds of pounds have been subscribed, and a committee, consisting of the chairmen of most of the London hospitals, has been formed. The memorial will probably take the shape of a fund for the assistance of nurses who have fallen upon evil times, but many other suggestions have been made and will be considered. Contributions may be sent to Mr. J. G. Wainwright at St. Thomas's Hospital, or to the secretary of the Union of London and Smith's Bank, E.C.

Correspondence.

"Audi alteram partem."

COLD-BATH TREATMENT OF INFANTILE CONVULSIONS.

To the Editor of THE LANCET.

SIR,—There is no doubt in my mind as to the correctness of the views expressed by Mr. M. G. Pearson in the *South African Medical Record* as alluded to in THE LANCET of July 16th, p. 180. I had not thought that there was anything new in these views, but I will accept the opinion that it is not generally held that infantile convulsions are in most cases due to hyperpyrexia.

For many years I have regarded high fever as the cause of the convulsions in acute diseases in children, and I have acted accordingly. Time after time I have noted that rigidity, twitchings, and convulsions become established *pari passu* with the progressive rising of the temperature, and that they subside *pari passu* with a lowering of the temperature. The rectal temperature is the best guide as to the child's condition. The younger the child the more readily does its temperature become hyperpyretic and the more readily are convulsions produced. At birth the heat-regulating mechanism is not fully developed, and the infant is in the echidna-like condition of depending to some extent upon its surroundings for the maintenance of the proper temperature. The full heat-regulating power of the adult, which is able (except in rare and exceptional circumstances) to keep the temperature within safe limits, does not seem to be acquired until later. I make this statement roughly from my clinical experience, which gives me the impression that beginning with great instability in infancy, so that slight infections may cause very high fever, the heat-regulating mechanism year by year becomes more and more efficient, but that not till about the time of puberty does there seem to be gained that great stability of the regulating mechanism of the adult which renders hyperpyprexia and hypopyrexia so uncommon except in the most severe types of infection. My clinical experience of many years enables me to endorse every word of the abstract of Mr. Pearson's article in THE LANCET. The onset of convulsions when the brain and spinal cord are not themselves the seat of the disease can be anticipated and prevented by careful taking of the temperature in the rectum at frequent intervals, and the use of tepid sponging of the naked body, or the cold bath, as circumstances indicate. As the heat-regulating mechanism gets so easily out of joint in very young patients, the cold bath must be used with caution, as it is easy to produce over-cooling. In every case of fever in a young child the parents or attendant should be instructed to watch for the slightest signs of rigidity of the hands, arms, legs, or eyeballs, and to sponge the child all over at once and keep it wet and naked when these symptoms appear. I always liken in my own mind the convulsions of fevered children with the "heat stroke" one sees in adults in India and other hot countries, the explanation of which is yielded by the experimental researches of Pembrey, Boycott, and Haldane.

The foregoing theory as to the relative efficiency of the heat-regulating mechanism at different periods of adolescence can be tested by direct experiments on infants and children in the heated moist chamber. The further question as to whether the mechanism in the young is more easily deranged by toxins than in the adult would have to be answered by experiments on animals.

I am, Sir, yours faithfully,

W. E. MCKECHNIE,
Captain, I.M.S.

Etawah, India, August 1st, 1910.

"606."

To the Editor of THE LANCET.

SIR,—The thanks of the profession are due to yon and to Mr. J. E. R. McDonagh for the article upon the latest new remedy for syphilis which appeared in THE LANCET of Sept. 3rd. It is surprising how little notice the British medical press has taken of the papers which have appeared in the German medical journals during the months of July and August recording the experiences of selected observers who

have been working with the Ehrlich-Hata specific for syphilis. Revolutionising discoveries in medical and allied sciences have succeeded each other with such startling impetuosity during recent years that medical men are in danger of losing the faculty of surprise: nevertheless the accounts of apparent cures—as attested by some of the most eminent authorities in Germany—are of such a nature as to arrest the attention even of the most apathetic.

We read of severe cases of syphilis running their course uninfluenced by mercury administered in the most approved fashion, showing marked retrogression of symptoms within a few *hours* of the introduction of the remedy. We are told that patients whose lesions swarm with spirochætes before the exhibition of the specific fail to yield any of these organisms 24 or 48 hours after its employment. But to my mind the most hopeful record yet published is the account of an experiment performed upon apes by Dr. Neisser, who has such vast experience in this field of research. Syphilitic apes some time after the initial symptoms had disappeared were treated with the Ehrlich-Hata specific. One month later they were reinoculated with human syphilitic material, and after the usual incubation period presented typical primary lesions.[1]

This wonderful result may be explained away in the course of time; meanwhile, we may with reason hope that the genius of Ehrlich has conferred a blessing upon mankind which will rank with the greatest achievements of medical science.

I am, Sir, yours faithfully,

Birmingham, Sept. 12th, 1910. ARTHUR LOXTON.

A WET DAY AT AN AIR AND WATER CURE.

To the Editor of THE LANCET.

SIR,—Some diseases are said to move in vicious circles. An air-cure in France at a fashionable "*bain*" forcibly illustrates this, for immemorial Gallic custom militates often against the most approved modern therapeutics and prophylactics in a manner that must prove the despair of enlightened French practitioners. These lines are being written in a hermetically-sealed salon, heavy with the exhalations of seldom-washing humanity and of phthisical patients who do bathe, but who have sat in rows on sofas during hours of a gloomy and rainy day among the mountains. The salon, which has not a ventilator or practicable window anywhere, and is lit by a dim ground-glass skylight, opens into another room, stuffy with the aroma of particularly active children. This drawing-room also *never* has its windows opened; the parents of the children take good care of that. This hotel, which is the resort of *baigneurs*, many of them consumptive, is certainly built on modern hygienic principles. The bedrooms are austerely clean, and the mania for rounded corners has even spread to the insides of the night-tables. Everything from walls to furniture is made to wash, but, on the other hand, there is no bath-room in the house, and there is no sign of a bath. Closets are on the English principle, but some of them open into unventilated air-shafts. The "w.c. à l'Anglaise" has had a hard struggle to establish itself in France during the last two decades. It is still the subject of sarcasms from patriotic pens in the newspapers! Indeed, to many French minds English cleanliness is a form of Pharisaism and is not loved. The ritual of the mineral-water baths here seems to be interwoven with survivals, such as the "*bassanoire*," or warming-pan, perhaps traceable to a Roman source. It would be interesting to examine into what the French call the *provenance* of all the bathing customs and beliefs here and elsewhere. How many of the practices at a "*bain*" are really merely old-world survivals? Venerable absurdities and immemorial bad customs in the matter of ventilation and cleanliness do not promise well for the cure of incipient consumption, which in France, at least, seems to a great extent to be a self-induced disease due to mollycoddling, rich and unwise diet, lack of fresh air, and life-long *bathlessness*, if I may be allowed to coin a word. In the writer's early youth the French child of a well-bred stock was most perfunctorily cat-licked by his nurse in the morning. We remember one worthy soul who with a slightly-damped sponge made a sort of segmentary dab over her little charge's face at 7 o'clock in the morning. It was always a toss-up whether the half-moon of damp would be on the other side of the small face the morning after. Then there were ancient grandmotherly restrictions as to eating fruit. Even the ripest was to be taken very gingerly. To drink water when you were hot was considered very dangerous. There was in our family a tradition of an ancestor who, in 1793, or thereabouts, had drunk cold water when heated by exercise, and had at once felt an awesome pain inside his vitals. The procedure was to take two or three sips, or about a teaspoonful at a time, and thus the honest thirst of infancy, a thing to dream of in after life, was never satisfied. Spinal curvatures, irregular teeth, and dirty nails were also much neglected. Of course, with the march of civilisation things are improving, even in ultra-conservative France, but our brilliant neighbours will be long in wholly adopting the standards in matters of personal hygiene which prevail in countries otherwise far behind them. They would think it affectation to do so.

I am, Sir, yours faithfully,

Sept. 12th, 1910. JOHN BULL, M.D.

[1] Berliner Klinische Wochenschrift.

THE SUPPRESSION OF QUACKERY.

To the Editor of THE LANCET.

SIR,—As a non-advertising unregistered dental practitioner of 16 years' standing at the one address, and an old and interested reader of THE LANCET, and having received an intimation from Mr. Morton Smale that this vital question might well be ventilated in your columns, and he not making any specification that the reader should be duly qualified either medically or dentally, I beg to take advantage of this courteous intimation to ask you to kindly insert this.

On reference to the Dental Directory, 1910, I find Mr. Morton Smale holds what every British dentist ought to hold—the Conjoint qualification in medicine and dentistry. Probably the duly qualified medical practitioner will think these are peculiar utterances from one of the regimental order of quacks. But all existing quackery in the embryo I lay to the door of the late governing medical bodies; had the curriculum prescribed been, as in many countries, that to become a dental practitioner necessitated the holding of a medical and dental qualification, there would not have existed any quackery to-day. But in many civilised countries, as dental science has advanced, provision has had to be made for unregistered practitioners.

One of our cleverest physicians' pet remark was: "There is an antidote to every disease." The present existing antidote no doubt is severe. But the greater the severity of the disease the deeper and longer the incision, and we will hope that the wound will be entirely healed by first intention. And, furthermore, I can assure you that at least 50 per cent. of unregistered dental practitioners would welcome a registration, and entirely submit themselves to your governing bodies. And might I be allowed the presumption to submit to you through the medium of your very well-known journal a few condensed proposals, to be added to or subtracted from by the governing bodies, viz.:—

1. The existing unregistered dental practitioner that shall produce proof of having practised dentistry for the past three years or more shall, on six months' attendance (*sine* curriculum) at the nearest dental hospital, receive a certificate of the title of "Dentist."

2. Should he on receipt of the title of dentist be desirous, he shall pursue the curriculum required by the governing bodies, and after classes and lectures, hospital attendance of two years' duration, he will be allowed entry to his Final Examination, equivalent to the present L.D.S. (You would find many unregistered taking advantage of the proposal.)

3. The unregistered dental practitioner of advanced years, who could not well take advantage of this proposition, would on receipt of the certificate of the title dentist receive the same privileges as the registered dentists of 1878, viz.: (1) Exemption from juries; (2) duly qualified medical practitioners to be permitted to administer any general anæsthetic necessary, when called upon so to do; (3) the continuing of the right of administration of N_2O and oxygen, or any equivalent anæsthetic of a similar nature that in future may be used in dentistry; (4) the use of local anæsthetics, embracing all that are in present and future use

as local anæsthesia; (5) in granting this certificate of the title of dentist only will make a distinction between the graduate who through college training can exhibit the title of L.D.S.; and (6) the applicants shall conform to all ethical regulations as laid down by the governing bodies from time to time.

The existing opposing elements you have to contend with are, to say the least I am bound to put it in the superlative degree —very numerous. There exist at present 40,000 unregistered dental practitioners in the British isles of all descriptions, societies and companies inclusive. Their books will show they are making livings from £100 to £2000 per annum. Should it necessitate financial enterprise to pass a Bill (Parliament permitting), they can command at a week's notice £50,000 without any financial inconvenience to themselves whatever. That is the financial side of the question. Taking your professional side of the question, I can safely assert according to the present state of dental affairs that in another three years a registered dentist of any qualification whatever, unless he has a private income, will not be able to live. My argument lies in the fact that ordinary dentistry is composed of minor operations only; excision of jaws, antrum cases, growths, &c., belong to the region of the hospital surgeon, hence the birth of so many unregistered dentists. And furthermore, in reply to Mr. Morton Smale, who probably has his carriage patients from 10 to 4, he cannot possibly possess any conception of the dental requirements of the middle, and especially the lower classes in the North of England; so the sooner fresh legislation is issued the better for all concerned in the practice of dentistry.

I am, Sir, yours faithfully,

August 29th, 1910. SINE IRÂ ET STUDIO.

EPIDEMIC POLIOMYELITIS IN THE UNITED STATES.

(FROM A SPECIAL CORRESPONDENT.)

THIS disease, which has prevailed since 1904 in New England and since 1907 in New York State, has now reached the capital, and there are estimated to be already nearly 200 cases in the city and surrounding country. So much alarm has been created by the sensationalism of the newspapers that the Medical Association of the District of Columbia met in special session on August 23rd in order to consider the situation and attempt to reach a common understanding from which they might formulate a statement to render uniform the advices which are reaching the public from irresponsible sources. The matter was taken up as follows: Epidemiology, Dr. L. T. Royster of Norfolk, Va., the secretary of the Pediatric Section of the American Medical Association; Bacteriology and Pathology, Dr. John F. Anderson, director of the Hygienic Laboratory of the United States Public Health and Marine Hospital Service; Symptomatology, Dr. G. N. Acker, visiting physician of the Washington Children's Hospital; Differential Diagnosis and Treatment, Dr. Tom A. Williams, neurologist to the Epiphany Dispensary; Washington Preventive Measures, Dr. W. C. Woodward, health officer of the District of Columbia.

Dr. ROYSTER was inclined to believe that the present outbreak was an epidemic analogue of a sporadic disease rather than a new malady. He emphasised the comparative frequency of meningeal and encephalitic incidence of recent epidemics. He believed that until they had clearer knowledge of the manner of contagion it was better to err on the safe side with regard to precautions against infection. No promise was yet afforded by attempts at attenuation of the virus with which to furnish a useful preventive inoculation; but the labours of the Rockefeller Institute had added a very great deal to their knowledge of the transmissibility of this disease, and the work was a striking illustration of the value of such laboratories.

Dr. ANDERSON emphasised the European experiments by which infection had been conveyed by spraying the suspended virus into the nares and by rubbing it on to the bruised nasal mucous membrane. Introduction of the virus into the stomach through an œsophageal tube had also infected animals. It was very important to keep in mind the demonstrated fact that the virus, like that of epidemic cerebro-spinal meningitis, was excreted by the nose. It was also excreted by the saliva. From these experimental facts it should follow that the disease might be conveyed clinically in this way, and that precautions against this possibility should be taken, even although the reported facts did not favour this view at present. But as the virus remained active for a long period and was very resistant to most inimical agents except heat, and as in the laboratory of Levaditi the virus had been obtained from the olfactory bulb as the direct result of infection through the nose, too many precautions could not be taken against the nasal avenue and the conveyance of the disease by the inspiration of infected dust. Hence, the disease should be notifiable in order that minute inquiry might be instituted as to the manner of propagation. The fact that normal sheep serum appeared to have a weak neutralising effect upon the virus and that this could be augmented by inoculation might have a bearing upon sero-pathological researches in the future.

Dr. ACKER described an epidemic which had occurred in 1889, during which he saw about 20 cases in the district. Only sporadic cases then occurred until 1904, when there were 25. He had been much struck by the absence of family infection, never having seen two cases at once in a household. The contagion must therefore be very feeble. He had noticed the frequency of spinal irritation in this epidemic, and he had seen several cases which were mistaken for rheumatism and neuritis, and some for typhoid fever. In some cases the paralysis had occurred only after the subsidence of the fever or after a recurrence. He thought that if all cases were reported the mortality would not exceed 5 per cent.

Dr. WILLIAMS alluded to the need of an accurate neurological technique in diagnosing the more difficult cases, which were not numerous. Some resembled Landry's paralysis; in some meningeal symptoms predominated; in some it was chiefly the brain stem which was attacked, giving rise to a dysergic syndrome, sometimes unilateral, as in a case he shortly reported. In such cases examination of the reflexes was particularly important, but it was sometimes very difficult in children to obtain the muscular relaxation needed to examine these, especially when the meninges were irritated. The failure to respond under these conditions did not indicate absence of the reflexes but error in the method of eliciting them. There were two sources of pain from poliomyelitis: (1) meningeal, and (2) that due to stretching, dragging, and torsions of muscles, fasciæ, and ligaments. The latter was permitted by the atonia which resulted from the neuronal degenerations of the disease. The best remedy for it was early galvanism, to exercise muscle contractivity and preserve tonus. But prolonged suspension in water as recommended by the New York committee which reported upon the 1907 epidemic was also of great value, and something could be done by well-applied slings and pads for the patient in bed. To encourage the voluntary movement which was so important a factor in recovery, the child must be induced to play the kind of games which make a demand upon those muscles which were weakened; and when no visible movement was otherwise attainable, suspension in a bath would often enable the patient to command some otherwise inert muscle bundle. In conducting these exercises, which must be persevered with for months, the psychic factor was of the greatest importance, so that the child could participate with enjoyment and thus make greater and more prolonged efforts.

Dr. WOODWARD believed that could they answer the question of why these outbreaks were occurring throughout the civilised world at this particular time, they might go far towards finding a means for arresting the spread of poliomyelitis. Did it prevail now because the growth of the organism was favoured, or was it because their mode of life rendered them more susceptible? At present they must work empirically, although they could be largely guided by laboratory experiments, which had shown the danger of nasal and salivary secretions. Disinfection of these and the use of different utensils by the patients should be minimal recommendations. But there was always the danger of infection by droplets. They must have more light; and

erefore a collective investigation was called for to supple-ent that being conducted in experimental laboratories. In is way the present epidemic might afford a means for the ucidation of another problem of medical science.

In the discussion Dr. JOHN A. FOOTE alluded to cases hich had been diagnosed as chorea, and thought that many ses, through this diagnosis, escaped detection. After the dis-ssion, on the proposal of Dr. PHILIP S. ROY, the following t of resolutions was published by the unanimous vote of e meeting:—

1. The Medical Association of the District of Columbia convened in ecial session, to consider the prevalence of acute anterior polio-yelitis which is reported to be rife in the District of Columbia and its ighbourhood, unanimously desire to deprecate the undue alarm which s been excited about this disease. Even in severe epidemics only out 1 person per 1000 is attacked, and 1 death per 10,000 of population an unusually high mortality.

2. Remembering that infantile diarrhœa claims 1 out of every 25 ildren who die, and that bronchitis and other respiratory diseases use the death of 1 in every 40 children who die, making a total in the strict of Columbia of more than 400 per annum, it should be obvious w disproportionate is the alarm which is now excited about infantile ralysis. We do know how to prevent both diarrhœa and bron-itis. Precautions against these decimating affections are much more gent than is a vague terror of poliomyelitis, because—

3. We do not know how to prevent this infection either in town or untry, for we do not know in what manner it is conveyed from case case. But we do know that it is very rarely ever transmitted by rect contact in the same house. We do know that it is just as apt to ur in the country as in the town. We do know that it can only by rect inoculation be transmitted to monkeys, and that the virus of the man disease is not acquired by domestic animals. Some believe that is carried by dust, others by cracks in the skin, others that it occurs ly in low-lying land. We know none of these yet; but we are aking a sincere effort to solve this difficult question in common with r colleagues in New York, New England, the Marine Hospital rvice and in Europe.

4. As to treatment, we do not feel called upon to issue a statement. ch case may present difficulties, but these can only be met by the ysician as they occur.

Such publication marks a step in the public function of e medical profession in the District of Columbia, as it has t hitherto been regarded expedient to issue official pro-amations from the medical profession for the enlighten-ent of the people in matters of hygiene or the prevention disease, although this has been systematically done in e States of California, Illinois, Massachusetts, and con-icuously Maryland.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

University of Bristol.

THE University of Bristol is to receive £1000 for a scholar-ip in music or botany to be called the "Vincent Stuckey ean Scholarship," from the estate of the late Miss Julia ncy Woodward, of The Knoll, Clevedon, Somerset. Under e same will the Clevedon Cottage Hospital will receive 500.

Bristol General Hospital.

At the half-yearly governors' meeting held at the hospital Sept. 12th, the President, Mr. Joseph Storrs Fry, alluded Mrs. Proctor Baker's generous gift of £10,000 for the undation of a maternity ward to be named after the late r. Proctor Baker, for many years president of the hospital, d to a donation of £400 from a lady who wished to remain nonymous. He spoke of certain urgently necessary ditions which it was proposed to make if the requisite nds were provided by the public. These would include e maternity department already mentioned, fresh wards r female medical and surgical patients, and a new ental department The present dental arrangements e inconvenient. As Alderman C. B. Hare said, there d been over 2700 dental out-patients in the past six onths, and these have to be sent a quarter of a mile the two houses in the neighbourhood of the hos-ital which are temporarily used as a dental department. he financial position still calls for improvement in spite of e most rigid economy in administration, and it is to be ared that the adverse balance will reach £5000 by hristmas. The pressure on beds continues to be very heavy nd the number of out-patients has for the first time reached ver 20,000 in six months. Allusion was made to the death f Mr. R. W. Coë, consulting surgeon to the hospital, t the age of 89 years; and to the formation of registrar-hips.

Winsley Sanatorium.

Mrs. Proctor Baker's generous donation of £10,000 to Winsley Sanatorium, in perpetuation of her late husband's memory, will enable the committee to pay off all that remains of the mortgage. Half of the donation, already received, has reduced the mortgage to £3300. The finance committee has determined to allocate £150 for its further reduction, and the remaining half of Mrs. Proctor Baker's contribution is expected by the end of the year. This will give the sanatorium a balance on the right side, and the house committee at the last meeting appointed a sub-committee to consider additions and improvements, especially in the form of provision of more suitable accommodation for the medical officer and staff. Dr. L. Crossley, the resident medical officer, reported the sanatorium full, and the requests for admission continuous, numerous, and urgent.

Vaccination.

At the last meeting of the Bristol board of guardians it was reported that for the six months ended December, 1909, 4229 births were registered, 1956 infants were successfully vaccinated, 798 had conscientious exemption certificates, 302 died unvaccinated, 8 were insusceptible to vaccination, 120 were medically postponed, and the "removals" and "cases unaccounted for" numbered 1045. These figures show the great increase in the number of conscientious exemption certificates granted compared with a few years ago. For the first six months of 1910 the "exemption certificates" amounted to 821.

The Remuneration of Vaccination Medical Officers.

The Local Government Board has recently requested various boards of guardians in the West of England to consider the question of the remuneration of their vaccination officers, as owing to the decrease in the number of vaccinations the income from fees has been greatly reduced. The Bristol board of guardians has on two occasions declined to increase the remuneration of its vaccination officers, but the Holsworthy (Devon) board decided to award its officers gratuities, a course which the Local Government Board has sanctioned, urging the guardians in future to increase their fees for each successful case of vaccination, and so to make the remuneration the same as it was before the passing of the present Act.

A Distinguished Bristolian.

Dr. Emily Blackwell, who was born in Bristol in 1826, died at York Cliffs, Maine, America, on Sept. 8th. The deceased was the sister of Dr. Elizabeth Blackwell, and went to the United States when she was 6 years old. She graduated at the Western Reserve College in 1854, and with her sister organised the Women's Medical College of New York Infirmary, and founded the New York Infirmary for Women and Children, the first women's hospital established in America.

The Taunton and Somerset Hospital.

The committee of the Taunton and Somerset Hospital, the centenary of which is being commemorated this year, has issued a strong appeal for increased financial support. Since the foundation of the hospital in 1810 more than 50,000 patients have been treated as in-patients, and 235,000 have attended the out-patient department. The daily average number of occupied beds during 1909 was 93, and 961 in-patients were admitted. The cost of maintenance is £5700 per annum, and the approximate annual income is £3400, leaving a deficiency of £2300, for which the committee has to rely on legacies, &c. The committee hopes that as a result of its appeal the income of the institution will be annually increased by at least another £1000. Meanwhile, part of a sum of £107 raised during the recent carnival held in Torquay will be apportioned to the Taunton and Somerset Hospital, the Taunton and District Nursing Association and the Bristol Eye Hospital also participating.

Death from Acetanilide.

An inquest was held at Teignmouth (Devon) last week in reference to the death of a lady visitor aged 43 years. Evidence showed that the deceased was in the habit of taking "headache powders," and had taken one the morning before her death, which occurred suddenly. Medical evidence showed that the heart, although small, was healthy and that death was due to heart failure. The medical man stated that he had examined one of the powders which the deceased lady was in the habit of taking and found it contained

acetanilide, which was a depressant to the heart, and although the powders were about the most dangerous that could be given for headache, they were sold without any restriction. The jury returned a verdict in accordance with the medical testimony.

Sept. 13th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Poor-law Reform in Ireland.

THE British Medical Association and the Irish Medical Association have recently decided on a joint campaign in favour of Poor-law reform, in so far as it concerns the medical profession. Each Association has voted a considerable sum of money, and a joint committee has been appointed, with Professor Arthur H. White as honorary secretary. The intention of the committee is to organise professional opinion on the subject and to formulate such a scheme as may be decided on as satisfactory to the profession as a whole. In a circular forwarded to all medical men in the country the committee states that the plebiscite of Poor-law officers taken by the British Medical Association, and that of its own members by the Irish Medical Association, showed overwhelming majorities in favour of reform along the lines of the report of the Vice-Regal Commission. The committee briefly summarises the reforms for which it asks the support of the profession. They are: (1) that the public medical services (except lunacy) should be unified and placed under the control of a board containing a due proportion of medical men elected by the service, with laymen chosen by the county councils; (2) a national medical service entered by examination and administered by this board; (3) payment by the State of adequate salaries progressive according to service; (4) promotion by merit to all positions in the service; (5) the establishment of a properly organised public health service; and (6) a system of hospitals, accessible to all requiring treatment, free from workhouse or pauper taint. The question of the medical attendance in these hospitals on private patients requires special consideration.

The Registrar-General's Report for 1909.

In THE LANCET of August 6th some of the more important statements from the Report for 1909 of the Registrar-General for Ireland were quoted. The report has now been distributed, and a few further points of interest present themselves. In the table of causes of death tuberculous disease stands highest with 10,594 deaths, or more than 14 per cent. of the total number; heart diseases come next, with 9052 deaths; then, in order, old age, bronchitis, pneumonia, and cancer. The mortality from typhus and typhoid fevers has continued to decline. The former disease, which in 1880 caused 934 deaths, and in 1901 92, was responsible in 1909 for only 43—the lowest number recorded. Typhoid fever in 1909 caused 305 deaths, the average number for the ten years 1899–1908 being 564. 222 deaths were caused by puerperal septic diseases, the average for the previous six years being 210; the total deaths associated with pregnancy or childbirth were 644, or 6·27 per 1000 births, the average for the previous six years being 646. The total number of deaths from all forms of violence was 1858, including 48 from homicide, and 146 from suicide. Of the 146 suicides, 116 were males; 18 of the suicides chose poison, 5 taking carbolic acid and 5 strychnine. Two deaths occurred from anæsthetics.

Dublin Hospitals Tuberculosis Committee.

The Dublin Hospitals Tuberculosis Committee has published a summary of the work done by its district nurses during the past six months. Their experience of this kind of work encourages the committee to support the suggestion made by the Dublin Hospitals Board of Superintendence of the appointment of lady almoners to aid the work of the out-patient departments of the hospitals. In the past six months the three nurses employed by the committee gave attention to 283 cases of tuberculosis, paying in all 3292 visits. In addition to ordinary nursing work and the giving of hygienic advice, the committee helped 11 families to move to more healthy houses, they gave food to 108 families, and were instrumental in sending 66 children of tuberculous patients to the country. In many other ways reasona help was given.

Health Home at Sutton.

A year or two ago some alarm was roused in the neighbo hood of Sutton, a pleasant seaside resort on the north shore of Dublin Bay, by the rumour that the Wome National Health Association had purchased the disu coastguard station as a home for consumptive patier Whatever may have been its original intentions, association gave an undertaking not to introd any case of tuberculosis or other infective dise to Sutton, and the station was organised as a "hea home," or "preventorium," as it is called. Patients admitted who are in a delicate or debilitated state of heal but especially those who have been exposed to the danger infection from tuberculosis. Men are not admitted, but b up to the age of 15 are eligible. The first annual meeting the supporters of the institution was held recently, wl the report for the year was read, showing a good record useful work.

Apothecaries' Hall of Ireland: Election of Examiners.

The following appointments have been made for the for coming session:—Surgery: Sir Thomas Myles and Profes Conway Dwyer. Medicine: Dr. J. M. Day and Dr. J Lumsden. Midwifery: Mr. R. J. White and Mr. Seym Stritch. Ophthalmology: Dr. E. Magennis and Dr. R. Montgomery. Pathology: Mr. J. L. Keegan and Mr. E. Murphy. Hygiene: Sir Charles Cameron and Mr. R. M'Donnell. Medical Jurisprudence: Dr. J. C. M'Walter Mr. W. Fottrell. Materia Medica: Mr. J. D. Crinion Mr. T. G. M'Grath. Pharmacy: Colonel Adye Curran Mr. C. J. Powell. Anatomy: Mr. Andrew Charles and B. Burke Kennedy. Biology and Physiology: Dr. Geo. Keating and Dr. Wm. O'Kelly. Chemistry: Mr. J. O'Sullivan and Professor Hugh Ryan. Physics: Profes Hugh Ryan and Mr. J. A. Whelan.

Sept. 13th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Cholera in Apulia.

"*In piena decrescenza*" (in full subsidence). Such is announcement, on official authority, of the day now passi Good luck has been, though a little tardily, reinforced good management, and Italy, Southern, Central, Northern, now breathes freely, as if relieved of epidemic incubus, present and impending. At the outbreak of the disease there was, I regret to say, an igno stampede of "authorities," syndics, Members of Parliame aye, and even sanitary officers, abandoning their po but there were, particularly among the latter, distinguis exceptions, sustained in their noble stand by the Un Secretary for the Home Department, Signor Calissa This gentleman, "uomo bonario del buon stampo montese" (a hearty specimen of the good Subalpine sto was the hero of the situation, infusing confidence courage into the population, admirably seconded, moreo by Dr. Gosio, the bacteriologist of the Direzione Generale Sanità. Thanks to them and their immediate coadjut the enemy was not only kept at bay but stormed in its m positions, till even the fugitives repented and came ba and are now swelling the cry, happily not premature, "victory all along the line." That there were culpa negligence and supineness at the beginning may be infer from the fact that a son-in-law of one of the Apul representatives in Parliament, days before the presence cholera was announced, was seized with the mala but his case was kept concealed till others betray the same symptoms followed in such numbers t secrecy could no longer be maintained. Frankness ("bru frankness" even), accompanied at the outset by well-inspi and energetic measures, would have saved not only m lives but one of Italy's most fertile regions from losses wh will be severely felt in the coming winter. One les peremptorily inculcated by the visitation is this: the wa supply of Apulia must be forthwith made adequate, in pur and abundance, by the aqueduct, long promised but not in working. Rome, it is felt on all hands, owes her immun

om cholera and other epidemics to her magnificent drinking-ater, the bequest of her early Kings, carried on and enriched ıder the Republic and the Empire. Naples, too, has in ıint of public health become (though late in the day) quite ıother city since the excellent Serino water has found ɜe course throughout her population. Apulia has long ɜen awaiting a similar benefaction in the introduction the Sele supply as abundant as it is pure, and her ,rliamentary representatives will have the backing of e whole country if they make the completion of the ueduct which is to diffuse it a question of first stance on the reassembling of the legislature. King ctor Emanuel, meanwhile, at a colloquy in Venetian ıters with the Prime Minister, Signor Luzzatti, has had his ily inquiries as to the movement upwards or downwards the epidemic capped by the intelligence that it was full subsidence, and, while charging the Premier with a ssage of congratulation to Signor Calissano for his com-ıed sagacity, energy, and courage in face of the enemy, nsigned to Signor Luzzatti the sum of 100,000 lire (£4000) the institution of "economic kitchens" in the localities ıst heavily visited by the disease and its sequelæ.

Another Epidemic!

Misfortunes come not singly. Apulia has barely tnessed the wane of the cholera when measles of an ırming type, causing pneumonia in the adults contracting for the first time, has supervened, Gioiosa Ionica being its ıdquarters. Always more or less in evidence, thanks to defective sanitation to which so many communes and ies throughout the kingdom owe their heavy tale of notic disease, the "morbillo" in question was aggravated the excessive summer heat, till in the day now passing ıon si contano più gli ammalati" (the patients are no ger to be counted). The official returns of August 30th resent the cases in Gioiosa Ionica alone as 80, h 30 deaths; but in truth there is not a family hout its victim or victims. One cause of the rapid ead of the malady is the ignorance of heads of families recognising its symptoms, all too cognisable, at the out-. Another cause is their reluctance to apprise the sanitary horities for fear of the inevitable lazzaretto and the ıse-to-house disinfections. Popular prejudice cannot rid lf of the belief that measles can be communicated only m child to child and that isolation is a stupid medical . So we have this result—to wit, that after the disease run a three days' course and is in the period of desquama-ı the patients are left free to mingle with the healthy, to jeopardy of the whole community and to the incurring serious complications, particularly in the adult. Gioiosa ica is better off as regards water-supply than many of its ghbours, and it enjoys the pure balsamic air common ll Apulia. But of what avail are these advantages when orance, superstition, and the prejudice which springs from h array themselves against medical prescription and itary law?

Between Two Epidemics.

ome notion of what the Italian physician has to struggle h, especially in the Southern Provinces now visited by lera, may be inferred from the reports of the recent out-ak of popular violence at Barletta. Under the delusion t the sanitary authorities inoculate the public with the illus to prolong the epidemic and to keep the medical ı in employment, the mob assailed the town-hall h volleys of stones, directed chiefly at the "Uffizi giene"; turned next to the military barracks and "shelled" m in turn with the same missiles; and, finally, when carabineers had to come out in the interests of public er, received them with such a hail-shower of projectiles, hered from all quarters, that the long-suffering soldiery to fire in self-defence, though with blank cartridge. At the mob took to flight, a considerable number, how-r, of the more fanatical holding their ground till they, too, e dispersed at the point of the bayonet. "Are we in the dle Ages?" asks a Subalpine journal, "or is it possible this is the year of grace 1910?" Meanwhile, the lical men and the sanitary officers have had to p their houses, targets as they are for the fury the populace, which, in their absence, has next iled the pharmacists, one of whom has been so ously injured that his life is despaired of. There is, in h, another epidemic raging in the province of Bari besides that imported from the Russian shores of the Black Sea, the epidemic of vague, unreasoning panic, than which cholera has no more effective ally. Explanations are, of course, forthcoming of this second visitation. The impounding of vegetables, more or less suspected, particularly of figs—which enter so largely into the diet of the poor—has deprived much of the population of its favourite food, and more of its accustomed *métier*, and no doubt the stringent observance of orders on the part of the sanitary officers in so acting goaded the ignorant into anger, expressing itself in violence. But the opening of economic kitchens and the gratuitous supply of sound food have minimised the force of this plea; and so the apologists—mainly ultra-Socialist in creed—have had to find another "explanation." And it is this: The "teppista" (hooligan) has seen his opportunity in the popular obsession and has done as he always does on such occasions, "made for the public offices," with a view to plunder or even in a sheer love of mischief. But this explanation has but to be hazarded to be instantly dismissed, and the level-headed, law-abiding citizen is appealing to the Socialist in question to use his undoubted command of the popular ear in a legitimate and salutary direction, that of conveying to it sound advice, such as may be drawn from Dr. Santoliquido's excellent pamphlet on the nature of cholera and the way to meet it and master it. As I write, some such appeal has begun to have effect; work has been improvised for the "disoccupati," thrown out of employment by the enforcement of sanitary regulations; the "cucine economiche," largely reinforced not only by the Royal largess but by the Grand Lodge of Freemasons, are in full blast, and the Prefect and his subordinates, together with the medical practitioners and sanitary officers, can not only venture abroad but are already assured of a cordial welcome, leading up, it is hoped, to sympathetic coöperation.

Wine Adulteration: A Warning.

This year's vintage is so exceptionally poor that the Sanitary Office is already preoccupied with the inevitable exposure to sale of wines more or less adulterated. Members of Parliament are invited, through a circular issued *ad hoc*, to use their influence in strengthening the hands of the legislature for a more stringent enforcement of the law against adulteration. The circular, now before me, concludes with an appeal to the Minister of Agriculture to create a special body of inspectors for the detection of fraud and to issue precise indications for the distinguishing of sound from spurious wine. The importance of this step, which has the support of the wine-growing interest throughout Italy, is obvious in view of the approaching influx of the tourist world, valetudinarian and other.

Sept. 12th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Cholera Epidemic.

SOON after the epidemic of cholera in Russia spread to the Austrian frontier (as mentioned in THE LANCET of Sept. 3rd) two cases were discovered in Vienna, and considerable alarm among the population was occasioned thereby. In this emergency the Board of Health took prompt measures which were followed by complete success. Both cases were soon traced to their source, everybody who had been in contact with them was isolated, and there has been no extension of the disease. The utmost precautions are being taken to prevent any further admission of infected persons from either Russia or Italy. In ordinary times there is a great importation of fruit, vegetables, and flowers from Italy, while Russian goods, cereals, and sugar come up the Danube in large quantities, but all this traffic has been completely stopped. Austria, therefore, remains beyond the epidemic area for the present, but experts fear that this immunity is not likely to be of long continuance.

Pellagra.

A report of the Board of Health, which was published in the *Sanitätsblatt* some time ago, gave particulars of the successful measures which have been taken with respect to the Austrian focus of pellagra in the Alps. In Tyrol, where part of the population is Italian and the favourite dish is polenta or some other preparation of maize and corn-meal, the Government has erected six bakeries for the supply

of rye bread, under the control of officials appointed by the State. In these bakeries nearly all the work is done by steam-power, manual labour being avoided as much as possible. The products are examined in the State laboratory, and the rye bread is sold at a fixed price, regulated by the Government. In some districts the poorer classes may on application even have it free of charge, but it has been found rather difficult to induce the population to eat rye bread on account of the tenacity with which local customs are adhered to. The results have, on the whole, been fairly satisfactory, although the actual cause of pellagra is not yet known. Other bakeries of the same description have been already established in Bukowina in the eastern part of the empire, where similar conditions are in existence; there also the number of cases of pellagra has fallen very rapidly and the health of the population improved in an unexpected degree.

The Industrial Employment of Females and Young Persons.

The urgent social question of the protection of the weaker members of the working classes in this country has recently been brought to the notice of the Board of Health by a Parliamentary report on the existing laws and regulations. According to this report Austria has served as a model to other countries in some few points, but on the whole it ranks behind Germany, France, England, and Switzerland as regards the amount and degree of protection required by law. The safeguards provided for children employed in factories are satisfactory, and hardly any infringements of the law have been observed in this respect, but outside factories the conditions are not so good. For instance, in public-houses, in shows, and in agricultural labour, the inspectors have often found excessive demands made on children under 14 years old. A Children's Protection Act is, therefore, urgently needed. One defect is the absence of any provision for the gradual lengthening of the hours of employment for young people, so that after reaching the age of 16 years a boy may be at once required to work 11 hours a day just as some full-grown men do. In this respect Austria is lowest on the list of civilised nations. In the mining industries, however, there is a regulation which gives boys an hour's longer rest than men. In some other industries the young workers are allowed half-an-hour's extra rest in the morning and also in the afternoon in addition to dinner-time. The statistics dealing with the morbidity and mortality of females engaged in industrial occupations reveal a very bad state of affairs, and the actual facts are certainly even worse than the official data. Only in very few instances has the 10-hours day been adopted, a working day of 11 or 12 hours being the rule. Urgent recommendations by medical men and social reformers have been made to the legislature to appoint a working day of nine or even of eight hours for females, especially for mothers and housewives, and the advantages, both ethical and sanitary, of such a limitation of female labour have been pointed out, but hitherto without effect. The only concession has been the granting of a full night's rest for females; all shop assistants and apprentices have also a full night's rest provided for by law. In the minor industries there is a tendency to evade the law by giving out work to be done at home, but this will soon be made illegal. A remarkable omission is the absence of any provision for obligatory Sunday rest in trades or occupations with more than 84 working hours per week. The Austrian trade unions have recently appointed a mixed commission, consisting partly of medical men and partly of workpeople, to draw up a series of recommendations which will be brought before Parliament at an early date. In this memorandum special attention will be devoted to the protection of the health of persons employed in dangerous occupations, to the sanitary conditions of the places where they work, and to the exclusion of females and juveniles from such occupations. Special clauses have been drawn up for the protection of working women during pregnancy; the present provisions of the sick club (Krankencassa), to which each worker must belong, are not held to be sufficient in this respect. It is now recommended that a woman shall not resume work until six weeks after delivery and that premiums shall be paid for breast-feeding, whereas the Krankencassa at present refuses any such payments. All these grievances of the labouring classes will no doubt be done away with in course of time, as the State is now awakening to the necessity of improved social conditions.

Sept. 12th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Dairy Produce in the United Provinces.

THE very unsatisfactory conditions under which milk and butter are produced and distributed in India are periodically the subject of scathing criticism, but, like some other difficult subjects, it has not in the past got beyond the stage of discussion. The matter has once more come to the front in various directions, and on this occasion there are indications that something more than expressions of righteous indignation at existing conditions may result. In Calcutta the municipal authorities are taking measures which are regarded with some optimism by the local press, and a resolution on the subject by the Government of the United Provinces has recently been issued. This resolution deals with the recommendations made by the cattle conference held at Naini Tal last August. Amongst the suggestions made by the conference was that municipal enterprise might be directed towards effecting some reform. The conference proposed that municipalities should provide pasturage facilities out of municipal funds if need be, and that they should encourage private dairies by giving pasturage facilities at cost price. The Lieutenant-Governor of the United Provinces, Sir John Hewett, sees no harm in municipal boards providing general grazing grounds, where such are not available, for which fees should be charged, but he thinks charges of favouritism might be raised if special facilities were given to particular dairy companies. A further recommendation of the conference was that railways should give favourable rates and special facilities for the transport of milk, and private associations near railway stations for the supply of milk by rail should be encouraged. This the Lieutenant-Governor regards as a more hopeful solution of the difficulty rather than the encouragement of milk production within municipal limits. Railway freight rates are, however, so high at present as to be prohibitive for such traffic, and His Honour is going to approach the railway board with the object of concessions being granted for the carriage of milk. For their supply of butter and *ghi* (cooking butter) the Lieutenant-Governor contends that municipalities should rely upon more distant sources, and he would not have these products manufactured from milk produced within municipal limits. The whole of the milk sources within easy reach of urban areas should be utilised purely for milk-supply. The organisation of butter and *ghi* factories is advocated, which would receive pasteurised cream from distant rural areas where large grazing tracts are available, as, for instance, in Central India. It is believed that a profitable business might thus be created for supplying the large cities. This is an admirable theory, but it will not be easy to find private capitalists ready to start the necessary pasteurising stations and factories. Sir John Hewett is quite convinced that neither the initiation nor the adoption of dairy reform is to be expected from the castes who at present control the trade, and he is very doubtful whether any law framed for the supervision of the milk trade would be effective at present, though he approves of steps being taken in any municipality where local opinion is strongly in favour of such legislation. The conference recommended that Government should give *takavi* advances to start dairies managed on modern principles, but His Honour does not favour this course, at any rate for the present. Milk supplied from dairies conducted on such lines would probably cost more than that supplied by the present methods, and the commercial success of the dairies must therefore depend on whether the upper and middle classes in the large towns are willing to pay fair prices. It is only actual experience that can give an answer to this question, and Sir John Hewett believes that if the public-spirited members of large cities, such as Lucknow or Allahabad, are earnest there should be no difficulty in raising by private enterprise sufficient capital to equip a modern dairy and make the experiment. "This appears to the Lieutenant-Governor to be the right course," proceeds the resolution, "but if the capital is not forthcoming by this method he will consider the question of granting advances repayable to the Government on easy terms." It cannot be said that the resolution takes us very far towards a solution of the problem, and it commits Government to nothing more

than a sympathetic interest in any efforts on the part of private enterprise which may or may not be forthcoming for the provision of a sound milk- and butter-supply. Progress, however, must necessarily be slow in such matters, and those interested will be glad to be assured that the resolution is not the last word Government has to say on the subject. A more definite pronouncement has been deferred until after the Allahabad Exhibition, the dairy exhibits at which it is hoped will stimulate public interest in the matter.

Vaccination in the Punjab.—Payment of Pensions.

The vaccination statistics in the Punjab for the year 1909–10 by the Sanitary Commissioner have just been issued. There was a small increase of 1638 in the total number of vaccinations performed, notwithstanding the prevalence of plague in the province and the consequent difficulty of successfully prosecuting vaccination operations. The experiment of house-to-house vaccination does not seem to have been entirely successful. The results obtained have been interesting, but in the opinion of the Lieutenant-Governor of the Punjab, although the system is very popular in many districts, it is not suitable all over the province. It fails most in hilly tracts where the houses are scattered about at considerable distances, often difficult of access. Only in those towns and districts where the experiment met with success does Sir Louis Dane propose to continue the system. The municipalities of Delhi, Lahore, and Amritsar will have their attention drawn to the necessity for a stricter application of provisions of the Act. In Lahore, where there is a prevalence of small-pox in epidemic form in most spring seasons, stricter administration of the Act is said to be very necessary.—The Punjab Government is contemplating the experimental introduction of a system for the payment of Government pensions which promises to save pensioners a large amount of trouble and inconvenience. It is proposed to divide all pensioners of certain districts into groups and give each group instructions to present themselves at the district treasury on one of the certain specified days in each month, more than one day being allowed to provide for casualties.

The Increase of Phthisis in India.

The Government of India has addressed to provincial Governments a letter regarding the great increase of phthisis in India of recent years and the proposed establishment of well-equipped sanatoriums for the treatment of the disease in different parts of the country. Provincial Governments are asked what course they consider practicable in this direction, the Government of India stating it thinks the necessary funds will be found by private beneficence.

August 7th.

NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

Health of Hong-Kong, 1909.

THE last annual medical report of Hong-Kong is a more satisfactory one from a health point of view than has been the case for a good few years past. With the exception of enteric fever, the number of cases of which was above the average, the year has been singularly free from epidemic disease. The incidence of malaria has been reduced and by-laws dealing with the prevention of mosquito-breeding have been amended by the Sanitary Board so as to make it possible to deal more effectively with their breeding-places. The general death-rate was 21·13 per 1000, as against 27·55 the previous year; the rate among the non-Chinese community was 12·45 per 1000, also a decrease from previous years. This is due to diminished incidence of plague, which was responsible for only 108 deaths in 1909, compared with 986 in 1908. Out of a total of 7267 deaths the following, in order of frequency, are the main causes: pneumonia, developmental diseases, phthisis, beri-beri, malarial fever, paralysis and convulsions, and diarrhœa. While in Shanghai the health authorities think that beri-beri is probably an infective disease having no direct relation to food, it is still thought in Hong-Kong that this disease is due to the eating of white or polished rice. Very active anti-plague measures are kept up, especially in the campaign against rats. A large number of small bins are fixed throughout the city to telephone and lamp standards; these are half filled with disinfectant and the native population is encouraged to put into them all rats they may catch or find dead. Collectors daily visit these bins and ticket and deliver all rats found in them for classification and bacteriological examination. Rat traps and poison are distributed gratis all the year round to householders. Over 76,000 rats have thus been dealt with during the year, of which 507 were found plague-infected. The rats of Hong-Kong are Mus decumanus, Mus rattus, and Mus musculus. It is noted (1) that in all three species the male shows a greater predominance of plague infection than the female; (2) that Mus rattus presents a far larger proportion of infected rats than either of the other two species; (3) the proportion of plague-infected rats decidedly increases in the hot weather and decreases in the cool; and (4) that there is a marked preponderance of female over male rats caught. The report shows (and this is the common experience, so far as I can gather, throughout China) that typhoid fever is much less prevalent among Chinese than Europeans, the ratio of cases to population being in the case of Europeans 2·4 per 1000, and in the case of Chinese 0·018 per 1000. The Government now employs eight Chinese midwives trained in Western methods to attend the poor in their confinements, and during the year 1381 cases were attended by these women. There were 38 cases of small-pox, of which 25 died. 6721 vaccinations were performed, and efforts are being made by means of a clearly worded memorandum drawn up by the medical officer of health, Dr. Francis W. Clark, and issued to school masters and others, to secure the free revaccination of children. In the report of the Tung Wah Hospital there is a most interesting table, too long for reproduction, showing the results of treatment by European and Chinese methods. In this hospital a patient on admission can choose whether he will undergo treatment by European or by Chinese native methods. The total number of cases dealt with during the year was 3932, with the following results: European treatment, 1679 admissions, with 322 deaths; Chinese treatment, 1714 admissions, with 555 deaths. Those of us resident in big cities on the mainland cast envious eyes on the efficient way the work of the Hong-Kong Medical and Sanitary Department is carried on. Dealing with such large numbers of Chinese (over 320,000) the work of Dr. J. M. Atkinson and his staff is a striking object lesson of avoidable mortality and lessened human suffering to which one would fain have the Imperial Chinese Government pay more attention.

The Hong-Kong University.

Sir Frederick Lugard, Governor of the Colony of Hong-Kong, desires to raise further funds for the endowment and equipment of the Hong-Kong University in order to create a sufficient number of faculties to justify its claim to the title of a University. The buildings are already in course of erection by Sir H. Moady, the donor, at an estimated cost of about £30,000, but furniture, fittings, and apparatus for all laboratories remain to be provided. These are estimated at about £16,500, and it is further desired to raise an additional £50,000 for the endowment fund, so as to enable the university to inaugurate all requisite chairs. Those who are interested in the spread of Western medical education in China will learn with pleasure that the chair of medicine is among the first to be established, together with applied science and arts, and that the medium of instruction will be English, in an effort to make it the predominant language in diplomacy and in culture as well as in commerce in the Far East. The enthusiasm exhibited by the Chinese for the establishment of a University in Hong-Kong has been quite astonishing and has far exceeded Sir F. Lugard's anticipations. The appointment of the Governor of the Colony as Chancellor will assure to the University continuity of policy and prestige, and give confidence to the Chinese, both on account of the traditional friendship of the colony with China, and because of the known antipathy of the British Government to all forms of revolutionary propaganda. Chinese students will be enabled to obtain a recognised British degree at a cost of about £60 per annum, as against £200 or £300 now incurred by those who send their sons to Europe or America. They will remain in a Chinese environment and so avoid the denationalisation which a ten years' residence abroad inevitably entails. They will, it is hoped, learn to appreciate British institutions and standards of conduct without discontinuing the study of their own language and literature.

August 12th.

Obituary.

ALEXANDER JOHN ALLIOTT, M.D. CANTAB., M.R.C.S ENG.

WE announce with regret the death of Dr. A J. Alliott, which took place at his residence in Sevenoaks on Sept. 7th, a few months after the sudden appearance of obstructive jaundice, due to pancreatic disease of an undetermined nature. Born in 1847, he received his early education at Bedford Grammar School, and afterwards entered the University of Cambridge, where he obtained a scholarship at Pembroke College. In 1870 he graduated in arts, taking honours in the Natural Science Tripos. He commenced his medical studies at St. Thomas's Hospital and became a Member of the Royal College of Surgeons of England in 1872. In the following year he obtained the M.B. degree at Cambridge, proceeding in 1880 to the doctorate. After holding various appointments at St. Thomas's Hospital at the Bethlem Royal Hospital, and at the Three Counties Lunatic Asylum, Bedfordshire, Dr. Alliott in 1875 commenced practice in Sevenoaks. His practice soon became an extensive one, and he gained considerable reputation in the field of psychological medicine. In the Children's Hospital for the Treatment of Hip Disease at Sevenoaks and in the local Cottage Hospital, at both of which institutions he was a member of the honorary staff, he took a special interest. The father of Dr. Alliott was the Rev. W. Alliott, of Howard Chapel, Bedford, a well-known minister who, at a time when the doors of the old universities were closed to Nonconformists, trained many candidates for the work of the London Missionary Society. Dr. Alliott possessed much of his father's love of this work and during the greater part of his professional career took an active part in the medical side of missionary life Dr. Alliott retired from the active work of his profession in 1907, after 32 years' practice in Sevenoaks, when he received a handsome testimonial from a large number of friends and patients He was much interested in all local affairs and in 1909 he was elected a member of the Sevenoaks urban council, of which body he was a regular attendant. Possessed of a highly sympathetic, even affectionate, nature, he will be greatly missed both by his professional friends and a wide circle of former patients. He leaves a widow who was his *alter ego* in the sympathetic and successful care of the many resident patients whom, some years ago, he was accustomed to receive

An old and intimate friend of the late Dr. Alliott writes: "I was a fellow student of Dr. Alliott's and knew him intimately, from the time when he left Cambridge in 1870 to join at St. Thomas's Hospital Medical School, until his death. His active medical work during 32 years bore striking testimony to his own free choice of his profession. Whatever the nature might be of any case that came before him he never was in a hurry to come to a conclusion, but looked upon each patient, however simple the ailment might appear, as presenting a problem to be worked out to the best of his knowledge and ability. Before he settled in practice he had acquired much valuable experience in the diagnosis of mental disorders, and of this experience he made exceptionally fruitful use, not only in the treatment of large numbers of mental patients who were during many years sent to his private care, but also in the daily course of a busy general practice. I can recall but few medical men in any rank of the profession who equalled Alliott in both the desire and the ability to realise, so far as practicable, the total personality of the patients whose cases he was called upon to interpret and to treat. These qualities, coupled with extreme conscientiousness and minute attention to details, both of diagnosis and treatment, contributed largely to a success of the best kind in practice, and to the warm regard in which he was held by his patients—men, women, and children alike. With very special and practical knowledge of the workings of the human mind, he was in the true sense of the word an all-round general practitioner of the best order. It is given to few to work as he did without such a degree of anxiety and fatigue as makes itself felt by the worker; but, although he often suffered himself from these defects of his qualities, it may truly be said that his patients were never the losers. They were always his first concern, and ever received his unwearying attention. Many must have missed him on the occasion of his well-earned retirement a few years ago, and all his old friends and fellow students will sorrow deeply for the loss of him."

BENJAMIN WAINEWRIGHT, M.B., M.CH. EDIN., F.R.C.S ENG.

THE death has occurred at the age of 57 years of Benjamin Wainewright, at Pontresina, in Switzerland. Educated at the University of Edinburgh, where he took the degree of Bachelor of Medicine in 1880, he was senior resident surgeon at the Edinburgh Royal Infirmary and demonstrator of anatomy at the University of Edinburgh. He later qualified by examination as a Fellow of the Royal College of Surgeons of England, and coming to London began a career of great promise as an operating surgeon and ophthalmologist. His first appointment was an assistant surgeoncy at the West London Hospital, where he had for a time charge of the ear department; but on resigning this post he was elected assistant surgeon to the Charing Cross Hospital and to the Westminster Ophthalmic Hospital. He was at the time a keen member of several of the London medical societies, at times contributing to medical journals, and his chances of winning a high position in the medical profession were good. He had not, however, the usual incentives to labour hard at the medical profession. He liked operating and liked teaching, but his private means allowed him to escape from all the drudgery of practice, and comparatively early in his professional career he virtually retired, resigning his hospital and teaching appointments, and confining his private and consulting practice to ophthalmic patients. Mr. Wainewright, who was a member of the Alpine Club, was an ardent mountain climber and was among the earliest frequenters of Pontresina, where he died, and where he was buried in accordance with his own expressed wish.

WILLIAM THOMAS LAW, M.D. EDIN., F.R.C.S. ENG.

Dr. W. T. Law, whose death occurred on Tuesday, Sept. 6th, at Bournemouth, was the son of the late Mr. Henry Compton Law, of Allington, by the daughter of the Rev. John Taylor, who was Chaplain in Ordinary to Queen Caroline, and in those easy-going days was a very much beneficed clergyman. He entered the medical school of Guy's Hospital in 1867, and later went to the University of Edinburgh and took his degree, after which he became resident physician to the Royal Infirmary, Edinburgh. Subsequently he came to London and became house physician at the Seamen's Hospital, Greenwich, and in 1875, while practising in Bury St. Edmunds, took the Fellowship of the Royal College of Surgeons of England

Dr. Law was a very able and careful physician, and before his time in advocating the open-air treatment of phthisis. In 1902 he figured in a medical *cause célèbre* sustaining an action for negligence, in which £5000 were claimed from him. The suggestion was that his treatment of a case of asthma had conduced to the acquirement by the patient of a morphia habit. The jury stopped the case, giving Dr. Law the verdict with costs, but the costs were not forthcoming. Dr. Richard Paramore organised a fund to reimburse Dr. Law his expenses (see THE LANCET, May 24th, 1902) and a handsome sum, subscribed by the medical profession and the public, was presented to him on behalf of the donors by Sir William Church, who was the President of the Royal College of Physicians of London at the time.

Dr. Law, who was 65 years of age at the time of his death, succumbed to an operation for gall-stones. He leaves to mourn him his widow, the daughter of the late Judge Priod, Q.C., his only son having predeceased him.

JAMES BROWN SIM, M.D. GLASG., L.R.C.S. EDIN.

BY the death of Dr. J. Brown Sim, which took place suddenly on August 31st, Nottingham has lost one of its best known medical practitioners With one exception he was the oldest medical practitioner associated with the Poor-law in Nottingham. Dr. Sim was born at Stewarton, near Glasgow, in 1852, and received his medical education at the University of Glasgow. He became a Licentiate of the Royal College of Surgeons of Edinburgh in 1873 and in the same year graduated in medicine and

rgery at the University of Glasgow. After holding the positions of house surgeon at the Glasgow Royal Infirmary and at the Lock Hospital in that city, he commenced private practice in Nottingham and obtained the M.D. of his *alma mater* in 1876. In 1890 he was elected a member of the town council of Nottingham for the Sanvers Ward and held his seat continuously till 1908. As a member of the council he served upon most of the important committees, and for nine years acted as the chairman of the parliamentary committee. In 1900 he was elected as Sheriff. As medical officer for the No. 3 District and public vaccinator for the North-East District of the Nottingham Union he came into contact with a large number of the poor, by whom he was held in great esteem.

The death of Dr. Sim, who suffered from heart disease, was no doubt hastened by the sad death of his wife, to whom he was greatly devoted, which occurred a few months ago. He leaves a son, who follows his father's profession, and two daughters to mourn their loss.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: Dr. Hermann Schwartze of Halle, who had only very recently retired from the chair of otology, which he had held since its foundation some seven years ago. Previously to that he had practised and taught otology in Halle since 1863. He was one of the founders of modern German otological science, which he learned largely from the works of the English otologists, Toynbee and Wilde. He published many books and papers dealing with his specialty, and with Troeltsch and Politzer edited the *Archiv für Ohrenheilkunde*, which was founded in 1864.—Dr. Giuseppe Raineri, lecturer in midwifery in Turin.—Dr. Henoch, formerly professor extraordinary of pædiatry in Berlin.—Dr. Meinert, a distinguished gynæcologist and temperance advocate at Dresden, aged 63.—Dr. Friedrich Daniel von Recklinghausen, the distinguished Strasburg professor of pathological anatomy, aged 77. He was for some years assistant to Virchow in Berlin, and subsequently professor in Königsberg and Würzburg. When the University of Strasburg was reorganised after the war he was appointed to the chair of pathology there. His name will always be known in connexion with the discovery of the emigration of the leucocytes in inflammation and their identity with the white corpuscles of the blood. He also was the first to describe the phenomenon of phagocytosis. His chief works were: "The Lymphatics and their Relation to the Connective Tissue," Berlin, 1861; "Microphotographs of Pathological Preparations," Strasburg, 1878; "Multiple Fibromata of the Skin," Berlin, 1882; "Manual of the General Pathology of the Circulation," in Billroth and Luecke's German Surgery, 1883; and "Researches on Spina Bifida," Berlin, 1886.

SEVENTH INTERNATIONAL CONGRESS OF DERMATOLOGY AND SYPHILOGY.—This Congress is announced to take place in Rome from Sept. 25th to 29th, 1911. Its official title is VII. Congresso Internazionale di Dermatologia e Sifilografia. The President is Senatore, Professor Tommaso Amicis of Naples (47, Via Medina), and the Secretary-General is Dr. Gaetano Ciarrocchi of Rome (5, Piazza Venezioli). The sixth congress took place at New York in 1907. Communications which are intended to be presented to the Congress should reach the Secretary-General not later than April 30th, 1911, and should be typewritten if possible. The honorary presidents of the Congress are Mr. Jonathan Hutchinson of London, Dr. Edmund Lesser of Berlin, and Dr. James C. White of Boston. The Secretary for Great Britain and Ireland is Dr H. Adamson, 9, Weymouth-street, London, W. Those wishing to take part in the proceedings should communicate with the Secretary-General and fill up the "Bulletin d'Adhésion" which will be supplied and transmit the sum of 25 lire or 25 francs or £1 to the treasurer, Dr. Luigi Silvestri, 13, Via della Pace, Rome. The themes" to be considered are: "(1) The influence of the various etiological, diagnostical, and experimental researches on the therapeutics of syphilis, and on the possibility of immunisation, or of a radical or abortive treatment of the infection. (2) Results of physicotherapy in the diseases of the skin. (3) Blastomycosis, sporotrichosis, and analogous processes."

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. F. de Quervain of La Chaux-de-Fonds has been appointed to the chair of Clinical Surgery in succession to Dr. Wilms who goes to Heidelberg.—*Berlin:* The title of Professor has been granted to Dr. G. von Bergmann and Dr. T. Brugsch, *privat-docenten* of Medicine.—*Bologna:* Dr. Giovanni Lüttichau and Dr. Matteo Selmi have been recognised as *privat-docenten* of Operative Medicine.—*Erlangen:* Dr. Robert Heinz has been appointed to the newly established Extraordinary Professoriat of Pharmacology.—*Freiburg:* Dr. H. K. Hegar has been appointed Extraordinary Professor of Gynæcology. The title of Extraordinary Professor has been granted to Dr. Edgar Gierke, *privat-docent* of Pathological Anatomy; Dr. Hermann Schridde, *privat-docent* of General Pathology and Pathological Anatomy; Dr. Oswald Bumke, *privat docent* of Psychiatry; Dr. Otto Pankow, *privat-docent* of Midwifery and Gynæcology; and Dr. Emil Küster, *privat-docent* of Hygiene and Bacteriology.—*Genera:* Dr. Ernest Kummar, *privat-docent*, has been promoted to the chair of External Pathology and of Operative Medicine, in succession to Dr. Reverdin, resigned. Dr. Alfred Veyrassat has been appointed to the Polyclinical chair of Surgery.—*Genoa:* Dr. Pietro Baiardi has been appointed Extraordinary Professor of Ophthalmology. Dr. Giuseppe Mow has been recognised as *privat docent* of External Pathology. Dr. Federico Federici as *privat docent* of Otology and Laryngology, and Dr. Mario Chiò as *privat-docent* of Materia Medica and Experimental Pharmacology.—*Kazan:* Dr. N. A. Gerken has been appointed to the chair of Clinical Surgery.—*Kieff:* Dr. Dobromysloff of Tomsk has been appointed to the chair of Operative Medicine and Topographic Anatomy.—*Königsberg:* Dr. Leo Borchardt and Dr. Heinrich Lippmann have been recognised as *privat-docenten* of Medicine and Dr. Theodor Bürgers as *privat-docent* of Hygiene and Bacteriology.—*Lemberg:* Dr. Kasimir Orzechowski has been recognised as *privat-docent* of Neurology.—*Messina:* Dr. Arturo Donaggio has been appointed Extraordinary Professor of Neurology and Psychiatry.—*Naples:* Dr Nicolò Rizzacasa has been recognised as *privat docent* of Midwifery and Gynæcology.—*Padua:* Dr. Edmondo Orlandi of Pavia has been recognised as *privat-docent* of Medicine.—*Palermo:* Dr. Domenico Massaro of Catania has been recognised as *privat docent* of Neurology and Psychiatry.—*Parma:* Dr. Andrea Majocchi and Dr. Salvatore Salinai have been recognised as *privat-docenten* of Surgery.—*Pavia:* Dr. Aldo Perroncito has been recognised as *privat docent* of Histology; Dr. Luigi Icilio Boni as *privat-docent* of Internal Pathology; Dr. Angelo Bellini as *privat-docent* of Dermatology; Dr. Luigi Bindo as *privat-docent* of Midwifery and Gynæcology; and Dr. Carlo Biaggi and Dr. Ottavio Lunghini as *privat docenten* of Otology and Laryngology.—*Strasburg:* Dr. Hans Vogt of Breslau has been recognised as *privat-docent* of Pædiatry.—*Vienna:* Dr. Emil Mattauschak has been recognised as *privat-docent* of Psychiatry.—*Zürich:* Dr. E. Feer of Heidelberg has been appointed Professor of Pædiatry in succession to Dr. Wyss, resigned.

THE BRITISH HOSPITALS ASSOCIATION.—The first annual conference of this association will be held in the University Buildings, Glasgow, on Sept. 29th and 30th. On Sept. 29th, at 10 A.M., the Hon. the Lord Provost A. McInnes Shaw will deliver an address of welcome, which will be followed by two papers, the one on "The Majority Point of View on the Poor-law as regards General and Special Hospitals," by Mr. Charles Stewart Loch, B.A., and the other on "The Abuse of the Hospital and its Cure," by Mr. A. Scott Finnie. The reading of these papers will be followed by discussions. On Sept. 30th Mrs. Sidney Webb will open a discussion on "A Unified County Medical Service and How it will Affect the Voluntary Hospital," and Dr. Nathan Raw will open a discussion on "The Institutional Treatment of Tuberculosis." The president of the association is Mr. H. Cosmo Bonsor, the treasurer of Guy's Hospital, London. The honorary treasurer is Mr. Conrad W. Thies, Royal Free Hospital, London. The honorary secretaries are Mr. A. William West, 3A, Lyall-street, Belgrave-square, London, S.W., and Dr. D. J.

Mackintosh, M.V.O., Western Infirmary, Glasgow. The objects of the association are defined as (1) to facilitate the consideration and discussion of matters connected with hospital management, and, where advisable, to take measures to further the decisions arrived at; and (2) to afford opportunities for the acquisition of a knowledge of hospital administration, both lay and medical. Active members are those who at the time of their election are trustees, members of committee, or executive or professional heads of hospitals, without reference to sex or title. The annual subscription is half a guinea. Honorary members are exempt from the payment of an annual subscription.

CEREBRO-SPINAL MENINGITIS.—After the lapse of nearly three weeks, a recrudescence of cerebro-spinal meningitis is reported. A fatal case occurred at Nottingham last week, and the occurrence of a case at Long Clawson and another at Welby indicates that Leicestershire is not yet free. The disease has arisen in Essex, two cases having been reported at Sandon, near Chelmsford, a severe case which terminated fatally within 48 hours of the onset and a mild case. In addition, a case has been admitted into the Metropolitan Asylums Board Eastern Hospital from Bethnal Green.

Professor Reinhold Ruge, naval surgeon-general and *privat-docent* of the History and Geography of Pathology in the University of Kiel, has been entrusted by the German Government with the oversight of the arrangements for medical study by naval surgeons.

BOOKS, ETC., RECEIVED.

ALLENSON, H. R., LIMITED, 7, Racquet-court, Fleet-street, London, E.C.
The Faith of an Evolutionist. By Theobald A. Palm, M.A., M.D. Price 2*s.* 6*d.* net.

BAILLIÈRE, TINDALL, AND COX, London.
Medical Supervision in Schools. Being an Account of the Systems at Work in Great Britain, Canada, the United States, Germany, and Switzerland. By Edward Millar Steven, M.B., Ch.M. (Edinburgh), Royal Commissioner for South Australia, 1909. Price 5*s.* net.
Military Hygiene. By Robert Caldwell, F.R.C.S., D.P.H., Lieut.-Colonel, R.A.M.C. Second edition. Price 12*s.* 6*d.* net.
Physiological Principles in Treatment. By W. Langdon Brown, M.A., M.D. Cantab., F.R.C.P. Second edition. Price 5*s.* net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.
Amœbic or Tropical Dysentery, its Complications and Treatment. By W. Carnegie Brown, M.D., M.R.C.P. Price 7*s.* 6*d.* net.

CHURCHILL, J. AND A., London.
A Manual on Dental Metallurgy. By Ernest A. Smith. Associate of the Royal School of Mines, London, Member of the Institute of Mining and Metallurgy, the Institute of Metals, and of the Society of Chemical Industry. Third edition. Price 6*s.* 6*d.* net.

HARE PHARMACY, THE, 38, Amherst-street, Calcutta.
Outlines of Medical Jurisprudence and Treatment of Poisoning. For Students and Practitioners. By Rames Chandra Ray. Price 2 rupees.

HIRSCHWALD, AUGUST, Berlin.
Gedanken zur allgemeinen Energetik der Organismen. Von Carl Lüderitz. Price M.1.20.

KARGER, S., Berlin.
Jahrbuch für Kinderheilkunde und Physische Erziehung. Unter Redaktion von O. Heubner, Th. Escherich, A. Czerny. 72, der dritten Folge. 22 Band. Heft 3. Ausgegeben am 1 September.

KEGAN PAUL, TRENCH, TRÜBNER, AND CO., LIMITED, London.
The International Scientific Series. Edited by F. Legge. The Evolution and Function of Living Purposive Matter. By N. C. Macnamara, F.R.C.S. Price 5*s.*
The Abuse of the Singing and Speaking Voice. Causes, Effects, and Treatment. By E. J. Moure and A. Bouyer Fils. Translated by Macleod Yearsley, F.R.C.S. Price 2*s.* 6*d.* net.
Argentina, Past and Present. By W. H. Koebel. Price 12*s.* 6*d.* net.
The Vision of the Young Man Menelaus. Studies of Pentecost and Easter. By the author of "Resurrectio Christi." Price 2*s.* 6*d.* net.

LAURIE, T. WERNER, Clifford's Inn, London.
Old Continental Towns. By Walter M. Gallichan. Price 6*s.* net.

LIPPINCOTT (J. B.) COMPANY, Philadelphia and London.
Lippincott's New Medical Dictionary. By Henry W. Cattell, A.M. (Laf.), M.D. (U. of P.). Price 21*s.* net.

LONGMANS, GREEN, AND CO., London, New York, Bombay, and Calcutta.
An Introduction to Biology. For Students in India. By R. E. Lloyd, M.B., D.Sc. Lond., Indian Medical Service. Price 4 rupees, or 5*s.* 4*d.*

MARHOLD, CARL, Halle-a.-S.
Die Gicht und ihre diätetische Therapie. Von Prof. Dr. A. Schittenhelm, Erlangen, und Privatdozent Dr. J. Schmid, Breslau. Price M.1.

MARLBOROUGH, E., AND CO., London.
Finnish Self-Taught Thimm's System). With Phonetic Pronunciation. By Agnes Renfors. Price, wrapper, 2*s.*; cloth, 2*s.* 6*d.*

MILLS, DICK, AND CO., Printers, Octagon, Dunedin.
Feeding and Care of Baby. Issued by the Society for the Healt Women and Children. Price 1*s.*

OUSELEY, JOHN, LIMITED, Fleet-lane, Farringdon-street, London, I and at Dublin and Melbourne.
Legally Dead. Experiences during Seventeen Weeks' Detentio a Private Asylum. By Marcia Hamilcar. Price 5*s.* net.

PHARMACEUTICAL PRESS, THE, 72, Great Russell-street, London, W
How to Become a Pharmacist in Great Britain. With Append on Pharmaceutical Qualification in Ireland, Degrees in Pharm and the Schedule of Poisons. Edited by John Humph Price 1*s.*

POOR-LAW PUBLICATIONS COMPANY, 18 and 19, Whitefriars-st London, E.C.
The Law relating to Pauper Lunatics. By Sydney Davey, L LL.B. Of the Middle Temple, Barrister-at-Law. Second edi Price not stated.

REBMAN, LIMITED, London.
The Mental Symptoms of Brain Disease. By Bernard Hollan M.D. With Preface by Dr. Jul. Morel, late Belgian State C missioner in Lunacy. Price 6*s.* net.
Phases of Evolution and Heredity. By David Berry Hart, M F.R.C.P.E. Price 5*s.* net.
Diagnostic Therapeutics. A Guide for Practitioners in Diag by Aid of Drugs and Methods other than Drug-giving. By A Abrams, A.M., M.D. (Heidelberg). Price 21*s.* net.
The Diseases of the Nose, Mouth, Pharynx, and Larynx. A T book for Students and Practitioners of Medicine. By Dr. A Bruck (Berlin). Edited and translated by F. W. Forbes M.D. Edin., F.R.C.S. Eng., assisted by Friedrich Gans, Price 21*s.* net, cloth.
Anæmia. By Geh. Obermedizinalrat Professor Dr. P. Ehrlich Dr. A. Lazarus. Part I. Volume I. Normal and Patholo Histology of the Blood. Second edition. (Enlarged and great extent rewritten.) By Dr. A. Lazarus and Dr. O. Nae Translated from the German by H. W. Armit, M.R. L.R.C.P. Lond. Price 12*s.* 6*d.* net, cloth.
Clinical Treatises on the Pathology and Therapy of Disorde Metabolism and Nutrition. By Prof. Dr. Carl von Noo Part VIII. Inanition and Fattening Cures. Price 5*s.* net, c Part IX. Technique of Reduction Cures and Gout. Pric net, cloth. Edited and translated under the supervisio Alfred C. Croftan, M.D., Chicago, U.S.A.
Hints for the General Practitioner in Rhinology and Laryngo By Dr. Johann Fein. Translated by J. Bowring Horgan, B.Ch. Price 5*s.* net, cloth.
The Sexual Life of Woman in its Physiological, Pathological, Hygienic Aspects. By E. Heinrich Kisch, M.D. Only autho translation into the English language from the German, b Eden Paul, M.D. Price 21*s.* net.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION (Secre Dr. William D. Haggard, Nashville, Tennessee, U.S.A.).
Transactions of the Southern Surgical and Gynecological Ass tion. Vol. XXII. Twenty-second Session held at Hot Spri Va., Dec. 14th, 15th, and 16th, 1909. Edited by W. D. Hag M.D. Price not stated.

STANFORD, EDWARD, London.
British Rainfall, 1909. On the Distribution of Rain in Space Time over the British Isles during the year 1909, as record more than 4500 Observers in Great Britain and Ireland. Hugh Robert Mill. Forty-ninth Annual Volume. Price 10*s.*

VIGOT FRÈRES, Paris.
Les Formes Larvées du Paludisme. Diagnostic et Traiten Par le Dr. Basile Mousséos. Price Fr.3.50.
Clinique Thérapeutique de la Faculté de Médecine de P Hôpital Beaujon. Thérapeutique Usuelle du Praticien. Albert Robin, Professeur de Clinique Thérapeutique à la Facul Médecine de Paris. Price Fr.8.
Morphinisme et Morphinomanie. Les Différentes Méthode Sevrage sans Souffrance. Par le Dr. Oscar Jennings. Tradu l'Anglais avec une Introduction par le Dr. Henri Mignon. Fr.2.50.

WILEY, JOHN, AND SONS, New York. CHAPMAN AND HALL, LIMI London.
The Sources and Modes of Infection. By Charles V. Chapin, Sc.D. First Edition. First thousand. Price, cloth, $5.00 ne 12*s.* 6*d.* net.
A Text-book of Organic Chemistry. By A. F. Holleman, P F.R.A. Amst. Edited by A. Jamieson Walker, Ph.D. (He berg), B.A. Assisted by Owen E. Mott, Ph.D. (Heidelb With the coöperation of the Author. Third English Edi partly rewritten. First thousand. Price $2.50.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institut and others possessing information suitable for this column, invited to forward to THE LANCET *Office, directed to the Editor, not later than 9 o'clock on the Thursday morning of week, such information for gratuitous publication.*

BRODRICK, C. C., L.R.C.P. Edin., has been re-appointed Medical O of Health of Tavistock, Devon.
CLARIDGE, G. P. C., M.B., B.S. Lond., has been appointed Hon Pathologist and Bacteriologist to the Norfolk and Nor Hospital.
CORBETT, W. VICTOR, M.R.C.S., L.R.C.P. Lond., has been appoi Senior Ophthalmic House Surgeon at St. Thomas's Hospital.
DYKES, C. R., L.R.C.P. Lond., M.R.C.S. Eng., has been appoi Certifying Surgeon under the Factory and Workshop Act for Loughton District of the county of Essex.

FLOYD, S. F., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Kilkeel District of the county of Down.

HOFFMANN, G., M.R.C.S., L.R.C.P. Lond., has been appointed a Resident House Surgeon at St. Thomas's Hospital.

LUPTON, J. P., M.R.C.S., L.R.C.P. Lond., has been appointed Junior Ophthalmic House Surgeon at St. Thomas's Hospital.

MCCORMAC, W. L., M.B., B.S. Vict., F.R.C.S. Edin., has been appointed Medical Superintendent of the Wandsworth Infirmary.

MEAKIN, L., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed a Resident House Surgeon at St. Thomas's Hospital.

MILNE, F. M., M.B., B.S. St. And., has been appointed Assistant Physician to the Dundee Royal Infirmary.

MORCOM, A. F., M.R.C.S., L.R.C.P. Lond., has been appointed a House Surgeon at St. Thomas's Hospital.

MUGLISTON, H. B., L.R.C.P. Edin., has been appointed Medical Officer for the Brent Knoll District by the Axbridge (Somerset) Board of Guardians.

NOLAN, JOSEPH J., L.R.C.P. Irel., L.K.Q.C.P. Irel., has been appointed a Medical Referee under the Workmen's Compensation Act, 1906, to act for County Carlow, Ireland.

PERRY, L. B., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed an Obstetric House Physician at St. Thomas's Hospital.

PINK, W. L., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed a Resident House Surgeon at St. Thomas's Hospital.

RICHARDSON, A. H., M.R.C.S., L.R.C.P. Lond., has been appointed a Resident House Surgeon at St. Thomas's Hospital.

WELCH, H. V., M.R.C.S., L.R.C.P. Lond., has been appointed a Clinical Assistant in the Throat Department and in the Children's Surgical Department at St. Thomas's Hospital.

WILSON, H. B., M.R.C.S., L.R.C.P. Lond., has been appointed an Obstetric House Physician at St. Thomas's Hospital.

WRIGLEY, P. R., F.R.C.S. Eng., has been appointed Honorary Assistant Surgeon to the Manchester Royal Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARROW-IN-FURNESS WORKHOUSE, COTTAGE HOMES, AND DISTRICT.—Medical Officer. Salary £200 per annum.

BEDFORD COUNTY HOSPITAL.—House Physician. Salary £60 per annum, with apartments, board, and washing.

BETHNAL GREEN INFIRMARY, Cambridge Heath, E.—Assistant Medical Officer. Salary at rate of £100 per annum, with apartments, board, and washing.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80 per annum.

BRIGHTON AND HOVE HOSPITAL FOR WOMEN.—House Surgeon, unmarried, for six months. Salary £80 per annum, with apartments, board, &c.

BRISTOL GENERAL HOSPITAL.—House Physician, House Surgeon, Casualty House Surgeon, and Assistant House Physician, all for six months. Salary £60, with board, residence, &c.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

CANCER HOSPITAL, Fulham-road, London, S.W.—Assistant Surgeon.

CARLISLE, CUMBERLAND AND WESTMORLAND ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with board and lodging.

CHELTENHAM GENERAL HOSPITAL.—House Physician, unmarried. Salary £75 per annum, with board and lodging. Also Surgeon-in-Charge, unmarried, of Branch Dispensary. Salary £80 per annum, with board and lodging.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physician. Salary £60 per annum, with board, apartments, and laundry.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with apartments, board, laundry, &c.

DREADNOUGHT HOSPITAL, Greenwich.—Two House Physicians, also Two House Surgeons, for six months. Salary in each case £50 per annum, with board, residence, and washing. Also Assistant Surgeon.

DUNDEE SCHOOL BOARD.—Assistant Medical Officer. Salary £250 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—House Surgeon. Salary at rate of £60 per annum, with board, residence, and washing. Also about Ten Clinical Assistants.

FULHAM INFIRMARY, St. Dunstan's-road, Hammersmith, W.—Junior Assistant Medical Officer for six months. Salary at rate of £100 per annum, with board, apartments, and washing.

GLASGOW MATERNITY AND WOMEN'S HOSPITAL.—Two Indoor House Surgeons for six months. Salary at rate of £50 per annum. Two Outdoor House Surgeons, and Female Outdoor House Surgeon, each for three months. Salary at rate of £72 per annum.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Physician. Also Two House Physicians and Three House Surgeons, each for six months. Salary at rate of £40 per annum, with board, lodging, and laundry.

HALIFAX, ROYAL INFIRMARY.—Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL, Hastings.—Assistant House Surgeon for six months. Salary £20, with rooms, board, and washing.

JERSEY INFIRMARY AND DISPENSARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and attendance.

LANCASTER ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, &c.

LEICESTER INFIRMARY.—House Physician. Salary at rate of £100 per annum, with board, lodging, and washing.

LIVERPOOL, BROWNLOW HILL WORKHOUSE.—Visiting Surgeon. Salary £200 per annum.

LIVERPOOL, CITY OF.—Assistant to the Medical Officer of Health. Salary £250 per annum.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

LOCHGILPHEAD, ARGYLE AND BUTE ASYLUM.—Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and laundry.

LONDON HOSPITAL, Whitechapel, E.—Two Surgical Registrars. Salary £100 per annum each.

LONDON TEMPERANCE HOSPITAL.—Surgical Registrar. Salary at rate of 40 guineas per annum.

LOWESTOFT HOSPITAL.—House Surgeon, unmarried. Salary at rate of £100 per annum, with board, lodging, and washing.

MANCHESTER ROYAL INFIRMARY.—Assistant Surgical Officer. Salary £35 per annum. Also Medical Officer for six months. Salary at rate of £100 per annum, with board and residence.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—Clinical Pathologist. Salary £50 per annum.

NEW HOSPITAL FOR WOMEN, Euston-road, N.W.—Senior Assistant for X Ray Department; also Clinical Assistants (all females).

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Medical and Surgical Registrars.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, residence, and washing.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for Out-patient Department for four months. Salary at rate of £60 per annum, with board, residence, and washing.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Joint Morning House Anæsthetist. Salary £25 per annum.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon. Salary at rate of £100 per annum, with board and residence.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board and residence.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

THROAT HOSPITAL, Golden-square, W.—Honorary Anæsthetist.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer, unmarried, for six months. Salary £100 per annum, with board, lodging, and washing.

WAKEFIELD, WEST RIDING ASYLUM.—Locum Tenens. Salary £3 3s. per week, with apartments and board.

WEST LONDON HOSPITAL AND POST-GRADUATE COLLEGE, Hammersmith-road, W.—Clinical Assistants. Also Three Non-Resident Assistant House Surgeons, each for three months.

WOMEN'S IMPERIAL HEALTH ASSOCIATION.—Lecturer (female). Salary at rate of £150 per annum and expenses.

THE Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 43, more particularly to the Brompton and Marylebone County Courts.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Act at Pwllheli, in the county of Carnarvon; at Wadebridge, in the county of Cornwall; and at Harrold, in the county of Bedford.

Births, Marriages, and Deaths.

BIRTHS.

HANDLEY.—On Sept. 10th, at 12, New Cavendish-street, W., to Mr. and Mrs. W. Sampson Handley, a son.

HUBERT.—On Sept. 10th, at "Rosehill," Billingshurst, Sussex, the wife of W. A. Hubert, M.R.C.S. Eng., L.S.A. Lond., of a daughter.

JOY.—On Sept. 6th, at Craven-road, Harlesden, N.W., to Dr. and Mrs. G. P. Joy, a daughter.

KEMPTHORNE.—On Sept. 2nd or 3rd, at Dalhousie, India, the wife of Captain G. A. Kempthorne, R.A.M.C., of a son.

WILBERFORCE SMITH.—On Sept. 5th, at West End-avenue, Pinner, Alsie, wife of D. Wilberforce Smith, M.B., B.S., of a son.

MARRIAGES.

GRAHAM-SMITH—LEITH-ROSS.—On Sept. 8th, at St. Mary's on the Rock, Ellon, Aberdeenshire, G. S. Graham-Smith, M.A., M.D. Cantab., to Violet, only daughter of Colonel Leith-Ross, of Arnage, Aberdeenshire.

DEATHS.

JACK.—On Sept. 8th, at Campden Hill-road, Kensington, Deputy-Inspector-General John Jack, R.N., aged 92 years.

LAW.—On Sept. 6th, at Bournemouth, after an operation, William Thomas Law, M.D., F.R.C.S., aged 65 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

DIFFICULT ENGLISH.

Dr. Webb Anderson, Fatshan Hospital, Wesleyan Mission, Canton, China, sends us the following extract from a letter which accompanied a patient sent to him suffering from phthisis. The writer, the patient's husband, has been a scholar in a well-known college in Hong-Kong, and, as is the fashion, sends the physician instructions to heal this or that ailment first, leaving other matters until later. The patient's husband wrote the following account:—

> She felt a little pains last night and the cough scarcely subtract the same to the precedent. Some pains feel this morning in the parts of the stomach and the ribs of the right hand. And feel thirsty not very much.
>
> Now I wish to be cured with the important thing as following:—
>
> 1. Render her most appetite
> 2. Take care the moisture.

"Scarcely subtract the same to the precedent" is a phrase requiring explanation, the rest of the instruction being more or less intelligible. "The precedent" is the previous day's experience and "scarcely subtract" is intended to have the force of "hardly diminished." But for the stolidity of his Oriental neighbours the Englishman's Chinese might be the source of equal merriment to them, but it is usually observed that the Oriental does not smile at a foreigner's attempts, grotesque as they often must be, to overcome the difficulties intricate idiom. This courtesy is not due to good manners, we fear, so much as to his inability to appreciate the humour of our errors; and herein is the Oriental strictly differentiated from the European.

89 YEARS A PAUPER.

THE remarkable case of a woman's whole life being spent in poorhouse and workhouse was mentioned at a meeting of the Eastbourne guardians on Sept. 9th. The master reported the death of Jane Avery, who had been an inmate of Eastbourne workhouse and the poorhouse before that for 89 years—in fact, she had been under the care of the guardians since she was 4 days old. She was mentally deficient. It was stated at the board meeting that the woman had cost the ratepayers roughly £1600.

E. MERCK'S ANNUAL REPORT.

THE publication of this annual report is always welcome, since it records with some detail the advances in pharmaceutical chemistry and therapeutics of the current year. The present issue (Vol. XXIII.) contains an unusually interesting series of monographs, and no less than 84 pages are devoted to serum-therapy and bacterio-therapeutic preparations. The references to periodical literature are quite recent, and we note that in some cases analytical methods which are an advance on previous methods, especially in connexion with the examination of pathological products, are recorded. We have found these annual reports most useful for reference, and although, of course, there is a commercial side to their publication, there is no trace of partiality through the pages on the part of the great firm who issue the reports. We understand that a limited number of copies of the present issue, which comprises 347 pages of literary matter, will be sent free to medical men on application to 16, Jewry-street, London, E.C.

DRAPERY ESTABLISHMENTS AND PRECAUTIONS AGAINST THE RISKS OF FIRE.

THERE is something to be said both for and against the system of "living in" at large drapery establishments, but many terrible catastrophes from fire point to the necessity that where "living in" is the rule precautions must be taken of the most rigid sort against all danger to the employees from an outbreak of fire. It is reported that for the third time within a month a fire has occurred at a draper's shop at Brixton, and on the third occasion—namely, on Sept. 11th—a female assistant was killed by jumping from a window. This unfortunately fatal outbreak took place in the early hours of the morning, and before a fire-escape could be placed in position three of the distracted girls had jumped from the upper storeys of the building. Two of the young women fell into a tarpaulin held by people in the street, but one misjudged her distance and fell on the pavement. She died on the way to the hospital; the other two are in St. Thomas's Hospital still undergoing treatment. It is probable that had the girls waited till the fire-escape arrived they could all easily have been saved, but to be philosophically collected when shut up in a burning building is difficult, and it would be indeed strange if out of a crowd of young women awakened from sleep after the harassing work of a long day in a shop some did not lose their nerve in such circumstances. Employees in any business where inflammable goods are stored should not be compelled to sleep in the building, and more effective legislation is required to protect employees and others from the danger of fire. This danger is an ever-present one, but with the advent of Christmas it becomes even more pronounced in drapery establishments, where the rivalry of trade encourages the accumulation of inflammable goods and decorations which are a source of great danger not only to the employees but to the general public. The recollection of the catastrophe which occurred at Clapham last Christmas is present in our minds as we write these words.

ERRATUM.—In the report of the proceedings of the British Medical Association in our issue of Sept. 10th we ascribed certain remarks made by Mr. Barker Smith before the Section of State Medicine to Dr. Parker Smith. We regret the slip.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for 1910:—

Sept. 17th–25th (Antwerp).—Fourteenth Flemish Congress of Natural and Medical Sciences and International Scientific Exhibition.
,, 18th–24th (Königsberg).—Eighty-second Congress of German Scientists and Medical Men.
,, 22nd–27th (Toulouse).—Sixth French Congress of Gynæcology, Obstetrics, and Pædiatrics.
,, 22nd–28th (St. Petersburg).—Fifth International Congress of Obstetrics and Gynæcology.
,, 27th–30th (Vienna).—Eighth International Physiological Congress.
,, 29th and 30th (Glasgow).—First Annual Conference of the British Hospitals Association.
Oct. 1st–5th (Paris).—Second International Conference for the Study of Cancer.
,, 3rd–7th (London).—Sixth London Medical Exhibition.
,, 3rd–7th (Berlin).—International Congress on the Care of the Insane.
,, 4th–8th (Brussels).—Second International Congress of Alimentary Hygiene.
,, 5th–8th (Brussels).—Ninth International Tuberculosis Conference.
,, 10th–15th (London).—Town Planning Conference.
,, 13th–15th (Paris).—Eleventh French Congress of Medicine.
,, 16th–22nd (Barcelona).—First International Spanish Congress of Tuberculosis.
Nov. 7th–12th (Cape Town).—Twelfth South African Medical Congress (1910).

In 1911:—
May–October (Dresden).—International Hygiene Exhibition.
June and July (Romford).—Town Planning and Modern House and Cottage Exhibition.
July (Birmingham).—British Medical Association.
August or September (Berlin).—Third International Laryngo-Rhinological Congress.
September (Brussels).—Exhibition of Fractures.
Sept. 24th–30th (Rome).—International Congress on Tuberculosis.
,, 25th–29th (Rome) Seventh International Congress of Dermatology and Syphilology.
October (Cologne).—International Congress of Criminal Anthropology.

In 1912:—
September (Washington, D.C.).—Fifteenth International Congress of Hygiene and Demography.

In 1913 the only fixture so far is in London, where the Seventeenth International Congress of Medicine will take place.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. S. E. Dore: Clinique (Skin).
TUESDAY.—4 P.M., Dr. T. Thompson: Clinique (Medical).
WEDNESDAY.—4 P.M., Mr. L. Mummery: Clinique (Surgical).
THURSDAY.—4 P.M., Mr. R. P. Rowlands: Clinique (Surgical).
FRIDAY.—4 P.M., Mr. Harold Barwell: Clinique (Ear, Nose and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—2 P.M., Clinical Demonstration: Dr. Wall: Diseases of the Lungs.
TUESDAY.—2 P.M., Clinical Demonstration: Dr. Grünbaum: Diseases of the Kidneys.
WEDNESDAY.—2 P.M., Clinical Demonstration: Dr. Hutchison: Diseases of the Digestive System and Children's Diseases
THURSDAY.—2 P.M., Clinical Demonstration: Dr. T. Thompson: Diseases of the Nervous System.
FRIDAY.—2 P.M., Clinical Demonstration: Dr. L. Smith: Diseases of the Heart and Vessels.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (21st).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (22nd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (24th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 14th, 1910.

Date.	Barometer reduced to Sea Level and 32° F	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 8	30·23	N.E.	...	115	66	55	55	58	Cloudy
,, 9	30·24	N.E.	...	78	60	50	52	55	Cloudy
,, 10	30·28	S.	...	93	66	48	50	52	Misty
,, 11	30·15	N.E.	...	95	66	52	54	57	Misty
,, 12	30·18	N.E.	...	107	64	52	53	58	Dull
,, 13	30·18	N.E.	..	1·9	63	49	50	55	Fine
,, 14	30·03	NNW	0·41	68	56	49	54	55	Raining

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An Address

ON

THE ETIOLOGY AND TREATMENT OF RHEUMATOID ARTHRITIS.

Delivered before the Balneological and Climatological Section of the Royal Society of Medicine

By P. W. LATHAM, M.D. CANTAB.,

FELLOW AND LATE SENIOR CENSOR OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON; CONSULTING PHYSICIAN TO ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

MR. PRESIDENT AND GENTLEMEN,—In THE LANCET in 1901[1] I advanced the theory that the changes in the joints and the muscular wasting which are characteristic of rheumatoid arthritis are due to irritative and destructive lesions located in the spinal cord, and especially in the cervical and lumbar enlargements. What evidence can I produce in support of this theory?

ETIOLOGY.

According to Ross, "Pathological facts appear to show that the trophic nerves of the bones and joints are found in the mixed nerve trunk, and that they issue along with the motor fibres from the anterior cornua of the spinal cord, where they are, like the muscular trophic fibres, connected with a group of large caudate cells,"[2] and that "it seems now generally admitted that both irritative and destroying lesions of the ganglion cells of the anterior horns of the spinal cord and their homologues in the medulla oblongata, pons, and crura, or of the efferent fibres which unite these cells with the periphery, may give rise to active atrophy of muscle."[3] Again, "Pathological observations render it probable that the ganglion cells of the anterior horns exercise a controlling influence upon the nutrition of the bones and joints, while those of the posterior horns stand in a similar relation to the nutrition of the skin and its appendages."[4]

We must also bear in mind that the nutrition of the muscles and bones is dependent upon the vascular supply, and that this vascular supply is controlled by vaso-motor action which can be influenced by nervous impulses either originating in the central nervous system itself, or started by afferent impulses carried for the most part by ordinary sensory nerves passing up the central nervous system from some sentient surface in any part of the body; this vaso-motor action of the central nervous system may also be directly affected by the condition of the blood passing through it, or by substances introduced into the blood. Now, throughout the whole length of the spinal cord intermixed with the reflex and other mechanisms we have a number of minor vaso-motor centres, the action of which, though to a certain extent independent, is ruled and coördinated by the dominating or head centre which, as we know, is located in the medulla or bulb.

The paths taken by the vaso-motor fibres have not as yet been fully made out. They leave the spinal cord by the anterior roots of the spinal nerves, but in the majority of cases the fibres do not run in a direct course to their destination in company with the ordinary motor fibres passing to the same structures as themselves. The vaso-motor fibres of the lower limbs, for instance, do not pass directly with the anterior roots into the sciatic nerve, but largely, at all events, turn aside to join through the rami communicantes the abdominal sympathetic; and it is only after they have traversed a certain length of sympathetic nerve that they again return to the spinal nerves, enter into the sciatic plexus, and thus become part of the nerves of the leg—that is, an afferent impulse proceeding from the leg may, through the abdominal sympathetic, give rise to efferent vaso-motor impulses acting on other parts of the body besides the spot from which the afferent impulse springs. So also the vaso-motor fibres for the fore-limb pass in large measure from the anterior roots of the upper dorsal nerves to the thoracic sympathetic chain and thence by the first thoracic ganglion to the brachial plexus, and so on to the fore-limb.

How far this vaso-motor action is in harmony or even identical with the action of the so-called trophic nerves I cannot tell. What I want to suggest is that if from any sentient part of the body an afferent impulse is conveyed to the brain, ascending by the posterior roots of the spinal cord, reflex impulses descend along the vaso-motor fibres in the cord, pass out with the motor fibres by the anterior cornua, giving rise to *some action or molecular change in their ganglion cells;* then by the rami communicantes joining a sympathetic ganglion, impulses will radiate therefrom not only to the part from which the afferent impulse sprang but to other parts of the body in connexion with that ganglion, modifying the nutrition of the parts to which they are distributed—by increasing or diminishing the supply of blood to these parts. Further, that if there are irritative lesions either of the ganglion cells of the anterior horns or of the efferent fibres passing on to the periphery, similar results would be produced to those I have described. If there are destructive lesions the same results would follow as are produced by section of a nerve trunk, results with which in the case of the sciatic nerve or the brachial plexus we are familiar.

IRRITATION OF PELVIC ORGANS AND ARTHRITIS.

Now as regards the effect of irritative lesions of the pelvic organs, Dr. W. M Ord, in a paper read before the Clinical Society on Feb. 14th, 1879,[5] suggests that there is evidence to show that there exists a relation of cause and effect between uterine disorders and arthritis. The first case which attracted his attention in this respect was one of severe arthritis with severe dysmenorrhœa, the arthritis being regularly developed paroxysmally immediately before, throughout, and for a short time after each menstruation, and as regularly intermitted in the intervals. After much treatment had been ineffectually applied on the primary rheumatic hypothesis the uterine conditions were carefully and steadily attacked for a twelve-month. At the end of this time the dysmenorrhœa was overcome and the arthritic paroxysms soon after ceased to occur, and the patient from being wasted, sallow, anæmic, and hysterical, became an active, happy, and decidedly well-nourished member of society. He refers to 33 cases of rheumatoid arthritis combined with decided symptoms of uterine disorder or irritation. In a considerable proportion of the cases (14) the arthritic paroxysms coincided with the menstrual periods. In seven there was dysmenorrhœa, which was conspicuously absent in the other seven. He noticed that in three cases in which the arthritis was limited to, or began and remained excessive in, one side of the body, the ovary on the same side was painful and tender. Dr. Ord concluded that "inasmuch as the joint affection in many cases ebbs and flows with the uterine affection and may alternate with affections of the higher centres (as is shown in a remarkable case of mania which he records) the disorder must be regarded as the product of reflex action through the nervous system." I agree with him and believe the explanation is to be found in the reflex impulses travelling along the vaso-motor nerves, in the manner I have above endeavoured to describe, modifying the blood-supply and so the nutrition of the muscles and tissues to which those vaso-motor nerves are distributed.

Other forms of irritation in the pelvic organs may also give rise to the disorder. The irritation produced by gonorrhœal urethritis or by simple urethritis can by reflex action produce in both cases an arthritis identical in its morbid anatomy with rheumatoid arthritis. Of course, in gonorrhœal arthritis the changes in the joints are intensified by the presence in the blood of the morbid products, or toxins, excreted by the gonococci. Undoubtedly in all these cases the arthritis occurs most frequently where conditions involving irritability or disordered nutrition of the spinal cord exist, such as anæmia, nervous exhaustion, or general weakness.

It is not unreasonable to assume that if there are continuous afferent and efferent impulses, or intermittent impulses frequently repeated, passing along the spinal cord, the cells associated with these impulses will become exhausted and morbid changes or nutritional changes will be developed in the ganglionic cells of the anterior and posterior cornua of the nerve along which these impulses travel. The muscular

[1] THE LANCET, April 6th, 1901, p. 998.
[2] Ross Diseases of the Nervous System, second edition, vol. i., p. 267.
[3] Loc. cit., vol. i., p. 241.
[4] Loc. cit., vol. i., p. 825.
[5] Clinical Society's Transactions, vol. xii., p. 90.

atrophy associated with rheumatoid arthritis (but which sometimes precedes the joint affection) is regarded by some as determined by morbid impulses from the joint nerves. Sir W. R. Gowers says:—

The nature of the cause of ordinary arthritic atrophies long ago suggested to Paget a "reflex influence" on the muscles as the probable mechanism, and Vulpian and Charcot have suggested a similar hypothesis, assuming a derangement of the nutrition and influence of the motor cells of the cord to be determined by the morbid impulses from the joint nerves, and to determine the alterations in the muscles. The theory receives important support from the fact that the wasting of the muscles is prevented by previous division of the posterior spiual roots,[6] which amounts indeed to an indirect demoustration of the fact that a reflex process underlies the phenomena.[7]

I suggest that in the early stages, at least, of rheumatoid arthritis the morbid impulses have their origin in the pelvic organs or in other parts of the body, it may be even in the nerves themselves, as I will now proceed to show.

INJURIES TO THE SPINAL CORD, &C., AND ARTHRITIC CHANGES.

Clinical experience has taught us that injuries to the spinal cord, or even to the nerves of a limb, will set up arthritic changes which cannot readily be distinguished from those seen in the earlier stages of rheumatoid arthritis. Dr. Weir Mitchell, Dr. Moorhouse, and Dr. Keen were the first to call attention to the effect of nerve injuries on the nutrition of the joints. The symptom occurs within a few days after the injury to the nerve.

It consists essentially in a painful swelling of the joints, which may attack any or all of the articulations of a member. It is distinct from the early swelling due to the inflammation about the wound itself, although it may be masked by it for a time; nor is it merely a part of the general œdema which is a common consequence of wounds. It is more than these—more important, more persistent. Once fully established, it keeps the joints stiff and sore for weeks or months. When the acute stage has departed the tissues about the articulations become hard and partial ankylosis results, so that in many cases the only final cause of loss of motion is due to this state of the joints. Of all the agencies which impede movement it is the most difficult to relieve. Were we asked to state in what essential respect these lesions differ from subacute rheumatic disease of the same parts, we should certainly be at some loss to discern a difference.[8]

In a subsequent work[9] Dr. Weir Mitchell again refers to the curious arthritic changes which may follow dislocations, ball wounds, contusions, or even compressions of the nerves:—

We may have one articulation—and if only one, a large one—involved, or perhaps all the joints of a finger, or every joint in the hand or of the entire limb may suffer. The swelling is never very great, the redness usually slight, and the tenderness on touch or motion exquisite. This condition of things remains, with little change, during weeks or months and then slowly declines, leaving the joints stiff, enlarged, and somewhat sensitive, especially as to movement. A small proportion of such cases find ready relief, but in many of them the resultant ankylosis proves utterly unconquerable, so that it is vain to break up the adhesions under ether, or to try to restore mobility by manipulation on splints. All alike fail, and serve only to add to the essential tortures of the accompanying neuralgia and hyperæsthetic states of skin. Since writing my last paper I have met with some of the former patients who suffered with these troubles, but in no case originally very severe, was there any great pain; indeed, in most of them the joints had become every year more stiff and useless. It is then quite clear that injuries of the spine, diseases of this organ and of the brain, and wounds, or any form of lesions of nerves, are capable of developing in the joints inflammatory conditions, usually subacute, and which so precisely resemble rheumatic arthritis in their symptoms and results that no clinical skill can discriminate between the two.

Various examples illustrating the above statements will be found in Dr. Weir Mitchell's work.

The arthropathies of hemiplegic patients described by Scott Alison,[10] Brown-Séquard,[11] and Charcot[12] are further examples of arthritic mischief resulting from lesions in the central nervous system.

Again, concussion of the spine from falling from a height or in skating may also induce arthritic troubles. In THE LANCET of April 6th, 1901, I have recorded an instance of this kind which is interesting both as regards the symptoms and the treatment. And in Guy's Hospital Reports[13] Sir William Gull reports Case 28, concussion of the spine; partial paraplegia, redness and swelling of the wrists and ankles as in acute rheumatism. He also reports Case 27, one of acute rheumatic (?) affection of the larger joints; paraplegia, slough over sacrum. He remarks: "It is a matter of great clinical interest that lesions of the cord are occasionally attended by an affection of the joints not to be readily distinguished from that which occurs in acute rheumatism." In Case 27 "fatigue from mechanical labour (mangling), acting especially on the lumbar and dorsal portions of the spine, in a delicate and anxious subject appears to have injured the nutrition of the cord. For two years, when much exerting herself, the patient felt pains between the shoulders and a sense of constriction and coldness round the chest. Paraplegia then suddenly came on, followed by redness, pain, and swelling of the larger joints, as in rheumatism."

MICROSCOPICAL APPEARANCES IN THE SPINAL CORD.

The clinical symptoms, then, of chronic arthritis furnish, it seems to me, undoubted evidence of pathological change in the nervous centres arising from irritative impulses, starting either in the afferent fibres or in the brain itself, and giving rise to nutritive or organic changes in the ganglion cells of the posterior or anterior cornua, or both, of the spinal cord. Nutritional changes, of course, would not be visible, even on microscopical examination, but in some instances skilled pathological observers have discovered organic changes in the cells of the spinal cord. Charcot[14] reports two remarkable cases of locomotor ataxia which were complicated with unilateral arthropathy. He says:—

It is not very rare to find the spinal grey matter affected in locomotor ataxia; but the lesion is then generally found in the posterior cornua. Now, it was quite different in two cases of locomotor ataxia, complicated with arthropathy, in which a careful examination of the cord had been made; the anterior cornua were, in both cases, remarkably wasted and deformed, and a certain number of the great nerve cells, those of the external group especially, had decreased in size, or even disappeared altogether without leaving any vestiges. The alteration, besides, showed itself exclusively in the anterior cornua, corresponding to the side on which the articular lesion was situated. It affected the cervical region in the first case, where the arthropathy occupied the shoulder; it was observed a little above the lumbar region in the second case, which presented an example of arthropathy of the knee. Above and below these points the grey matter of the anterior cornua appeared to be exempt from alteration.

In an article in *Brain*, Vol. XXV., 1902, entitled "Some Observations on Primary Degeneration of the Motor Tract," Dr. F. W. Mott, F.R.S., and Mr. A. F. Tredgold report a case of chronic rheumatoid arthritis with muscular atrophy, giving the following account of the microscopical examination of the cord.

Microscopical Examination.

Spinal cord.—Sections were examined at the level of the sixth, seventh, and eighth cervical; first, tenth, twelfth dorsal; second and fifth lumbar, and first sacral segments.

Grey matter.—In the cervical enlargement there are very important alterations in the large cells of the anterior horns. There are fewer such cells present than in the normal cord in this region, and a large number of them are seen to be undergoing a chronic degenerative change, with the deposition of a large amount of pigment. ..... There are some fairly healthy cells scattered amongst the atrophied ones; the process also does not pick out any special group of cells, but affects apparently to an equal extent all the different groups.

In the dorsal segments examined there is not anything like the same amount of change in the anterior horn cells; here and there degenerated cells occur, but they are comparatively rare, whereas in the cervical and lumbar parts of the cord the reverse is the case, and healthy cells are in a decided minority.

In the lumbo-sacral portion of the cord exactly similar changes occur as in the cervical enlargement—that is, many cells in various stages of degeneration are scattered throughout all the cell nests.

The mesial-anterior group certainly appears to be as much, if not more affected than any other, unless it be the postero-external.

In the cervical and lumbar enlargements there is also very considerable decrease in the fibres composing the network of the anterior horns, especially in the central portion. This change, which does not occur in the dorsal region, causes a very obvious pallor of the sections stained by Weigert's method.

The posterior horns, the cells and reticulum of Clarke's column, and the other portions of the grey matter, appear perfectly normal in all regions of the cord.

Anterior roots.—The anterior nerve roots in the cervical and lumbar regions are much atrophied.

The reporters conclude with the remark:—

We are unable to say whether the change in the anterior horn cells is primary or secondary to the joint change, or to give any satisfactory explanation of this difference, we simply record the fact.

The microscopical appearances, as described in the above cases, confirm, I think, the view I have put forward as to the pathology of rheumatoid arthritis—namely, that it is due to spinal irritation or congestion, or chronic myelitis chiefly

[6] Raymond: Revue de Médecine, 1890, p. 374.
[7] Sir W. R. Gowers: Diseases of the Nervous System, third edition, vol. i., p. 561.
[8] Gunshot Wounds and other Injuries of Nerves, by Dr. Weir Mitchell, Dr. Moorhouse, and Dr. Keen (Philadelphia, 1864), p. 83.
[9] On Injuries to Nerves (London and Philadelphia, 1872), p. 170.
[10] Arthritis Occurring in the Course of Paralysis, THE LANCET, 1846, vol. i., p. 278.
[11] Ibid., July 13th, 1861.
[12] Lectures on Diseases of the Nervous System, New Sydenham Society, 1877, p. 93.
[13] Third Series, vol. iv., 1858.
[14] Lectures on Diseases of the Nervous System, New Sydenham Society, 1877, p. 100.

affecting the ganglion cells of the anterior horns, but extending also, when the disease is associated with "glossy skin," to the ganglion cells in the posterior horns.

TREATMENT.

If this is the case the natural inference would be that in the earlier stages of the malady at all events, the treatment should be directed to the abatement of this spinal irritation, and that probably this can be most effectively done (the exciting cause being removed) by cupping or blistering the spine.

This is no new suggestion. As far back as 1831 a paper appeared in the *American Journal of Medical Sciences*, Vol. VIII., p. 55, by Professor J. K. Mitchell, the father of Dr. Weir Mitchell, on a New Practice in Acute and Chronic Rheumatism. In this paper he describes cases of chronic rheumatism arising from various causes, and cases of arthritic troubles following spinal injury, which were successfully treated by cupping and blistering. From 8 to 16 ounces of blood were abstracted from the neighbourhood of the cervical or lumbar enlargements according as the upper or lower extremities were affected, and if the cupping did not afford relief blisters were applied to the same regions. I rarely have had recourse to cupping, but I have found continuous counter-irritation a most valuable remedy. To obtain beneficial results, however, in rheumatoid arthritis, the counter-irritation must be pronounced and prolonged—slight irritation is useless—and it must be in the neighbourhood of the cervical and lumbar enlargements. Applied, for instance, to the mid-dorsal region it is useless, as was pointed out by Dr. J. K Mitchell 80 years ago in the paper above referred to.

The following is the plan I usually adopt. Two cantharides plasters, four or five inches long by two and a half wide (painted over immediately before their application with linimentum cantharidis or liquor epispasticus to ensure rapid action), are applied at bed-time, one on each side of the seventh cervical vertebra or the twelfth dorsal according as the joints of the upper or lower extremities are most affected. The blisters are kept on for 24 hours. They are then removed, the loose cuticle cut away, and a bread poultice made with boracic lotion applied for the night. In the morning the blistered surface is dressed with *freshly* prepared savine ointment spread on lint, and the dressing repeated every morning for eight or ten days. Each time before removing the lint it should be well soaked with boracic lotion so as to prevent its adhering to the blistered surface and causing unnecessary pain to the patient. I generally administer 20 drops of laudanum the first night on applying the blisters, and if the joints are painful repeat the dose every night. If the joints both of the upper and lower limbs are affected, then seven or eight days after applying the two blisters, two others are applied one on each side of the seventh cervical vertebra if the first have been applied to the dorsal region, and *vice versâ*, carrying out the same routine as before, the morning dressing of these blistered surfaces with savine ointment being repeated for eight or ten days. The pain and swelling of the joints are generally much relieved in three or four days after the application of the blisters, even when no laudanum has been given, but the improvement is more marked, both as regards the swelling and the pain, when the narcotic is given. If the patient is suffering much pain, instead of the single evening dose I give 10 minims of laudanum together with 30 minims of the liquor hydrargyri perchloridi every six hours.

Whilst the counter-irritation is being carried out it is most important that the patient should have complete rest in bed, the affected limbs being moved as little as possible, especially if movement causes pain. At the end of eight or ten days the healing of the blistered surfaces may be promoted by the application of some simple dressing. The patient's general health must be attended to, the diet must be such as can be easily digested—beef, mutton, fowl, &c.—with such alcoholic stimulants as are suitable. A daily action of the bowels must be ensured, and a proper amount of sleep must be obtained, if necessary by the regular administration at bedtime of opium or morphia. As the patient improves, massage, warm baths, radiant heat, &c., are important auxiliaries in the treatment, but on no account must massage be employed if it causes pain in any of the joints. As regards medicine, I have found the liquor hydrargyri perchloridi useful in doses of 1 drachm twice a day with some bitter infusion. Sometimes 3 to 5 minims of liquor arsenicalis may be combined with the perchloride solution with advantage—but it does not agree with all patients. Not infrequently it may be necessary, especially in severe and chronic cases, to repeat the blistering process after an interval of two or three months.

I need hardly say that it is of the utmost importance that before using cantharides or opium the condition of the kidneys should be carefully investigated. If they are unhealthy this plan of treatment is absolutely unsuitable. The electric cautery may then be employed instead of the cantharides.

RESULTS OF TREATMENT.

Such, then, is the plan of treatment which in my hands, and I am thankful to say in the hands of others, notably Dr. S. Gurney Champion and Mr. W. J. Midelton, both of Bournemouth, and Dr. Alexander of Buxton, has proved successful. Patients ailing for three, five, and ten years, some "thin, wasted, bed-ridden, and wishing to die," have been restored with "good movement in all the joints and able to walk three or four miles with ease." Such is Dr. Champion's report to me. Sometimes the diminution of pain and swelling of the joints very quickly follows this plan of treatment. In one case four days after the application of a "blister to the cervical region the patient's wedding-ring slipped off her finger. She had been for six months previously unable to remove it owing to the swollen condition of the phalangeal joint." I have myself seen a similar result. Time does not permit me to submit to you notes of some cases successfully treated after this method. THE LANCET of April 6th, 1901, contains reports of two of my earliest cases, and of one also under Dr. Arthur Latham at St. George's Hospital. In THE LANCET of Sept. 28th, 1907, Dr. Midelton reports several cases, one of which in particular possesses features of extreme interest. A married woman, aged 43 years, ailing for two years, wasted to a skeleton and unable to move hand or foot, every joint in the body stiff and painful; and pronounced by several medical men to be incurable. Counter-irritation of the spine was employed and repeated twice at intervals of two and three months. At the end of 20 months the patient was well nourished and active and able to resume her household duties.

CLINICAL SURGERY IN JAPAN.

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I.—THE RESULTS OF 176 CASES OF INTERNAL PILES TREATED SOLELY BY WHITEHEAD'S METHOD.

BEFORE describing the results of my cases I should like to give various treatments chiefly adopted at the present time. In all cases a special care must be taken to ascertain before the operation whether any serious disease, like cancer, is present in the rectum or whether the piles are not dependent on some serious general disease like hepatic or cardiac trouble. If caused by pressure of tumours, the latter must be removed. Before operation the bowels must be thoroughly emptied. The lithotomy position is usually adopted, and after shaving and cleansing the perineum the sphincter is thoroughly stretched by the surgeon's fingers so as to relax it and bring the field of operation more clearly into view. The simple stretching often cures the cases of slight hæmorrhoids, and, besides, the pain caused by the contractive movements of the sphincter after the operation is lessened, and its severity depends a good deal on the thoroughness of this stretching. Here I am not going to discuss the methods for slight hæmorrhoids, but those requiring more than mere stretching or general treatment.

1. *Ligature.*—The patient is put into the lithotomy position, and after dilating and cleansing the rectum the piles are brought down and the ligature is put round a groove made about two-thirds down the pile. If there are more than one each is treated in the same way. The ligature must be put into the groove to prevent the slipping and subsequent secondary hæmorrhage.

2. *Clamp and cautery.*—After bringing the field of operation into view each pile is clamped by the forceps near its root. The clamp is applied in a direction corresponding to the long axis of gut, great care being taken not to include

the external skin. After tightening the clamp the projecting mass is cut away by scissors and the cut surface cauterised until the hæmorrhage is stopped. There is another method in which the projecting pile is not cut away by the scissors but by the cautery itself, and in order to prevent the secondary hæmorrhage which sometimes occurs after the clamp and cautery method, a portion of cauterised pile is left behind. This is said to prevent any after-hæmorrhage.

3. *Clamp, excision, and suturing.*—In this method, after clamping and excising the pile, the cut surface is sutured longitudinally by catgut.

4. *Injection.*—This method has been used a good deal at one time, especially for the patients who were afraid of operative treatment. Various drugs have been used, but the chief one is carbolic acid. The latter is usually mixed with glycerine, and a few drops of strong solution are injected into the piles. This method is good for not extensive hæmorrhoids and also for stopping sudden hæmorrhage. But for the extensive case it is not radical, and the piles recur after a few months or years. When the injection is not properly done an anal abscess is formed subsequent to the injection. Again, in extensive cases the contraction of the cicatrix causes narrowing of the rectum. This method is often very painful, and various procedures are employed to allay the pain. This is commonly done by using a local anæsthetic at the same time—cocaine, &c.

5. *Incisions and suturing.*—This method is to make several longitudinal incisions through the mucous membrane of the rectum and through them remove the hæmorrhoidal tissues. Afterwards the incisions are closed by catgut sutures.

6. *Whitehead's operation.*—An incision is made round the margin of the anus, at the junction of skin and mucous membrane, and after removing the hæmorrhoidal tissues the skin and mucous membrane are brought well together with sutures and closed. The sutures may be interrupted or continuous. There is a modified method advocated by some surgeons, in which the skin and mucous membrane are not completely separated right round the anus, but a small portion in four corners is kept intact, so that at the end of the operation the sutures form four groups—i.e., above, below, right, and left.

In all my cases I adopted the following rules: 1. The thorough examination of general bodily health was made before the operation. 2. The examination of the rectum for cancer or any other serious complication. 3. The presence of abdominal or pelvic tumour. 4. The bowels are thoroughly emptied by a dose of castor-oil given the night before, and an enema (once, or if necessary two or three times) on the morning of the operation. It is still better if the patient can come in a few days before the operation, and a slight cathartic is given during that time in addition to the above method.

Operation.—1. In lithotomy position. 2. Shaved and cleansed the perineum with soap and water. This cleaning was generally done in their rooms just before coming down to the operating theatre. It may be done just as well in the theatre preceding the operation. 3. The sphincter is thoroughly stretched with the fingers. 4. The rectum is cleansed with sterilised water or saline solution. 5 A piece of iodoform gauze is introduced into the rectum high up. 6. The incision between the skin and the mucous membrane is commenced at the right upper part (patient's left), and is carried round from the right to the left. 7. The incision is never made more than one inch at a time. 8. After cleaning out the pile tissue of the first part that part is closed with interrupted catgut sutures. The hæmorrhage is prevented by these sutures and there is no necessity for the artery forceps. 9. After closing the first portion the incision is carried farther round and the same thing done. In this way the operation is done by steps. The method of making an incision right round from the beginning, then clearing and suturing, causes a great deal of hæmorrhage, necessitating the use of a large number of artery forceps. The latter is inferior to the step method and is also severe. 10. Iodoform or simple sterilised gauze is applied to the wound and the operation is finished. At one time a piece of indiarubber tube was introduced partly into the rectum so as to help the escape of gas, but lately, finding that its presence often causes irritable contraction of the sphincter, it has been given up, but the gas escapes without much difficulty.

Some points requiring attention.—1. Leave as much skin as possible. Better cut the mucous membrane short than the skin. 2. The portions of elongated mucous membrane are cut off. 3. The hæmorrhage is stopped by the sutures applied to close the mucous membrane and skin and not by any special ligatures. 4. The sutures should be of catgut. 5. They ought not to be tied too tightly. 6. When done properly these sutures become loose in a few days and by the end of ten days no suture remains.

After-treatment.—1. Kept quiet in bed. 2. Fluid diet with some slops for nine days. 3. The bowels not to be opened for ten days. 4. Castor-oil or magnesium sulphate is given on the evening of the ninth day. 5. The patient is generally kept in the hospital at least 14 days.

Complications.—1. The pain after operation. This is relieved by the use of a morphia suppository and of subcutaneous injection of a small dose of morphia at the end of operation before the patient wakes up from the anæsthetic. The complete stretching of the sphincter makes a great deal of difference in the pain. 2. Hæmorrhage. There were one or two cases requiring ligaturing after operation for hæmorrhage, but there has been no bad hæmorrhage in all my cases. 3. Retention of urine. Many cases suffered from temporary retention of urine due to reflex action, but it was not necessary to pass a catheter in most cases. This is relieved usually by making the patient pass the urine in the sitting or standing posture in the usual manner. The lying position often aggravates it and makes it impossible for the patient to pass the urine. 4. In one case of extreme anæmia, caused by serious hæmorrhage from the internal piles, I operated after trying ineffectually various methods to stop continual hæmorrhage. The patient died suddenly from pulmonary embolism with sudden high temperature a few hours after the operation. It was one of my early cases, and since that time I have been careful to examine the condition of the blood before the operation.

The objections raised against the Whitehead operation.—1. It is not simple and it is often difficult to separate the mucous membrane and skin. If the sphincter is properly well stretched before the operation I never find any difficulty. 2. The time is too long compared with other kinds of treatment. In some books the time required for this operation is mentioned as an average of 30 minutes. I think it is too long. For myself, I spent about half an hour in my early cases owing to inexperience, but now I can do it from 10 to 15 minutes. 3. Too much hæmorrhage. If the operation is done by stages as mentioned above there is not much hæmorrhage. Of course, it is more than with other methods, but it is not serious enough to count it as an objection. 4. The mucous membrane becomes swollen a few days after operation and that the sutures cut into it, causing the disorganisation of the wound. It certainly becomes swollen in some cases, but if catgut is used and not tied too tightly it will be found that not much damage is done. 5. That a granulating surface is often formed between the mucous membrane and skin, and that its cicatricial contraction causes stricture. This is usually caused by the slipping or cutting out of the sutures due to early opening of bowels or to early exercise. So if the patient is kept quiet for 14 days and the bowels are not moved for 10 days this will not happen. 6. The injury of the sphincter ani. This is due to want of care on the part of the operator, and cannot really be considered as an objection.

After all, there is really no unremovable objection. The only objection I can think of is the time the patient is kept away from his work and also the desire of some patients for more substantial food during nine days following the operation. But these objections ought not to be considered when he thinks that he can be relieved for the rest of his life.

The number of my cases operated on is 176—124 males and 52 females. They were all treated by the same method and completely cured except in 7 cases—3 cases of stricture, 2 cases of ulcer on mucous membrane, 1 case of paralysis of the sphincter, and 1 case of pulmonary embolism. Of 3 cases of stricture 2 cases were patients in the Charity Hospital. They left the hospital a few days after operation and did not come to the hospital for some time. So the stricture was due to the early discharge and their carelessness. The other case was due to the early opening of bowels before the wound had had time to unite properly. Two cases of ulcer were due to leaving the mucous membrane too long, so that after the wound healed a portion of mucous membrane appeared outside the anus and the ulcer was formed by the rubbing of trousers. This could have been prevented by removing the mucous membrane at the time of operation. One

case complained of the inability to keep up the fæces, especially when suffering from diarrhœa. This case had the prolapse of rectum for eight years and even before the operation he was unable to hold up the fæces. So I do not consider this case to have been paralysed by the operation. As to the last case I mentioned this before. Three of these cases were done under a local anæsthetic. Of course, it was more difficult owing to the rigidity of the sphincter, but it can be done without much pain. In one case of prolapse it was fairly easy.

In conclusion, I wish to say that Whitehead's operation properly done is the most radical cure for internal hæmorrhoids and that it is no more serious than the other methods.

II. THE THYMUS TREATMENT OF CARCINOMA.

Although so much has been written about the treatment of cancer, yet even now the best treatment consists in the removal of the tumour by an operation. However, unless removed early it recurs and cannot be completely cured. In advanced cases we cannot resort to the knife and must treat them as best we can by other methods. I myself have tried the various methods recommended by well-known surgeons without any success. The methods were Coley's fluid, chloride zinc paste, trypsin, thyroid extract, &c. Finally, I have tried the thymus extract, and I found this more successful than the others. Thinking even any small contribution towards this important question is useful in solving this difficult problem, I dare to report the results of my own small experiences. An able paper on this subject was published by Dr. Frederick Gwyer, of New York, in the "Annals of Surgery," 1907, and I give the extracts from his paper before reporting my own cases.

Dr. Gwyer's Cases.

CASE 1.—Mrs. B., aged 49 years, married. The first operation for left breast cancer in 1899. The second operation for recurrence in 19 6. It recurred directly after and the X ray treatment was done without result. The patient was seen by Dr. Gwyer for the first time on April 1st, 1907. She had noticed the swelling of the supra-clavicular glands for the last two or three months. On examination: 1. Pain in the shoulder region, in the arm, in the breast region and scar, so great as to prevent sleep at night. 2. One or more glands just above the breast scar. A matted mass of glands beneath the clavicle, filling and bulging the sub-clavicular space. A mass of glands above the clavicle with several isolated glands in the neck region. The supra-clavicular mass about the size of a hen's egg, matted together and painful to touch. Several glands in the right side of the neck and some of considerable size in the right axilla. 3. The shoulder and arm showed marked swelling extending to the dorsum of the hand which was puffy. The patient was disinclined to move the arm from sense of weight and pain.

Treatment.—Thymus powder, one to four drachms, three or four times a day with sodium phosphate half an ounce a day for eliminatory purpose. The treatment was continued until April 27th, 1907. Then the reaction set in severely, with high temperature and severe pain, although the size of the tumours diminished, and it had to be given up for a time. Later it was continued. The results on May 7th: (1) disappearance of supra-clavicular glands; (2) disappearance of pain; (3) disappearance of œdema, pain, and recovery of the function of the arm; and (4) the character of the skin, which was hard, brawny, and pitted, changed and became soft and normal.

CASE 2. *X ray burn of hand.*—After one year's treatment the skin looked normal. The precancerous changes noticeable for the last five years have not reappeared.

CASE 3. *Cancer of the penis, with recurrence in the groin.*—A hopeless case. Free from pain and some diminution in size before death after this treatment.

CASE 4. *Cancer of the larynx with enlarged neck glands.*—Under treatment the glands diminished in size. Unfortunately, this case had to undergo tracheotomy, and septic pneumonia set in with fatal result.

CASE 5. *Cancer of the rectum.*—By this treatment the pain disappeared with diminution in size and the mass became moveable.

CASE 6. *Adeno-carcinoma and recurrent glands of neck.*—As results the glands diminished in size with disappearance of œdema and pain of arm.

The Preparation of Dried and Watery Extract.

The glands were received fresh, fat removed, cut up and dried at a low temperature by a forced draught of air, then ground and sifted to a uniform powder. Dose: 1 to 4 drachms three or four times a day. This was administered stirred in water about an hour before meals. The watery extract may be prepared from the dried gland as follows: To 8 ounces of a solution of sodium chloride (4 grains to the ounce), add a drachm of the dried powder and a little thymol. Frequently agitate for one hour. Strain and filter as rapidly as possible. After filtering twice, acetic acid 50 per cent. is added, using a 20 per cent. solution, with stirring, until a point of acidity is reached, which gives good flocculi on standing a minute or two. The precipitate is separated by filtration and redissolved, using about 1½ ounces of the solution. This solution is filtered twice, and to it is added acetic acid to acidity and good precipitation. The precipitate is again separated by filtration and redissolved in a solution of sodium carbonate (1 grain to the ounce of water), using 2 drachms of the solutions and adding thymol. This final solution is filtered three times or more and with a crystal of thymol will keep good in a refrigerator for an unknown time. Each drachm of the solution represents the products from half a drachm of the dried gland. The process for the production of an ounce of the extract takes about six hours. Distilled water should be used and the solution kept cool during manipulation. This fluid extract is administered either by mouth or hypodermically—up to 1 drachm.

Practical Results obtained by Dr. Gwyer.

1. Diminution or elimination of pain. 2. Diminution in the size. 3. Its use was followed by better digestion, by more regular action of bowels, and improvement of the general condition, as evidenced by a clearer skin and eyes, greater energy, and a general sense of health and well-being. Finally, he says that it is very necessary that during treatment every help be given towards elimination—the bowels kept slightly loose by phosphate of soda, the kidneys active by plenty of fluids, and the skin active by frequent baths. He also mentions that once the disintegration is started it may get beyond our control, and I can imagine a case with such an amount of cancerous tissue to be eliminated that under treatment an auto-intoxication of such severity might ensue as to prove fatal.

My Own Cases.

CASE 1. *Adeno-carcinoma of the glands of the neck.*—The patient aged 33 years, noticed a small swelling on the left side of the neck in front of the sterno-mastoid about three months ago. This became gradually larger, and besides more glands were said to have been felt later. There had been no fever or pain. The swelling was said to have varied in size sometimes. Lately the patient complained of pain in the throat and also some difficulty in breathing. On examination the patient was a well-built strong man. The neck was greatly swollen in front, especially on the left side. The skin was tense and somewhat shiny, with slightly enlarged vessels. It pitted on pressure. Slight pain and tenderness were present. The boundary of the tumour was indefinite, and it extended over the whole of the left across the middle line to the right side. Besides, small enlarged glands were felt. The consistency of the tumour was soft and not hard. There was nothing abnormal except slight congestion found in the throat. The left arm was swollen down to the fingers and it was twice as big as the right arm. He could not move this arm owing to loss of function.

As the patient complained of gradually increasing difficulty in breathing and swallowing, and besides the diagnosis was uncertain between the malignant and tuberculous, an operation was undertaken to ascertain. Two incisions were made over the left sterno-mastoid and some tissues were excised. Nothing came out through the incisions. The naked-eye appearance seemed to indicate its malignancy, and this was confirmed later by the microscopic examination of the excised tissues. As the radical operation was impossible the thymus treatment was started. It was given by the mouth. Two days after I noticed that the patient did not complain of pain in the throat and also seemed easier. Besides the tumour became more soft. Five days after some pus was discharged through the incisions. From then the tumour became softer and softer, and more and more pus was discharged. Once a large quantity escaped through the mouth. By that time the patient felt much easier and the difficulty in breathing had almost completely disappeared. But two months later the patient succumbed from sheer weakness, the result of cachexia. Results: (1) Disappearance of pain; (2) diminution in the size; (3) softening and suppuration; and (4) the swelling of the left arm was much diminished and the patient was able to move it a little.

CASE 2. *Carcinoma of the tongue.*—The patient was a woman, aged 54 years. She noticed a small painful ulcer on the right edge of the tongue about five months ago. She thought it was caused by a jagged tooth and did not take much notice at that time. She had the tooth out, but did not get better. In fact, the ulcer became larger. On examination the ulcer was extensive, spreading almost all over the tongue as far as could be seen. It was painful and the surface was irregular. The whole tongue was thickened and hard. The induration seemed to extend as far as the root of the tongue. Owing to pain and size the patient could not take food properly, and she was already showing the signs of cachexia. The glands under the jaw were enlarged. As it was impossible to do the radical operation the thymus treatment was resorted to. After a few doses the pain became much better and she could take food better. After a week's treatment the pain occurred very rarely. Besides, the tongue seemed to become darker in colour. The treatment was continued up till the time of her death six months later. An interesting fact was that the carcinomatous portion of tongue seemed to become necrotic, and it became separated altogether a few days before her death. Results: (1) Disappearance of pain; (2) the spreading of tumour did not seem to be so rapid as before; and (3) the tumour became necrosed.

CASE 3. *An extensive carcinoma of the penis and scrotum.*—The patient was a man 57 years old. He had noticed an ulcer on the gland of the penis a few months ago, and since then it had spread rapidly. He did not seem to have consulted any medical man. On examination the penis was almost indistinguishable owing to its destruction by the disease, and that portion was all one extensive cauliflower-like ulcerative tumour. The diagnosis was confirmed by microscope. The inguinal glands were affected on both sides and enlarged. He also complained of some pain. Nothing could be done by way of operation, and the thymus treatment was given. Pain disappeared.

CASE 4. *Carcinoma of the penis.*—The patient was a man, 56 years of age. He said he had had phimosis ever since a boy, and also noticed a small wart-like growth under the skin for a long time. Within the last few months he noticed a great deal of purulent discharge from under the skin, and in consequence he came up to Tokyo Hospital. On examination it was found to be the carcinoma of the penis secondary to the warty growth. The tumour affected the whole glans penis and also the surrounding skin. In the left inguinal region there were a few

slightly enlarged glands. Although there was a fear of recurrence, the penis was only amputated for two-thirds and the inguinal glands were not touched. Besides the thymus treatment was given for three months. There was no sign of recurrence 15 months later.

CASE 5.—*Spindle-celled sarcoma of the left scapula and a large tumour in the pelvis.*—A man, aged 53 years, noticed some lameness in the left leg for a long time. For the first time he found a tumour in the pelvis about three months ago, and then a secondary tumour in the scapula about a month ago. On examination a hard tumour of about the size of a big fist was found in the left pelvis. The tumour could be seen prominent just above the left Poupart's ligament on lying down. It was hard, unmoveable, and painless. There was some trouble in walking. The tumour at the back, of the size of a small fist, seemed to be of the same consistency and rose from the left scapula. It moved with that bone and was not attached to skin. The scapular tumour was removed and diagnosed as a spindle-celled sarcoma. As to the pelvic tumour nothing was attempted, but the thymus treatment was given. Before his death, four months after, the pelvic tumour became smaller to a slight extent by measure. The scapular tumour did not recur.

CASE 6. *A large tumour (sarcoma?) of the abdomen.*—A man, 62 years old, had a slight attack of acute appendicitis in June, 1909. It recurred in August and since that time a hard lump existed in that region. It had been getting larger, and I examined him in March of this year. The tumour occupied nearly the whole right side of the abdomen and was prominent. It was soft and in the centre there seemed to be semi-fluctuation. It was slightly painful, but there was no other trouble. It was said to have become softer within the last few days. The temperature had been always low. There was no trouble with the bowels. A diagnostic puncture was made and only dark-coloured blood was withdrawn. After consultation it was diagnosed as a malignant growth, probably sarcoma, and no operation was attempted. The patient was given the thymus powder and the slight pain disappeared, but the tumour got gradually larger and was said to have spread all over the abdomen by the time of his death three months later.

CASE 7.—This case was not one of my own, but was told me by Dr. Kishi, to whom I told my own experiences with the thymus gland. He tried it on his patient with a maliguant ulcer of the throat and he told me its result some time after. This patient was suffering a good deal from pain, but after two doses the pain was said to have disappeared.

For making the powder I used the fresh calf's thymus gland. It was dried under low temperature and ground into powder. I never tried the watery extract and only used the dry. It was given by the mouth and the doses were from 0·01 to 0·05 gramme twice a day between meals. It was usually best to give it in small doses at first, because it had a tendency to cause indigestion. In fact, after a few trials it was my habit to give sodium sulphate combined with it. In giving this treatment you must be careful with its preparation and also watch the effect of thymus on the general constitution.

The Results of My Experiences.

1. Pain. It is wonderful how the pain disappears. I cannot give any reason, but it is proved by my own cases. 2. The thymus powder seems to have some power of disintegrating the tissues of the malignant tumour by suppuration or necrotic changes. 3. The size of the tumour was in one case diminished, and in two cases became smaller by disintegration. 4. It seemed to retard the growth of the tumour. 5. It has more effect on carcinoma than on sarcoma. 6. Indigestion is liable to occur.

In conclusion, although the cases are few, yet I should like to say that this treatment might be adopted in inoperable cases, because it lightens the course of disease and makes the final end more comfortable and easy. Of course, this treatment will not bring about a radical cure, but I think it is useful in the advanced cases.

III. TWO CASES OF INTESTINAL PERFORATION IN TYPHOID FEVER.

In Japan typhoid fever cases almost exclusively belong to physicians, and we surgeons are rarely given an opportunity to operate on them. Before describing the two cases allow me to give a brief general account of typhoid perforation. The following table is taken from the reports of Pennsylvania University Medical School:—

—	Total.	Death.	Perforation.	Operation.	Non-operation.	Cured by operation.
1903–4	509	35	8	5	3	0
1904–5	749	56	16	12	4	5
1905–6	690	65	26	20	6	7
1906	462	34	10	8	2	0
1905–6	596	55	18	9	9	0
1906–7	700	64	13	17	1	4
1907–8	524	43	14	9	5	4
—	4230	349	111	80	30	20

Percentage of death, 8·22; perforation, 2·6; perforation to mortality, 31·0; and cure by operation, 26·55.

Situation of perforation.—It is generally found in the ileum, especially within 1 foot of the ileo-cæcal valve. Some cases occurring in the cæcum, appendix, colon, and sigmoid have been reported, but they are few in number. In the small intestine the perforation is very small, and usually only one, but sometimes multiple (pin-point perforation), situated at the thinned base of the ulcer. In the large intestine it is larger and measures from 1·5 to 3·0 cm. across.

Period of perforation.—This occurs mostly towards the end of the second week or during the third week, but it may occur within the first few days or during convalescence.

Symptoms and signs.—They are indefinite and the diagnosis is often very difficult. They may occur suddenly or gradually. Early signs: 1. Pain, sudden and severe. Mostly spasmodic, but may be continuous. Generally limited to the right side of the abdomen, but at times felt in the left side, bladder, testicle, &c. 2. Rigor, vomiting. Recognised in a few cases. 3. Tenderness, generally present. 4. Rigidity of the abdominal wall. Marked on the right side. 5. Increase of the arterial tension. 6. Abdominal distension not marked at first, and, in fact, often flat or even hollow. 7. Abdominal respiration gradually disappears. 8. Liver dulness sometimes disappears, often very quickly. 9. Hæmorrhage and accumulation of gas are often suggestive signs. Later signs: 1. Abdominal face, peculiar to acute peritonitis. 2. No mental disturbance. 3. Pulse, small and quick. 4. Respiration quick and shallow, thoracic, and not abdominal. 5. Abdomen becomes markedly distended, tympanitic, and tender all over. 6. Dulness of the flanks, changeable on movement, recognised sometimes. 7. Peristalsis not seen. 8. Vomiting. 9. Skin cold and clammy. 10. Temperature becomes low, at times subnormal, but soon rises above the former temperature and becomes high. 11. Blood sometimes recognised in the fæces.

Treatment.—There is nothing but laparotomy and closure of perforation. Laparotomy was first recommended by Professor Leyden in 1884 and was first put into practice by Professor Mikulicz in the same year. Since then Wilson, Keen, Elsberg, and several others have followed. The results have so far been not very satisfactory, but there has been gradual improvement within the last few years.

CASE 1.—The patient was a man, aged 26 years, a farmer. He was naturally strong. He had had measles when a baby, and had been vaccinated several times. He had never suffered from any serious illness, and had never smoked or drunk. On the Christmas Day of 1909, when he was getting up from a chair, he suddenly felt a pain shooting from the right side of the abdomen to the back. After that he had a slight attack of rigor and coughing with some rise of temperature. He was seen by a medical man and was told that he had caught cold. On the 29th he went to his home in the country, and although he had no abdominal pain again his appetite decreased and he felt generally weak. Besides, he had some fever and at times rigor followed by high temperature. On Jan. 9th, 1910, he went up to Tokyo as he was feeling better, and for three days worked on his farm. But all the time he was never well and took to bed again on the 14th owing to several attacks of rigor. Since the beginning of his illness he had had attacks of diarrhœa several times a day. At 2 A.M. on the 16th he felt a desire and went to the lavatory. There was no motion, but he suddenly felt a severe abdominal pain which doubled him up. He called in a doctor without any effect, and coming to Tokyo Hospital two days after was admitted at once. The doctor who attended him told me that the patient vomited fæcal matter twice early on the 18th before coming to the hospital.

Examination on admission resulted as follows: Normal constitution. Nutrition somewhat below normal; no anæmia; nothing abnormal in head, limbs, &c.; knee-jerks slightly decreased; facies abdominal. Digestive system: Appetite completely gone; severe thirst; sick feeling and vomiting; foul breath. When foul gas comes out into the mouth he complains of severe pain running from the epigastric region to the right side of abdomen. Had no motion since the 16th. The tongue covered with thick yellowish-brown fur. Abdomen markedly distended. Abdominal wall rigid and does not move with respiration. Resistant and tender all over, especially on the right side. On percussion tympanitic all over except on the left side, where a slight dulness obtained. Splenic dulness not obtained and liver dulness normal. Cardiac system: Pulse rapid and of weak tension. Apex beat is situated within one finger's breadth of left nipple line. Heart sounds normal and somewhat exaggerated. Peripheral arteries could not be felt. Respiratory system: Chest normal. Respiration short and shallow. Nasal respiration noticed. Nervous system: Nothing abnormal found. Urine: No difficulty in passing. Slight trace of albumin.

Immediately after admission a rectal bougie was passed for 1 foot 2 inches and about 50 grammes of yellowish-white cream-like mucous fæces obtained. A 1000 grammes rectal saline injection was given but was discharged at once. About 2 A.M. on the 19th 300 grammes of foul yellowish-green lumps were vomited. At 4 A.M. he complained of severe abdominal pain and looked very ill. His temperature was 37·8 C., and his pulse was 120 and weak. At 9 A.M. operation was performed under chloroform and ether. The duration of the operation was 43 minutes.

Operation.—An incision was made 12 cm. long along the linea alba, and on reaching the peritoneal cavity the great omentum and intestine were found slightly inflamed and beginning to adhere. From the cavity a large quantity of foul sero-purulent fluid was discharged, and as it seemed to come out chiefly from the appendix region another incision

along the semilunar line was made. On examining the appendix region the appendix was found to be slightly swollen and red and adherent to the cæcum. It was excised at the root. Further examination showed the pelvis full of fæcal-smelling fluid and yellow, thick, pultaceous fæcal matter, and the ileum was found to be perforated in two places—one about 20 cm. from the valve, and the other 10 cm. further distant. They were pin-hole perforations, and discharging the intestinal contents. The intestine and omentum were adherent to the pelvic contents. The perforations were closed with Lembert suture, and the pelvis, &c., were wiped clean as much as possible by gauze (no washing was done). The abdominal wound at the linea alba was closed, but the other was left open. The patient woke up from the anæsthetic at 1 P.M., and then slept without complaining of pain. At 4.30 P.M. there were no vomiting and no abdominal pain except when coughing. The temperature rose to 39·3° C. There was marked thirst. Rectal saline injection was commenced. At 8 P.M. there was not much change. The pulse was 132, somewhat irregular but of good tension. Respiration was 42. Nasal respiration was noticed. A blister was applied to the arm for serum examination. At 1 P.M. a small quantity of bile was vomited twice. The epigastric region was slightly distended. The patient was sleepless and uneasy. An opium pill was given. On Jan. 20th, at 4 A.M., he vomited a small quantity of bile. Half an hour later hiccough appeared and continued for a time with short intervals. At 6 A.M. he vomited again. The epigastric distension increased and there was slight general abdominal distension. Tympanites was present. The pulse was 120 and the respiration was 30. The temperature came down and never rose above 37·2° C. Diazo reaction was positive. At 10.30 A.M. the distension had increased a good deal. The stomach contents were aspirated and about 500 grammes of green-coloured bile and a large amount of gas were discharged. Washed out with saline solution. The distended epigastrium immediately retracted and the patient felt much better. Tincture of digitalis and strychnine were prescribed. After this the respiration became much better and no working of the alæ nasi was present. At 6 A.M. the general distension was not so marked. There was no resistance. Resonant all over. Tenderness disappeared except round the open wound. The epigastric distension was slight. The pulse was 106 and the respiration was 28. At 11 P.M. sleeplessness, nausea, and hiccough appeared. Subcutaneous injections of morphia 0·01 gramme and atropin 0·001 gramme were given, and immediately the nausea and hiccough stopped. The patient slept from about 12 to 4 A.M. On the morning of the 21st the patient felt much better and the appetite appeared. He asked for milk but it was not given. So far only water had been given. The general symptoms improved. At 10 A.M. there was a reappearance of epigastric distension, nausea, and hiccough. The stomach was aspirated and about 650 grammes of green-coloured fluid were obtained. It was washed out again with saline and the patient felt much better. His general condition was better and he only complained of nausea, hiccough, &c., when the fluid accumulated in the stomach. At 7 P.M. about 250 grammes of stomach contents were again aspirated. At 11 P.M. peristalsis and intestinal rumbling were noticed for the first time. The pulse was 110 to 120 and the respirations were 24 to 30. The temperature was slightly raised and reached 38·2° at midnight. On the 22nd at 4 A.M. gas was passed for the first time, after that several times, and the abdominal distension gradually disappeared. In the afternoon there was a desire for motion without any result. At 5.30 P.M., by an ordinary soap enema, about 50 grammes of green mucous matter were discharged. At the same time a large quantity of gas came out and the abdominal distension decreased rapidly. The pulse was 120 to 126. Respiration diminished from 36 to 18 by midnight. The temperature was lowered from 38·9° C. to 37·4°. On the 23rd Widal reaction was positive. There was no vomiting or hiccough. A small quantity of fluid motion was passed naturally at 9.30 A.M.; after that six times before 11 P.M. For the first time milk was given by the mouth. The temperature never rose above 38·0° C. After this day the general conditions improved daily in spite of some rise of temperature. On the 27th the gauze in the wound was completely changed for the first time, and although there was some foul discharge for a time it got gradually clean. The patient was discharged completely cured after 70 days, and he is now working as well as ever.

CASE 2.—A man, aged 50 years, a commercial, was admitted to hospital on Oct. 26th, 1909, and discharged March 28th, 1910. He had suffered from dysentery, and since then had some trouble with rectal prolapse. On Oct. 19th he suddenly felt rigor and shivering, with general malaise. The appetite diminished, and after several attacks of rigor he took to bed on the 23rd. He was seen by a doctor on the 24th, and on that day the temperature was 39° C., with marked thirst, pain in the parietal region, general weakness, lumbar dull pain, and slight distension of the abdomen without any pain. As the symptoms seemed to get worse the patient came to Tokyo Hospital and was admitted. Digestive system: Appetite bad. Severe thirst. Tongue covered with thick fur. Abdomen generally slightly distended and resistant. No apparent enlargement of spleen. Tenderness in the appendix region. No motion for the last four days. On admission the temperature was 39·1° C.; the pulse was 104, good and full tension; and the respiration was 28. Since admission the general conditions improved and the temperature came down gradually, but on the fourth day hiccough appeared. On Nov. 1st there were about 300 grammes of rectal hæmorrhage, followed by subnormal temperature (36·3° C.). On the 2nd the patient suddenly complained of somewhat severe pain round the umbilicus, and the abdomen became rapidly distended, with increasing difficulty in breathing. Hiccough continued and nothing was kept down. Liver dulness was indefinite. Urine, 0·5 per cent. of albumin. Diazo reaction positive. Blood corpuscles were recognised in the fæces. Widal's reaction was positive. As the symptoms continued laparotomy was performed on the 3rd.

Operation.—An incision was made along the right semilunar line so as to expose the appendix region, and on entering the peritoneal cavity the large intestine was found to be much distended, due probably to paralysis. The ileum for about 5 inches close to the cæcum was collapsed and bound down by recent inflammatory adhesion. No perforation was seen, but at the adherent portion of the ileum a necrotic ulcer with thinned base was recognised. In the pelvis there was a slight quantity of serous fluid. The distended intestine was punctured and gas let out. Finally, although no perforation could be discovered, yet there was much doubt in the thinned ulcer; that portion was brought out to the wound and stitched there so as to prevent future disaster. After operation the distension and pain disappeared, but hiccough still persisted. In a short time the temperature became higher, the abdomen again distended, there was increasing difficulty in breathing, and no passage of gas or fæces. The same symptoms continued for two days, and on the third day 0·0003 gramme of etherine was injected subcutaneously three times with two hours of intervals. At the end of this time there was passage of gas, and the abdominal distension became gradually lessened. General improvement set in with increasing appetite, and on Dec. 25th the temperature became normal. An interesting fact was that about a fortnight after operation an escape of gas was noticed, followed a few days later with slight discharge of fæces through a small perforation at the suspected thinned base of the ulcer. The patient was soon out of danger, but owing to non-healing of the fæcal fistula he was not discharged until March 28th, 1910. Before operation the temperature was 36·8° C., the pulse was 98, and the respiration was 22. After operation the temperature was 37·6° C., the pulse was 110, and the respiration was 20. The duration of the operation was 27 minutes.

Summary.

1. Period of perforation: Case 1, twenty-second day. Case 2, thirteenth day. In this case the perforation was not definitely confirmed but only suspected. 2. Situation: in the last 1 foot of ileum. 3. Size: pin-hole. 4. Symptoms: both had sudden severe pain. In the second case this was preceded by rectal hæmorrhage. Liver dulness was indefinite. 5. As regards the treatment, laparotomy with rectal saline injection in moderate Fowler's position. Some medical men object to laparotomy on the patient's supposed weakness, but I found them resistant beyond my expectation and bore the ordeal well. So I recommend immediate operation except in cases suffering from profound shock.

(*To be continued.*)

ON THE CONDITION CALLED "FALLING OF THE WOMB,"

WITH SPECIAL REFERENCE TO THE OPERATIVE TREATMENT OF THE MORE SEVERE CASES.

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DURING the last four years I have been adopting for the radical cure of severe cases of procidentia a multiple plastic operation which includes vagino-fixation of the anteverted uterus, and the results obtained have been so satisfactory that I wish to report progress in a concise practical paper.

Nature of the Lesions to be Treated.

The lesions associated together in the condition under consideration constitute one of the most palpable and unmistakable of gynæcological diseases. When fully developed the following constituents are present: (*a*) Descent of the uterus with retroversion and some retroflexion; (*b*) hypertrophy of the uterus, especially of the cervix, with hypertrophy of the labia uteri, most marked when there is laceration of the cervix; (*c*) descent of the anterior vaginal wall accompanied by the bladder forming a "cystocele," so that a large part of the bladder may be outside the vulva; (*d*) descent of the posterior vaginal wall; (*e*) there may be descent of the rectum into the hernial tumour forming a "rectocele," but the rectum does not necessarily follow the descent of the posterior vaginal wall in the way that the bladder descends with the anterior wall; (*f*) the pouch of Douglas tends to descend into the hernial tumour and in extreme cases both omentum and gut may be found there, but this is not common.

The variations in the degree to which these different factors enter into the procident tumour are notable. A large procidentia may be found to consist of cystocele or rectocele without any protrusion of the uterus, but in all cases the patient complains of "falling of the womb." Let us take a typical case of severe procidentia such as may be seen at any out-patient clinic. A woman advances with slow, cautious tread, carefully avoiding any jerk as she plants her feet and letting herself down gently into a chair; for a woman who walks with a long stride and firmly planted heels and "throws herself on to a seat" has no uterine displacement. Many of the patients are poor, overworked, and ill-nourished; some are obese, with signs of emphysema and chronic cough, and are made worse by abdominal expiratory pressure; some are in fair general condition.

In making a local examination it must be remembered that the semi-prone position tends to minimise the local signs by causing reduction of the tumour. In this position it is often

useful to seize the anterior lip of the cervix with a vulsella and gently draw the uterus outside in order to estimate the full extent of the displacement. If the patient be examined in the erect position after she has been walking and exerting herself the full size of the hernial protrusion can be observed, and as she coughs the great expiratory force perceptible will give a good idea of the problem before the operator, who seeks to permanently reduce the procidentia and neutralise the forces which tend to make it recur. This is a matter that must be clearly understood before proceeding to radical operation.

When the vaginal walls are constantly inverted they become almost exactly like skin without hair follicles. They may show redness or excoriation or even extensive ulceration, the ulcer being on the cervix or vaginal wall and due to pressure or friction. Purulent discharge or hæmorrhage may be associated with the ulceration. When the cystocele is marked, the meatus urinarius is often somewhat dilated, and there may be prolapse of the urethral mucosa; also there may be some loss of control of the sphincter vesicæ, with escape of urine on coughing, and this will increase the soreness and excoriation of surrounding parts, including the thighs. Some amount of cystitis frequently complicates cystocele, and after operation the patient will not be comfortable till this is cured.

The os uteri externum is usually prominent, slightly patulous, with hypertrophied labia. If the cervix be grasped between the finger and thumb the increased size and thickness can be estimated and the thickening of the vaginal mucosa will be noticed also. The uterine sound passes upwards and backwards for more than the normal distance, say 3½ inches, 4½ inches, or even 5 inches. The retroflexed fundus can be sometimes felt outside the vulva behind the cervix. Schroeder in his "Krankheiten der Weiblichen Geschlechtsorgane" gives a figure of a uterus procident in anteflexion, but I never saw such a case myself. In very chronic cases in women past the menopause the uterus may be small and atrophic and the cervical canal occluded. The amount of rectocele can be estimated by digital rectal examination. When hardened fæcal masses pass into a rectocele there will be discomfort and difficulty in emptying the rectum.

The symptoms complained of vary much in degree in different cases. Almost always there is a sensation of weakness, dragging and bearing-down, and of incapacity to work. When the parts are inflamed, ulcerated, and bleeding there is more suffering, and the patient may even be bedridden. Still, on the whole, the conditions under discussion cannot be described as acutely painful. It is surprising how much some women accomplish in severe cases without seeking relief, and how relatively slight the symptoms may be when the hernial tumour is large. On the other hand, women may complain loudly of bearing-down and of sacral and inguinal pain when only a moderate degree of retroflexion with little descent of the uterus can be detected. But in all gynæcological work we may observe a notable want of correspondence between the symptoms complained of and the lesion found. This is partly a matter of constitution. In Leeds we see a large number of Polish Jewesses, and their complaints of subjective symptoms are always greatly in excess of the complaints of ordinary patients with similar lesions. It need hardly be said that chronic inversion of the vagina with the consequent inhibition of function, is a cause of distress to the patient, who is practically unsexed.

Procidentia does not become extremely bad all at once. Most of the patients trace their trouble to one or more previous labours. A common history is that there was prolapse after one labour; then that the falling got a good deal better, being easily kept up by a pessary of the Hodge or ring type; that after the next labour the condition was worse and pessaries less effective, and that things have grown gradually worse ever since. Probably the condition has been aggravated by some recent strain, such as lifting an invalid or an attack of bronchitis. A large number of cases seem to occur in young women who have had a child, have returned at once to hard domestic service, concealing their uterine trouble and working hard to support the child. The worst cases are seen among the indigent, and insufficient animal food and the consequent muscular weakness are contributing factors. Neglect is almost always another factor. Some women will suffer for years with steadily increasing "falling" without seeking any advice or relief whatever.

Palliative Treatment.

Even the worst cases will improve temporarily by confinement to bed. Ulcers will heal, irritation diminish, and the uterus as measured by the sound will become an inch or two less if retained in position. This is worth noting when preparing a patient for operation. When after labour there is any tendency to prolapse it is important to remember that with rest and proper mechanical support there is a distinct tendency to cure which is not observed in chronic cases. It is an excellent thing to insist that if on rising from child-bed bearing down is felt the patient should be treated by recumbency and vaginal support till this symptom is lost. Much subsequent suffering might thus be saved.

In well-marked procidentia simple vaginal pessaries are very ineffective. Ring pessaries and Hodge's pessaries, which obtain support from the vaginal walls, are soon expelled, especially on straining and in defæcation. The expanding pessary of the Zwanck type is bad in principle, for it can hold its position only by pressing to a dangerous extent on the vaginal walls, and if through corrosion of the screw the pessary becomes fixed and impacted most disastrous ulceration may result. I have seen such a patient with one blade in the bladder and one in the rectum. The kidney-shaped "shelf pessary," which the patient herself cannot withdraw, is more dangerous still. It is long since any patient came to this infirmary with a vulcanite or boxwood ball in the vagina. At one time these were not uncommon, and sometimes they were found firmly impacted and very difficult to extract. The last one I had to treat I extracted with an obstetric fillet.

For the support of procidentia to obtain relief patients may wear a perineal pad with attachment to an abdominal belt. This does not cure, but gives decided relief to the bearing down and prevents some of the worst and inoperable cases from being quite incapacitated.

The best palliative, however, is a vaginal cup-and-stem with external support by elastic cords to the waist. There are several patterns on the market. A good form, modelled on that depicted by Robert Barnes in his "Diseases of Women," is made for me by Wood and Co. of York. The cups are made in four sizes, and the stems (which are interchangeable) in two sizes. A simple waist band is supplied with each pessary, but it is far better to order the patient a well-fitting abdominal belt and to attach the supporting cords to that. The pessary is taken out every night, cleaned, and replaced in the morning, and thus it does not become foul; moreover, the pressure is taken off the vaginal wall all night, so that there is little danger of ulceration, especially if the vagina is properly douched.

Operative Treatment.

In all hernial protrusions the modern surgeon aims at radical cure rather than palliation by trusses. Procidentia means constant discomfort, for the best fitting pessary is but a foreign body which tends to cause irritation and leucorrhœa, and it usually becomes less efficient as time goes on. Operation should be advised in all suitable cases, and should not be deferred till the case becomes very bad.

Certain preliminary considerations must be taken into account in planning an operation.

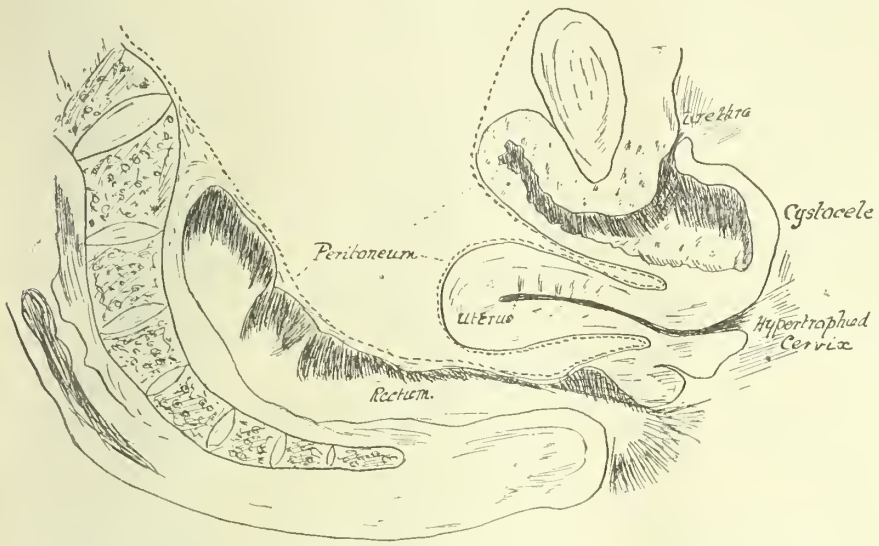
1. Any operation that is performed will be very severely tested by time and expiratory strain, by the constant strain of defæcation when constipation is present, by chronic coughing, and by hard domestic work. It is easy to obtain an immediate result that looks satisfactory, but much more difficult to obtain permanent cure. Two years or less will undo the work of most of the older plastic operations.

2. The least stable procedure is anterior colporrhaphy performed for cystocele. Here there is so little tissue to work upon except loose connective tissue and mucous membrane.

3 The posterior vaginal wall and subjacent tissues offer much better material for plastic surgery, for one can stitch muscle to muscle and fascia to fascia, and by the method of buried catgut suture a substantial perineal body can be built up, as is shown by the great success of our present methods of perineorrhaphy.

4. We must not fall into the fallacy of thinking that the conditions loosely called "falling of the womb" can be cured by vaginal hysterectomy. After such an operation the patient is only too likely to come back with a large hernial tumour consisting of inverted vaginal walls with cystocele. The removal of the uterus leaves a gap in the pelvic floor which is a cause of weakness.

FIG. 1.



Illustrates the relation of the parts in a case of procidentia of moderate severity with bad cystocele.

5. To treat procidentia by hysterectomy and excision of the vagina is to acknowledge oneself beaten, and entails a mutilation to which a woman may well refuse to submit.

6. Fixing the fundus to the abdominal wall by ventrifixation without any further measures will not cure descent of the vaginal walls. I have more than once seen patients on whom ventrifixation had been performed who returned after some months with the cervix protruding from the vulva, the fundus still fixed above, but the whole uterus so stretched that the sound could be passed five or six inches within the os externum. This applies also to operations upon the round ligaments as a remedy for procidentia.

7. If there be hypertrophy and elongation of the cervix amputation greatly assists cure, for a thickened enlarged cervix acts as a kind of foreign body in the vagina, being pushed downwards during defæcation and other expiratory strains and acting like a wedge in dilating the vagina after it has been narrowed by operation.

8. Narrowing the vagina by anterior and posterior colporrhaphy is not a satisfactory operation by itself for curing procidentia, although cases of moderate severity can be improved for a time. The cervix tends to descend, dilating the vagina and reproducing the original condition. The cystocele is very likely to recur.

9. Further child-bearing tends to undo all operations for procidentia. It is not safe to perform the most radical operation, such as that to be described immediately, unless the woman is past child-bearing or unless the operation is combined with partial salpingectomy to cause sterilisation.

In general I do not operate by the radical method before 35, and I choose cases with care after the age of 60 has been reached. After that age the shock of a long operation is not so well borne, and one must be quite satisfied as to the condition of the vessels and of the principal organs before attempting it.

The operation I am about to describe is a multiple plastic operation with vagino-fixation of the uterus so as to support the bladder, with amputation of the redundant cervix, with anterior and posterior colporrhaphy and perineauxesis and with partial salpingectomy if indicated. The two special features are the use of the uterine body to buttress up the bladder and cure the cystocele, and also the *thorough dealing with all the different constituents* of the procidentia. The operation so far as I know is Wertheim's, and it will be found described in his "Technik der Vaginalenhauchöhlen Operationen" and in Doederlein und Kroenig's "Operative Gynaekologie." It may be assumed that no one is likely to undertake the operation who is not familiar with the application of aseptic principles to vaginal surgery, and who has not some experience of plastic gynæcological work. Be careful to cover the anus by fixing a towel across the perineum as part of the aseptic technique. Ordinary blunt towel clips will hold it up without wounding the skin of the patient.

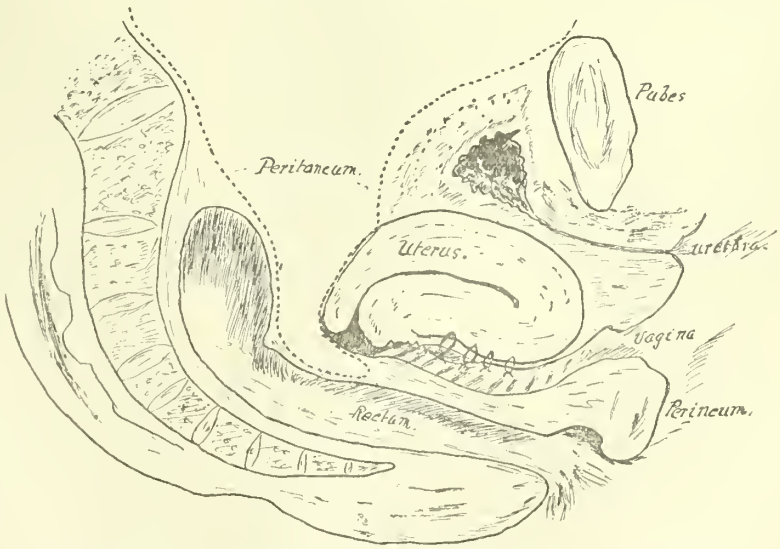
The Operation.

I. Draw down the cervix to the full extent. Dissect off a flap of mucous membrane from the anterior vaginal wall, commence just below the meatus urinarius, and take away the redundant tissue which sometimes projects there. The width of the flap depends on the size of the cystocele.

II. Separate the bladder from the cervix and push it up as far as possible. Also separate the cut vaginal edge from the bladder for a short distance all round the incision, so that the bladder can be pushed up a little further all round.

III. Measure the uterus with the sound. Make an incision round all the cervix and strip the tissues as high as you wish to amputate. It is easy to strip the cervix, and with care one can usually avoid opening the peritoneal cavity posteriorly. But if this is opened it can be easily closed with a purse-string suture. Split up the cervix on each side with scissors till the sound passes little more than the normal distance and then amputate the labia. Before amputating, hæmorrhage can be saved by passing a catgut suture through the base of the broad ligament on each side. I always amputate the anterior lip first and pass a strong catgut suture through the centre of the anterior edge of the cervix leaving the ends long. These held with a clip form a useful guide to bring the anterior lip into view at any time during the operation. The vaginal edge is then stitched to the cervical mucosa all round the cervix.

FIG. 2.



Shows relation of parts as altered by operation. The uterus is seen fixed in anteversion, sutured to the anterior vaginal wall. The utero-vesical pouch of peritoneum is obliterated, and the posterior uterine wall, now become anterior, supports the posterior vesical wall, which is so pushed up that the cystocele has disappeared.

IV. Open the anterior cul-de-sac and draw the fundus of the uterus into the vagina through the peritoneal incision. Two small hooks on long handles, like Sims's uterine hooks, will make it easy to draw down the fundus if they are passed "hand over hand."

V. At this stage it is easy to excise a small segment of each oviduct. If myomatous nodules are seen on the uterus they can also be excised at this point.

VI. Fix the uterus in anteversion to the vaginal edge, bringing the fundus near the meatus urinarius and being careful to push up the bladder. In my earlier operations I passed the sutures through the uterus and then returned the fundus into the abdomen and brought the sutures through peritoneal edge and vaginal edge and then tied them. In my later cases I have not returned the uterus through the peritoneal incision, but stitched it to the vaginal edge as directed by Wertheim. I have not hitherto stitched the peritoneum to the posterior uterine wall as he does, and this does not seem to make any difference. I use catgut throughout. Fixing the uterus in this new position is now called *Interpositio uteri vesico-vaginalis*.

VII. Close the anterior vaginal incision with continuous catgut sutures. Commence from the uterine end, which is easily brought into reach by drawing on the long catgut suture passed as a guide in stage III.

VIII. Dissect a triangular flap from the posterior vaginal wall. Close with interrupted catgut sutures, being careful to draw the deeper parts together with buried catgut sutures. A good perineal body can thus be built up and the perineum can be increased at discretion. The hæmorrhage is checked as the sutures are tied.

When the operation is finished the anterior vaginal wall is concave instead of bulging. The vagina should be so narrow that it seems as though too much narrowing had been done. When the sutures have come away the narrowing will be only moderate. The amputation of the redundant cervix or of prominent labia is important, for if they be left the cervix may be found later elongated and presenting at the vulva. The posterior colporrhaphy must not be omitted. It is very important that the operation should be thorough. In some of my earlier cases I did not do enough.

In young women where further child-bearing may be expected, and where one does not think it right to sterilise, a moderate amount of vaginal narrowing may be done and the uterus fastened up by ventri-fixation. Some relapse may follow another pregnancy, but I do not know how to allow for further child-bearing without running risk of recurrence of the procidentia.

From the spring of 1906 to the present time I have performed this operation about 84 times. With the exception of one case that died, which is referred to below, the immediate result has been good in all; that is to say, the wounds have all healed well and convalescence has not been retarded by any serious complication. It is too early to estimate the permanent result of many of these, and in all of them one would desire a later report than is at present available, and which I hope in due time to publish. I have investigated the present state of the first 40. Several I have failed to find, as happens in all inquiries after old hospital cases. But in those I have examined or heard from the results are so much better than anything I have obtained before that I give a short interim report of them. I have told the worst I know as well as the best about the series. I have no reason to think that my later cases are not turning out as well as the former; I think they are rather better. In the after-treatment the vagina must be douched sufficiently to make sure that clots of blood are not lodged in the upper part of the narrowed vagina, and that there is no accumulation of discharge there.

In reviewing such cases it is important to note not only the present anatomical condition of the parts but to inquire whether the patient has lost her subjective symptoms also. When a woman has neuralgic pelvic pain, only a very rash and inexperienced man would venture to promise complete and lasting cure by any operation known to surgery. In any case of uterine displacement it is notoriously difficult to get rid of the last trace of "bearing down" on exertion. Allowance must be made for this in estimating the results in a series such as that which follows. Nevertheless I have been much struck with the success of the operation and with the improvement in general health and condition which many of the patients have experienced.

Cases of Radical Operation for Procidentia.

CASE 1.—V.-para, aged 34; procidentia with bad cystocele; two previous operations by others had failed. On March 10th, 1906, she was treated by anterior and posterior colporrhaphy, with vagino-fixation and salpingectomy. Three and a half years later she reported herself as better, being able to do all her work except heavy washing, which caused bearing-down pain. She was emphatic as to the benefit received from the operation.

CASE 2.—Nullipara, aged 45; procidentia of two years' standing, bad cystocele, ulcerated vaginal mucosa, and sound passed 5½ inches. On June 23rd, 1906, there were performed anterior and posterior colporrhaphy, with amputation of 2½ inches of the cervix, enucleation of small myoma, and vagino-fixation. A note was made at the time of the operation that the case was so bad that a cure would be a specially good test of the operation. Three years and four months later I examined her and found no prolapse whatever, and there were no symptoms.

CASE 3.—V.-para, aged 39; bad case of procidentia; sound = 5½ inches. Here also a note was made that this would be a test case. On July 3rd, 1906, anterior and posterior colporrhaphy were performed, with amputation of 2½ inches of the cervix and vagino-fixation. Three years and four months later the patient wrote: "Before operation I was a great sufferer. I was bedfast, on and off, for seven years, and was in a cruel state. I am all right now and can walk about. I think that the operation has cured me, and I feel quite well. No more children since."

CASE 4.—VII.-para, aged 56; procidentia and prolapse of both vaginal walls "as big as her fist." On July 14th, 1906, anterior and posterior colporrhaphy with vagino-fixation were undertaken. Three and a quarter years later the patient wrote: "I am very glad to say that I have not had any further trouble; since the operation I have not had anything to complain of."

CASE 5.—X.-para, aged 48; procidentia for two years. On June 25th, 1906, anterior and posterior colporrhaphy were performed, with amputation of 2½ inches of the cervix and vagino-fixation. Three years and four months later the patient wrote: "Operation successful, feel quite well."

CASE 6.—Multipara, aged 51; bad cystocele which no instrument would keep up. On May 23rd, 1906, anterior colporrhaphy with vagino-fixation was performed. I saw the patient three and a half years later. The cystocele was very much better, but not perfectly cured. This was one of my earlier operations in this series, and was not sufficiently extensive.

CASE 7.—III.-para, aged 49: cystocele and rectocele. On July 28th, 1906, anterior and posterior colporrhaphy were performed, with amputation of anterior labium and vagino-fixation. Three and a half years later, when the patient was seen by me, the result was excellent, the vagina was narrow, and there was no prolapse. She said that she felt some hearing down when she was costive.

CASE 8.—XI.-para, aged 47; bad cystocele, with matted and adherent appendages due to old inflammation. On Sept. 6th, 1906, anterior colporrhaphy was performed, with removal of the appendages and vagino-fixation. I heard from the patient in October, 1909. The report is uncertain; the patient seemed to have pains in the body, but she did not complain of prolapse.

CASE 9.—IX.-para, aged 49; chronic procidentia, "always outside." On Sept. 9th, 1906, anterior and posterior colporrhaphy were performed with vagino-fixation. When the patient was examined by me three years later the result was excellent, and she could walk well.

CASE 10.—VI.-para, aged 40; enormous procidentia with hypertrophied cervix; sound = 5 inches; eight years' history. On Jan. 22nd, 1907, anterior colporrhaphy, amputation of the cervix (two and a half inches), salpingectomy and vagino-fixation were performed. Two years and nine months later, when the patient was examined by me, the result seemed perfect. She said that she was "champion" since the operation, while she had been "miserable" for eight years previously.

CASE 11.—II.-para, aged 42; moderate amount of prolapse; much complaint of abdominal pain and bearing down; highly neurotic. On Feb. 26th, 1907, anterior and posterior colporrhaphy, with vagino-fixation were performed. The after-history is noteworthy. I saw her several times. The anatomical result seemed excellent, but she complained loudly of bearing down "all over the abdomen," and thought that all her viscera were falling. Her medical man agreed with me that she was neurotic to the verge of insanity. I cannot see that the operation has made her mental state better or worse.

CASE 12.—VI.-para, aged 58; procidentia with marked cystocele. In March, 1907, anterior colporrhaphy with vagino-fixation was performed. In October, 1909, the uterus was found in very good position, and no symptoms were complained of. There was a very little prolapse of the anterior vaginal wall on coughing, but not more than many women have who make no complaint.

CASE 13.—VII.-para, aged 40; procidentia with defective perineum. On April 15th, 1907, anterior colporrhaphy was performed, with salpingectomy and vagino-fixation and posterior colpoperineorrhaphy. When the patient was seen by me one and a quarter years later the parts were in excellent position; she complained of a little bearing-down pain on exertion.

CASE 14.—V.-para, aged 54; procidentia and cystocele of moderate severity; perineum lacerated. On Dec. 14th, 1907, anterior colporrhaphy, vagino-fixation, and posterior colpoperineorrhaphy were performed. In November, 1909, the patient said that she was quite well; the parts were in excellent position; on coughing there was very slight prolapse of the anterior vaginal wall.

CASE 15.—IV.-para, aged 48; severe procidentia; uterus always outside; sound = 7 inches. In November, 1907, anterior and posterior colporrhaphy, amputation of the cervix, and vagino-fixation were performed. When the patient was seen two years later the parts were in excellent condition; there was no prolapse on coughing; the vagina was 2 inches long.

CASE 16.—V.-para, aged 58; procidentia almost always outside; ulcerated hypertrophied cervix. On Nov. 23rd, 1907, anterior and posterior colporrhaphy were performed, with amputation of the cervix (2½ inches) and vagino-fixation. When the patient was seen by me in April, 1910, the result appeared to be perfect; there was no prolapse at all, the general health was improved, and she was very grateful for the operation.

CASE 17.—X.-para, aged 46; procidentia with hypertrophied cervix. On Dec. 7th, 1907, anterior and posterior colporrhaphy were performed, with amputation of the cervix and vagino-fixation. Convalescence was complicated by a small abscess in the buttock. When the patient was seen on Oct. 21st, 1909, she said that she was cured except that after a hard day's work she had some tendency to bearing down. The parts were in very good position; on coughing there was a slight tendency to anterior vaginal prolapse.

CASE 18.—VI.-para, aged 69, but said that she was 54; chronic procidentia always outside and large cystocele; pain on sitting or walking. She was treated on Feb. 19th, 1908, by anterior and posterior colporrhaphy, with amputation of the cervix and vagino-fixation. She died in 15 days with suppurative peritonitis, adherent pericardium, and granular kidneys. She was really too old and in too poor a condition for the operation. This is the fatal case alluded to above.

CASE 19.—II.-para, aged 36; complete procidentia. On May 2nd, 1908, anterior and posterior colporrhaphy were performed, with salpingectomy and vagino-fixation. One and a half years later the patient said that she was very much relieved, but had some bearing down after a hard day's work, and wore a support to the perineum.

CASE 20.—VI.-para, aged 54; complete procidentia interfering with working; cervix ulcerated, with much blood-stained discharge. On June 10th, 1908, anterior and posterior colporrhaphy, with vagino-fixation were performed. In October, 1909, the parts were in excellent position, and she said that she had had nothing to complain of since the operation.

CASE 21.—XIV.-para, aged 47; fairly bad case of complete procidentia. In June, 1908, anterior and posterior colporrhaphy were performed, with amputation of the cervix and vagino-fixation. In October, 1909, the parts were in very good position, and no symptoms were complained of; there was some prolapse of the anterior vaginal wall on coughing.

CASE 22.—I.-para, aged 33; single woman sent to me from the workhouse by Mr. C. E. Lownds of Great Ouseburn; procidentia; a very severe case; lacerated cervix. In June, 1908, amputation of the labia uteri, anterior and posterior colporrhaphy and vagino-fixation were performed. In October, 1909, Mr. Lownds wrote to say that there was no prolapse on straining, and that he considered her condition quite satisfactory.

CASE 23.—II.-para; aged 42; cystocele. On March 20th, 1908, anterior and posterior colporrhaphy, with vagino-fixation, were performed. In October, 1909, the patient wrote that she had "nothing to complain of."

CASE 24.—XIX.-para (!), aged 51; complete procidentia, almost constantly outside; ulcerated mucosa. On March 22nd, 1908, anterior and posterior colporrhaphy were performed with amputation of the cervix (1 inch) and vagino-fixation. When the patient was seen two and a quarter years later there were a narrow vagina, good perineum, and no prolapse; no symptoms were present except rheumatism in one knee. She said that she "feels a new woman."

CASE 25.—V.-para, aged 43; cystocele. This was an instructive case. On July 7th, 1908, I performed anterior colporrhaphy with vagino-fixation. In October, 1909, I found the cystocele cured, but the cervix in a tumid state formed a swelling at the vulva. I then amputated the cervix and performed posterior colporrhaphy. I had made the mistake of not doing the complete operation.

CASE 26.—V.-para, aged 49; complete procidentia of moderate severity. In July, 1908, anterior and posterior colporrhaphy were performed, with vagino-fixation and removal of piles. When seen in October, 1909, the patient was stone deaf and very difficult to interrogate. The parts appeared to be in excellent condition, but she had some incontinence of urine by day and seemed to be very miserable about it. Probably there was some cystitis.

CASE 27.—XII.-para, aged 45; procidentia with cystocele and hypertrophied cervix. In 1908 anterior and posterior colporrhaphy, with amputation and vagino-fixation were performed. When the patient was seen one and a quarter years later the parts were in excellent position; nothing was complained of. There was a trifling prolapse of the anterior vaginal wall on coughing.

CASE 28.—XIII.-para; procidentia with cystocele and rectocele, "always outside"; cervix hypertrophied. On Nov. 9th, 1908, anterior and posterior colporrhaphy, with amputation of the cervix and vagino-fixation, were performed. A year later the parts were in very good position, and there was no bearing-down at all. The patient expressed herself as much pleased with the relief obtained, having been "bad for years."

CASE 29.—IX.-para, aged 47; complete procidentia with very large rectocele and ulcerated vaginal walls. In April, 1909, anterior and posterior colporrhaphy, with amputation and vagino-fixation, were performed. Six months later, on examination, the result was excellent. The patient said that she was "a new woman."

CASE 30.—I.-para, single, aged 35; procidentia on straining and coughing. In June, 1909, anterior and posterior colporrhaphy, with amputation of the cervix, salpingectomy, and vagino-fixation were performed. In October, 1909, the patient wrote: "I am very glad I ever came to the infirmary, for I have felt better than I have done for years, stronger, and gaining strength and flesh every week. I go out charing four times a week."

CASE 31.—IV-para, aged 41; procidentia with hypertrophy. On July 10th, 1909, anterior and posterior colporrhaphy, with amputation and vagino-fixation, and salpingectomy were performed. The patient was seen in September, 1909, when the parts were in excellent position, and there was no prolapse on coughing. She said that she had "been six years in misery and that now it is a pleasure to walk about."

Doederlein and Kroenig give statistics showing the result of plastic operations for procidentia. In about 1000 cases by various operators permanent cure was obtained in 70 per cent., with relapse in 30 per cent., about 5 per cent. being severe relapses, but these figures include relapse after subsequent childbirth. When such are excluded the percentage of success is much greater. Nothing seems to give better results than vagino-fixation combined with thorough plastic operation with sterilisation. I know that some other gynæcologists are now adopting Wertheim's plan of using the uterus to support the bladder and make a strong pelvic floor,[1] and I am convinced that it is a sound method. Professor Wertheim informs me that he is about to publish an account of the late results of his operations.

Leeds.

[1] See a recent paper by Klein, Münchener Medicinische Wochenschrift, 1910, No. 27, S. 1473.

A CASE OF BILATERAL PAPILLŒDEMA AND RING SCOTOMA DUE TO SPHENOIDAL SINUSITIS.

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CASES of optic neuritis having a nasal origin sometimes present unusual features, and therefore the following has seemed worthy of being recorded.

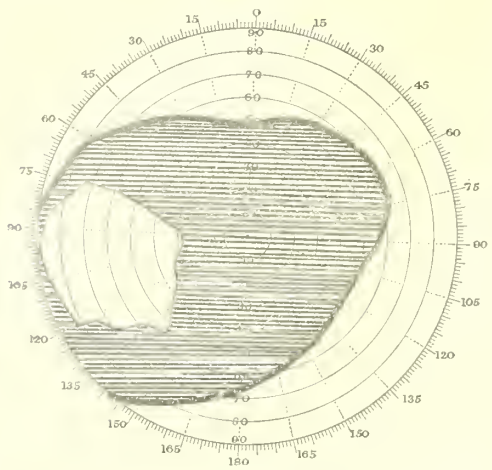
The patient, a dressmaker, aged 29; father died from consumption, and a sister from "kidney disease," otherwise the family history was good. Apart from a mild attack of influenza in 1907 had suffered from no illness. She is a healthy woman with slight enlargement of the thyroid; it has never caused any symptoms and it is common in her part of the county. In the summer of 1906 she was seized with a sudden and severe frontal headache which continued with short periods of remission up to November, 1908, and then as suddenly ceased; although unassociated with nausea or vomiting it was often so severe in character as to confine her to bed. General treatment failing to alleviate the pain, all the teeth were extracted, but without the desired effect. She could assign no cause for the sudden onset and disappearance.

The patient came to the Eye, Ear, and Throat Hospital on Sept. 25th, 1909, complaining of defective sight for the previous two years, during which time there had been some intervals of improvement. In January, 1908, she noticed for the first time, on covering the right eye, that the vision of the left eye was very defective; from that date it gradually became worse, and by the end of the summer 1908 she could only distinguish light from darkness with the eye. The vision remained unaltered until September, 1909, when objects could be seen to the left side, but not directly in front. In September, 1908, the vision of the right eye suddenly failed, although previously unaffected. It remained in this state for three weeks and then rapidly recovered; she was able to read a newspaper at the end of the following fortnight. Shortly after this there was so serious a relapse that it was barely possible to get about her own home. In a week or two improvement began, but the vision remained misty for the following 10 months (September, 1909).

When the patient was seen in September, 1909, R.V. = 6/9, L.V. = hand movements. There was concomitant divergence of the left eye, but convergence was unaffected, and there was much œdema of both discs, but no hæmorrhages. In November, 1909, she was admitted an in-patient, the ophthalmoscopic condition being unchanged. The modified Burnham treatment was carried out for 12 days, at the end of which time, when she left the hospital, R.V. = 6/6, L.V. = 6/36, and the optic neuritis, though less in degree, was still marked. Shortly after returning home she suffered from severe frontal headache, which lasted a fortnight and ceased suddenly.

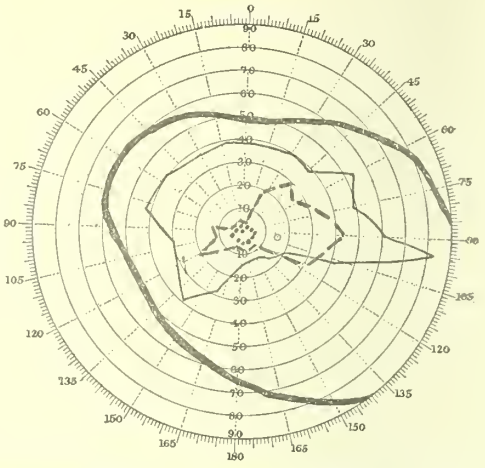
In January, 1910, the patient was readmitted, when R.V. = 6/9, L.V. = perception of light in the temporal field only; the external appearances were unchanged, but there was slight tenderness on pressing the globes backwards. The pupils were equal, reacting to light and convergence. Wernicke's hemianopic reflex was easily elicited on illuminating the temporal and nasal halves of the left fundus. Ophthalmoscopically, the media were clear, and there was papillœdema in both eyes—right + 3 D., left + 4 D. The arteries were thread-like and the veins very engorged with slight retinal œdema, particularly in the left; there were no hæmorrhages or perivasculitis, and nothing in the fundus to explain the left visual field. The visual fields (Charts I.): White and red were markedly contracted, especially inferiorly in the right eye, and the green showed extreme concentric contraction, but in spite of this there was no central scotoma. In the left eye there was only a small island of vision remaining in the temporal field. As regards the nasal conditions, anteriorly and posteriorly on both sides the middle and inferior turbinates were engorged, especially the left, but pus was only seen upon the middle turbinates posteriorly; both

LEFT 1.



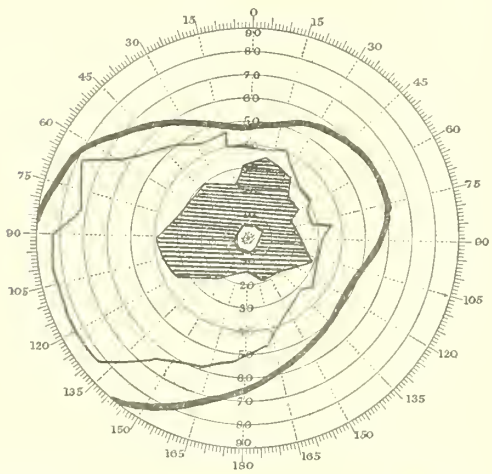
White test object 120 mm. square. Shaded portion blind.

RIGHT 1.



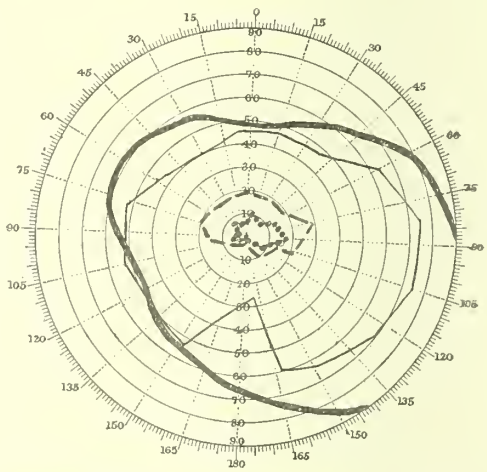
Test objects:—White —— 5·0 mm. square. Red - - - 12·5 mm. square. Green . . . . 12·5 mm. square.

LEFT 2.



White test object 35 mm. square. Shaded portion blind. Dotted portion relative scotoma 3 mm. green.

RIGHT 2.



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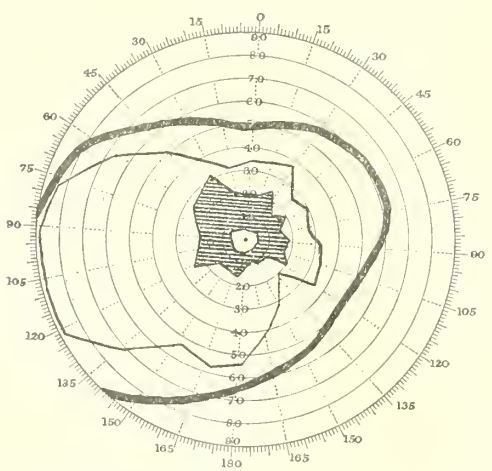
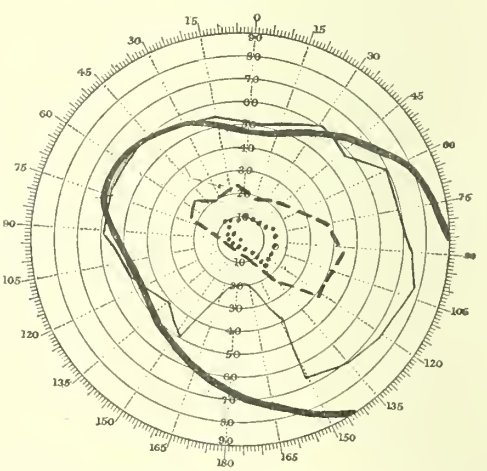
LEFT 3.



White test object 35 mm. square. Shaded portion blind.

RIGHT 3.



Test objects:—White —— 5·0 mm. square. Red - - - 5·0 mm. square. Green . . . . 5·0 mm. square.

The Visual Fields. In each a thick continuous line indicates the average normal field of indirect vision, while the field for white is shewn by a thin continuous line, that for red by a broken line, and that for green by a dotted line.

the frontal and antral sinuses transilluminated well. The nervous, vascular, and hæmopoietic systems appeared healthy and there were no signs of plumbism.

No other cause being found, a diagnosis of optic neuritis due to sphenoidal sinusitis was made; the modified Burnham treatment was again carried out for a few days, when pus was seen in the right superior meatus anteriorly. Both middle turbinals were now removed as a preliminary to opening the sphenoidal sinuses; this was followed by a small rise of temperature for about ten days, at the end of which time both sphenoidal sinuses were opened and muco-pus was found; 16 days later, R.V. = 6/6, L.V. = 6/12.

On May 12th, 1910, by rhinoscopy anteriorly the nose appeared healthy, but posteriorly there was still a little pus upon both middle turbinals. Ophthalmoscopy showed that both of the discs were still slightly blurred, but there was no exudate or atrophy. In the intermediate zones of the retinæ there were some grain-like patches of pigment. Small doses of vinum antimoniale and potassium iodide were now given. On the 27th R V. = 6/5, L.V. = 6/9·3. The retinal haze had cleared in each eye. The visual fields (Charts 2) showed very marked improvement in the right eye, particularly in the inferior quadrants. There was a typical complete annular scotoma in the left, and in the small area of central vision a relative scotoma for green. On June 27th the patient stated that she saw better and had had no recurrence of headache. The ocular and nasal condition was unchanged. The visual fields (Charts 3) showed that the central scotoma had disappeared in the left, but the fields in both eyes, although slightly more extensive, retained the same characters.

The diagnosis of this case was mainly arrived at by exclusion. The possibility that at once suggested itself was an intracranial new growth—intense headache, bilateral choked disc, and failing vision; but the absence of any nervous symptoms negatived a cerebral origin. Leukæmia, simple anæmia, nephritis, plumbism, syphilis, &c., were readily excluded. We have not infrequently seen double optic neuritis resulting from accessory sinus disease, and in spite of this patient's absolute denial of any nasal discharge objective signs of sphenoidal sinusitis were looked for and found. The history of sudden blindness with frontal headache in a previously healthy person and the remittent character of the symptoms is very suggestive of accessory sinus affection.

Optic neuritis is not infrequently observed in sinusitis, but choked disc, especially in so marked a degree, is uncommon. Risley [1] reports a case of unilateral choked disc set up by ethmoiditis in a boy of 11, and Fish [2] records two cases which were probably choked disc, one bilateral and one unilateral. These cases are of interest, in view of the present-day tendency to open the skull on account of papillœdema, which on more careful investigation may prove other than cerebral in origin; and Fish states that one of his patients with bilateral optic neuritis, which he believed due to sinus disease, was trephined, and optic atrophy resulted.

It is probable that closed empyemata, of which this case is an example, are a more potent factor in the causation of optic neuritis than the mere intensity of the sinus inflammation, for Jessop,[3] Onodi,[4] and others have recorded cases where the sphenoid bone had necrosed and separated without any neuritis resulting.

The visual fields of this patient are of interest because of the unusual cause of the ring scotoma and the absence of any central defect at the present time, together with the marked recovery. According to Wilbrand [5] ring scotomata occur in the intermediate zone—i.e., between the circles of the fifteenth and forty-fifth degrees arising from the coalescence of insular defects in this area, which may spread to the periphery. He also states that the temporal portion of the field is the last to be destroyed in cases of neuritis. All these points are well illustrated in this patient.

Perlia, quoted by Wilbrand, collected 21 cases of ring scotomata, of which 13 were due to syphilitic choroido-retinitis, 7 to retinitis pigmentosa, and 1 with no ophthalmoscope diagnosis. Fuchs [6] mentions hysteria, and Uhthoff, quoted by Wilbrand, multiple sclerosis, as other causes.

Retinitis pigmentosa has undoubtedly to be considered in this case, because there are spots of retinal pigment in the intermediate zone, but other than this there are none of the classical signs, and with the concurrent progressive improvement of the visual fields and ophthalmoscopic appearances there can be no doubt that the papillœdema has in some way been the cause.

The prognosis in cases of severe optic neuritis, due to accessory sinus disease, when recognised and treated is very favourable, for although the duration may have been very long, and vision seriously impaired or abrogated, yet the majority, it would seem, show almost complete recovery.

The great depletion of body fluids by the profuse diaphoresis produced by the modified Burnham treatment [7] relieved the congestion of the mucosa around the ostium and allowed the pus to escape, with rapid improvement in vision, which, however, was not permanent until the sinuses were treated surgically. At the present time the visual acuity and fields have improved considerably, and the central scotoma has disappeared, with the exhibition of small doses of antimonial wine and potassium iodide.

[1] S. D Risley: Transactions of the American Ophthalmologic Society, 1900.
[2] H. M. Fish: Journal of Laryngology, Rhinology, and Otology, 1907.
[3] Jessop: Transactions of the Ophthalmological Society, 1904.
[4] Onodi: Accessory Sinuses and Optic Nerve, 1910.
[5] Wilbrand: Perimetry in Norris and Oliver's System of Ophthalmology.
[6] Fuchs: Text-book of Ophthalmology, 1908.
[7] C. G. R. Wood, Brit. Med. Jour., vol. ii., 1909, p. 202.

THE IMMEDIATE MICROSCOPIC DIAGNOSIS OF TUMOURS AT THE TIME OF OPERATION.

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IN an address to the Hampstead Division of the British Medical Association in 1906 Mr. C. B. Lockwood drew attention to the value of an immediate microscopic examination of tumours and diseased tissues at operations. He quoted particulars of a number of cases in support of the practice. It was my privilege to give a demonstration of the method at the meeting. Since that date further experience in a large number of cases has confirmed and strengthened my belief in the great value of the procedure.

My reasons for bringing forward the present communication are: (1) To make the practice more widely known; (2) to remove certain erroneous ideas held by some who have heard of the process, but who are not familiar with its application or technique; (3) to point out certain advantages which this procedure has over the older methods; (4) to give particulars of the method with slight modification; and (5) to report particulars of cases which illustrate the value of an immediate microscopic examination.

The method I follow can be explained in a few words and is as follows:—As soon as the patient has been anæsthetised and the surgeon has explored the region affected, a piece of the tumour is given to the pathologist, who at once freezes it and cuts sections. The section is mounted, stained, and examined under the microscope. A diagnosis is made and the surgeon is informed as to the nature of the tumour. The time occupied by the process is usually about five minutes, sometimes less. A remark which has often been made to me by those unacquainted with the details of the method is, "It takes about a quarter of an hour, doesn't it?" Such a delay in the course of an operation would be very tiresome and even a serious matter. But even if a surgeon had to wait a few minutes longer than usual, surely the results in many cases would justify such a delay. Take such an operation as removal of the breast, pectoral muscles, and axillary glands; or amputation of an arm or leg for new growth, the diagnosis of malignant disease must always be made with certainty to justify such operations. I do not think a surgeon would like to do the former operation for a case of simple mastitis, yet the diagnosis is often impossible without the aid of the microscope. Again, a limb has been amputated for a supposed sarcoma which afterwards proved to be an inflammatory swelling. I have seen one such case and know of two others. The fact that these mistakes have been made by surgeons of proved skill and ability shows the great difficulty, and in many cases impossibility, of making a correct diagnosis without the aid of the microscope.

There are many cases in which the diagnosis of malignancy of a tumour can be made at once by naked-eye inspection —such as an ulcerating or fungating carcinoma of the breast or tongue. Others in which the same diagnosis can be arrived at directly an incision is made into the growth. Lastly, there is a group of cases in which an accurate knowledge of the malignant or innocent nature is not possible without a microscopic view of the section. The last group is the one in which a rapidly prepared section is of the greatest value.

The older method of procedure in such cases was to cut a piece out of the tumour or ulcer and have a section prepared later. The patient had to wait in suspense for some days, and then, in the event of an adverse verdict from the pathologist, had to undergo a second operation. By Mr. Lockwood's method this is not now necessary. I am referring more particularly to tumours in the breast and other regions where it is necessary to give the patient an anæsthetic in order to explore. When a piece of tissue can be removed without an anæsthetic—i.e., from the tongue, lip, cervix uteri—the delay is not so serious. But even in these cases a fresh section is often advisable. With some there is an impression that the section obtained in this way in so short a time cannot be properly interpreted. This is quite erroneous. Fresh sections can be obtained which show the structure of tumours and tissues quite as plainly as those which are prepared by the slower and more elaborate "paraffin" method. Of course, a certain amount of practice in cutting the frozen sections and experience in interpreting them is necessary.

As a rule, when one has to pause considerably before making a diagnosis from a frozen section the same difficulty arises later when examining a paraffin section of the same tumour. The difficulty in such an instance is not due to the quality of the section but to the nature of the tumour. Cases in which this happens are, however, rare.

Let me now give a few particulars of some of the cases in which this method has proved of value to the surgeon. My first case, undertaken at Yeovil in 1899 for Mr. Lockwood, will serve as a good example. A tumour was present in the breast of a lady; its physical characteristics were those common to a mass of carcinoma or chronic mastitis. It was explored and a piece removed for microscopic examination. This proved to be carcinoma. Fortified by this knowledge the surgeon was then able to proceed with the formidable operation of amputation of the breast with removal of the pectoral muscles and axillary glands, satisfied in his own mind that he was doing the correct operation for his patient.

The following case illustrates in a striking manner the difficulty which sometimes arises in trusting to clinical signs for diagnosing malignant disease. The operation was being performed on the larynx by an eminent surgeon and my share in it was that of an assistant. The thyroid cartilage was split and the interior of the larynx exposed. A large flat ulcer was found at the upper part which extended up on to the side wall of the pharynx. One of two other specialists who were interested onlookers expressed doubt about the malignant character of the ulcer. As the operation contemplated was that of complete extirpation of the larynx, it was thought advisable not to proceed further until the question of malignancy was settled absolutely. A piece of the ulcerated growth was therefore removed for subsequent microscopic examination and the whole wound sewn up. The growth proved to be malignant, and a week later the whole of the larynx with a part of the pharyngeal wall was removed. This case made a great impression on my mind, because I felt that if I had had my cutting appliances and microscope with me a section could have been prepared and the question of malignancy settled at once. The patient would have been saved the suspense of a week's delay and the second operation.

Later another case of laryngeal tumour occurred in which I attended in my capacity as pathologist. A swelling was exposed in the upper part of the larynx. The surgeon felt strongly that it was malignant, but there was just the possibility that it might be tuberculous in nature. A piece of the growth was removed through the thyrotomy wound and in a few minutes a microscopic section revealed a carcinomatous structure. The whole of the larynx was at once removed.

A third example of a laryngeal case may be given, in which it was desirable to modify the extent of a contemplated operation. An epithelioma was present on one side of the larynx and a suspicious swelling on the opposite side. Was the latter also malignant? If it were, the surgeon would remove the whole larynx. A section proved it to be inflammatory tissue only, and so he performed a smaller operation and removed one side only.

One is greatly tempted to go on multiplying instances in which the microscope has proved of service to the surgeon. I will content myself, however, by giving only one more laryngeal case. An epithelioma occupied part of the interior of the larynx of an old gentleman. One of the arytenoid folds was swollen; was this swelling due to the presence of new growth in the fold or was it due to inflammation only? If it were the latter, local removal of the growth only was proposed; if it were new growth, then complete laryngectomy was indicated. The operation was commenced, and before opening the larynx some small, thickened, irregular nodules of tissue were discovered outside the thyroid cartilage. The tissue looked like thyroid gland to the naked eye. A section revealed squamous-celled carcinoma. The disease had, therefore, extended much farther than had been anticipated, and it was decided not to remove the larynx. Tracheotomy was performed and the wound sewn up. The presence of carcinomatous growth in the tissues outside the larynx in this case was proved and indicated that complete removal of the whole area of disease could not be attempted with any degree of success.

From amongst my cases of suspicious swellings and ulcers of the mouth is the following:—

An irregular ulcer was present in the gum, covering the lower jaw of an elderly gentleman. It was fixed to the molar region and floor of the mouth. The edges were hard and nodular. These appearances suggested that the lesion was an epithelioma. A piece was removed which proved to be simple inflammatory tissue. This case serves to illustrate several important points. When a patient is under the influence of an anæsthetic a large piece, or several pieces, of tissue can be removed for microscopic examination. A large piece is more likely to show the true nature of a diseased structure than a small piece. On the other hand, small pieces from ulcers in the mouth sometimes show only inflammatory tissue superficial or adjacent to the malignant tumour. This point should be remembered by those who "snip" or "peel" off a small scrap of tissue from the edge of an ulcer and then ask for a diagnosis. A pathologist may justly report on such a specimen as innocent in nature, although, as a matter of fact, the tumour might be carcinoma. This was illustrated by a case at the Metropolitan Hospital. An elderly man had a large and deep ulcer at the side of the tongue, affecting also the floor of the mouth. The edges of the ulcer were firm, swollen, and irregular, and a yellow mass of necrotic tissue, like "wash-leather," covered part of its base. The mouth could not be opened very far. Enlarged glands were present in the neck. With much difficulty a piece of one of the nodular masses at the edge was removed. A paraffin section revealed much inflammatory tissue and two small collections of epithelial-like cells at the deepest part. By the time the sections were prepared the condition of the man's tongue had much improved under antiseptic treatment by mouth washes and internal administration of potassium iodide, and Wassermann's test for syphilis was positive. The general appearance of the ulcer and the size of the glands were, however, so suspicious that it was thought advisable to obtain a larger piece of tissue for microscopic examination. Under a general anæsthetic this was done and one of the glands also removed. Both sections proved to be squamous-celled carcinoma.

Turning to another region of the body, the breast, and especially that of the female. This is the organ which offers more surprises to the surgeon than any other. A large number of cases come under observation with a "tumour" in the breast. Some cases are fairly straightforward, and a provisional diagnosis can be made clinically without much difficulty. On the other hand, in many of them it is very difficult for one to recognise their true nature. A tumour may be found in the breast which feels quite solid and hard when examined through the skin, but when it is exposed at the operation it turns out to be a cyst filled with fluid at a very high tension. Again, a tumour may feel soft or a sense of fluctuation is obtained. It may nevertheless prove to be a soft fibroma, carcinoma, or sarcoma. Then there is a class of case in which a hard mass is felt in the breast without any obvious change in the skin or nipple. The tumour is not attached to the deeper tissues and moves freely in all directions. Glands may or may not be felt in the axilla. It

is impossible to say from these signs whether the tumour is a mass of chronically inflamed breast tissue or a carcinoma. On exploring the mass its true nature is in many instances at once apparent to the experienced observer's eye, but there are many cases in which a definite diagnosis cannot be made in this manner even at this stage of the operation. These are the cases in which a microscopic section is of the greatest value. The following case is instructive to illustrate this point. A large tumour was felt in the breast of a lady. Its physical character, as felt through the skin, would serve for those of a carcinomatous mass or a chronic mastitis. The mass was removed by Mr. W. McAdam Eccles, and an incision made into it. The structure appeared to be that of a chronically inflamed breast. A microscopic section revealed, however, the presence of carcinoma, together with much inflammation in the surrounding breast tissue. Examples of the above are frequently met with.

Cysts of the breast are notoriously hard to diagnose even by the most experienced clinicians. In many a case have I stood by watching a surgeon while he made an incision into a tumour of the breast, thinking he has a solid mass to deal with. His knife suddenly penetrates a cyst wall and out spurts a quantity of clear or dark coloured fluid. These cysts usually have a smooth lining and are surrounded by inflamed breast tissue. Sometimes, however, when a microscopic section is made through the latter, early carcinoma is discovered. I have seen this in a number of cases, and therefore make it a rule always to examine the tissue about a cyst thoroughly.

In a case operated upon by Mr. Lockwood a small smooth-walled cyst was removed from a breast. At one part of the wall a small patch of blood-stained tissue was discovered. A microscopic section of this tissue proved it to be carcinoma; a complete operation was then performed. The naked-eye appearances of this specimen suggested a hæmatoma into the tissue about the cyst wall, but the microscope disproved this.

Another type of cyst is not unfrequently met with; in this variety a growth is present in one part of the wall of the cyst and projects into its cavity. The cyst also contains blood-stained fluid. A microscopic section will sometimes reveal well-marked carcinoma invading the tissue outside the cyst, and at others a papillomatous growth confined to the cyst wall. It is an important point one has to settle in a case like this, because, in the first instance, where a carcinoma has developed, it is necessary in the interest of the patient that a complete operation should be performed, whereas in the second case amputation of the breast only is necessary. I have been confronted with the above problem on four occasions during the past six months.

One often meets with a tumour of the breast which appears to be composed of inflamed gland tissue on naked-eye inspection of its cut surface. A microscopic section in many cases confirms this diagnosis, and the surgeon is satisfied by local removal of the mass. Sometimes tiny growths are seen in cyst-like spaces in the midst of an indurated patch of mammary gland; they may be partly lifted out of the cysts with the point of a knife, and then are found to be attached to the wall by a small pedicle. A microscopic section will show that these growths are epithelial in nature and that the epithelium of the acini and ducts in the neighbourhood is actively proliferating. If the epithelium and epithelial growths are confined within the dilated acini and ducts one may assume that the condition is as yet innocent in character. This can be proved by the microscope. In Mr. Eccles's case, quoted above, carcinoma had developed. Although these cases are apparently quite innocent in nature it is to be remembered that, firstly, carcinoma may ensue in the mass, and, secondly, other and smaller patches of a similar nature may be present in the same breast. These patches are too small to be felt by examination clinically, and are only found on cutting through the breast after removal. I have frequently seen breasts illustrating this condition. The following plan of treatment seems to me a reasonable and safe one to follows:—1. For a single mass of indurated and inflamed breast tissue, local removal of the tumour. 2. A mass of inflamed breast, with much proliferation of the epithelium and the presence of polypoid or papillomatous growths, removal of the whole breast. 3. Inflammatory breast tissues and commencing carcinoma, complete removal of breast and axillary glands, &c. This line of treatment can be planned and carried out by the surgeon when he has the diagnosis put on a safe basis by an immediate microscopic examination of the tumour. I do not think it will serve any useful purpose to merely enumerate the numerous cases which have helped me to arrive at the above opinion.

Exploration of a breast tumour by means of a trocar and cannula has been practised by some as a means of diagnosis. From what has been said above it will be granted that even if a cyst be present and fluid obtained through the cannula, the presence of carcinoma in the cyst wall cannot be excluded. On the other hand, if no fluid is obtained and the tumour is thus assumed to be solid, the distinction between carcinoma and chronic inflammation only cannot be made. I have seen this method used once and consider it a useless one.

Most surgeons and pathologists would say that it is easy to diagnose a hard carcinoma directly it is cut into and a view of its interior obtained. This is true in many instances, but occasionally it is not so easy. I have seen a tumour which presented all the naked-eye appearances of what is called a "scirrhus" proved to be on microscopic examination a syphilitic inflammatory mass. Before seeing this specimen I was conceited enough to think that I could always diagnose a "typical scirrhus" on sight.

An immediate microscopic diagnosis is of great service in cases of uterine carcinoma. A small piece of tissue can be removed from the cervix without an anæsthetic and examined at leisure, but it is different with lesions in the cervical canal and body of the uterus. Sections can be prepared at once of the small pieces removed with a curette from the wall of the cervix and body while the patient is under the influence of the anæsthetic. I was able to demonstrate carcinoma in a case operated upon by Dr. W. S. A. Griffith last year. The pieces of growth were obtained from the body of the uterus and proved to be columnar-celled carcinoma. Hysterectomy was then proceeded with at once. In most cases which one examines the uterine scrapings prove to be simple in nature and no further operation is necessary. But now and then malignant disease is disclosed by microscopic sections. In a case also under Dr. Griffith a flat ulcer was present just by the external os. A piece of the cervix was cut out and a microscopic section revealed carcinoma, which was infiltrating the muscle. It did not project into the cervical canal or vagina and its true nature could not be proved without the microscope.

In a case operated upon at the Great Northern Central Hospital Mr. E. C. Stabb found a general thickening of the cæcum and lower part of the ileum. The swelling looked very much like a new growth, and he thought it would be necessary to remove it; but at his request I there and then cut a section and was able to assure him that the condition was inflammatory. In this case the microscopic examination saved the patient from the risk of an unnecessary enterectomy, which it seemed advisable to do on the ordinary naked-eye evidence of the condition, which was very suggestive of new growth.

It is sometimes very difficult to determine the nature of a thickened gall-bladder, and it is extremely useful to get a definite microscopic diagnosis. An inflamed gall-bladder may be left, or at most removed locally, but a malignant organ requires a wide and complete removal if it is possible to do so.

Further, it is difficult in some cases to make a correct diagnosis of swellings and ulcers affecting the limbs. A gentleman had a warty growth on one of his fingers, and it was proposed to amputate the finger if the growth should turn out to be malignant. A section proved it to be innocent, and therefore the local removal performed was sufficient and the wound sewn up. I have since had a similar case in which the swelling proved to be inflammatory and not sarcomatous, as was feared. In another case a growth in the sole of the foot proved on microscopic examination to be a sarcoma; this justified amputation of the foot.

Sarcomata of the limbs can be demonstrated by sections made at the time of exploration, and I think this should always be done before removing an arm or a leg. Cases of "quiet" necrosis of a piece of bone with inflammatory thickening around occur occasionally and closely simulate new growth.

The following case illustrates the value of coöperation between the surgeon and pathologist. A swelling of the lower end of the femur was diagnosed by means of an X-ray photograph as a new growth. It appeared to be confined within the shaft of the bone—i.e., an endosteal sarcoma. If

the tumour should prove to be a sarcoma, and of the myeloid or "giant" celled type, as is usually the case in the endosteal form of growth, amputation through the thigh was contemplated. If, on the other hand, it should prove to be an example of the more malignant type of sarcoma—i.e., round- or mixed-celled sarcoma—then it was thought better to amputate the limb at the hip-joint. A piece of the soft tissue within the bone was removed and a microscopic section prepared. The section showed the structure of a mixed round- and spindle-celled sarcoma. The more severe operation was then performed.

Method of Cutting Frozen Sections of Fresh Tissues.

The method may be divided into two parts.

1. Arranging the apparatus to be used. The microtome must be fixed on a firm table and all the instruments arranged in a convenient manner.[2] A mental survey of the freezing, cutting, mounting, and staining of a section is then made, in order to make sure that everything is present and in its proper place. This ensures that no time will be wasted when once the process is begun.

2. Preparation of the microscopic section.

(*a*) The selected piece of tissue received from the surgeon is placed on the brass disc of the freezing microtome, and is surrounded by gum solution.

(*b*) The tissue and gum are frozen and sections made by a razor on a carrier.

(*c*) The sections are transferred to a dish of cold water, and after separating them with a glass rod a suitable section is lifted out.

(*d*) It is dipped for a moment into pure methylated spirit, and

(*e*) Then placed into another larger dish of cold water; the currents set up by the spirit in the water cause the section to spread out flat.

(*f*) A glass slide is dipped in the water under the section, and the latter is lifted out as the slide is slowly drawn up out of the water again.

(*g*) The water is drained off the slide and a few drops of stain (Löffler's methylene blue) are allowed to fall directly on to the section.

(*h*) A thin cover-glass is placed on the stain and section after several seconds; it is lightly pressed down, so as to drive out excess of stain; this is then blotted off, and the specimen is ready for examination under the microscope.

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PNEUMONIA:

AN INQUIRY INTO SOME OF THE MECHANICAL CONDITIONS WHICH MAY OCCUR IN THE CHEST IN ADULTS SUFFERING FROM AN INFECTION WITH THE PNEUMOCOCCUS OF FRAENKEL, AND OBSERVATIONS ON TREATMENT WITH SPECIAL REFERENCE TO THE USE OF MORPHINE; AND ON SOME SURGICAL CONDITIONS.

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IN typical cases of severe pneumonia the patient begins with a high temperature and much restlessness, and usually an acute pain somewhere in the chest or upper abdomen. Sleep is prevented and the respiratory amplitude is much diminished as a result of the painful reflex set up by the lesion in the lung. Even when the lesion does not excite a consciousness of pain in the patient due to radiation of the stimulus to the higher perceptive centres, nevertheless the lower reflex causes a diminution of the respiratory amplitude accompanied by an increased rate of respiration. On the one hand, there is an inhibition tending to keep the parts attacked by the disease at rest, and, on the other hand, there is an excitation due to the imperious necessity for breathing. The respiratory centre is fully active, and as a result of the warring stimuli it receives we get diminished amplitude and increased frequency of respiration. Valuable evidence of the stimulating reflex and of the functional activity of the respiratory centre is afforded by the working of the alæ nasi, which, in conjunction with a high temperature and acute onset, is almost pathognomonic of pneumonia. The shortening of the respiratory amplitude is one of the most striking features of pneumonia and one deserving careful study. Let us consider what some of the consequences are.

In the first place there is an interference with the suctional action by which the expanding cage of the chest, acting through the elasticity of the lungs, reduces the pressure in the big veins leading to the right auricle to less than atmospheric pressure. This action it is which enables the venous blood to return to the heart with sufficient velocity to maintain a free and easy circulation. Its power is well known to surgeons who have had the misfortune to open a big vein near the chest and to keep it open. The air outside, being under higher pressure, rushes into the heart. This action converts the relatively feeble head of pressure due to the almost expended driving power of the left ventricle, such as obtains, for example, in the portal veins of the liver, into a relatively high head of pressure with its consequent rapid flow. It is not too much to say that the excursions of the chest wall and diaphragm furnish the most important element in the return of blood to the right auricle. When these excursions are diminished in amplitude there must be a corresponding diminution of the rate of flow of venous blood to the right auricle, for which an increased frequency of respiration will not entirely compensate.

Organisms, like machines, are subject to the physical laws, and any given mechanism will work most efficiently at a certain speed and amplitude. A steamer can be built to give maximum economy of coal per mile run at only one speed; above and below that speed more coal is required per mile run. A given pump at given power will deliver a maximum quantity of water at one amplitude of stroke and one rate of speed; less water will be delivered if the stroke be diminished and the speed increased, or *vice versâ*. It is true that living organisms have compensating mechanisms of wonderful efficiency or no one would ever live through an attack of pneumonia. But there is little doubt that there is loss of efficiency at other than normal rates, and compensation tends to be incomplete, and especially when the demands are sudden or prolonged.

In the second place, the diminution in the respiratory amplitude entails a shortening of the to and fro excursion of the column of air in the upper air passages, a diminution of the respiratory tide by means of which the exchange of gases between the air in the lungs and outside takes place. The rate of entrance of oxygen and of exit of carbon dioxide is diminished. Again, in this case also increased quickness of respiration does not entirely compensate for the want of depth in respiration. Anyone can test the matter for himself on his own person. Let him try to breathe as quickly as he possibly can, but let him also fix his chest and make the respirations extremely shallow. He will find very soon that he feels little better than if he were holding his breath altogether, and he will suffocate unless he takes a deep breath, which he will soon be forced to do. It is this deep breath which allows the pure air from outside to enter the upper air passages sufficiently far to ventilate the deeper working parts of the lungs so as to permit a sufficiently rapid exit of the accumulated molecules of carbon dioxide.[1]

[2] During the past two years I have been using the ethyl chloride spray for freezing tissues; it answers admirably and also has advantages over the ether spray. The ether spray tube occasionally gets blocked or the bellows split. If this happens at an operation ease the pathologist's lot is not an enviable one. An accident of this nature caused me to turn to the ethyl chloride tube. Williams's ether freezing microtome is large and heavy to carry about in one's bag, but by using the ethyl chloride spray the circular plate of the machine only is required. The spray is directed from above on to the specimen, and not from below, as is done with the ether spray. The plate is, therefore, placed directly on to the work-table and no clamp is required to steady it.

[1] Haldane and Priestley have shown that in a normal individual if the respirations be increased in frequency they decrease in depth, and *vice versâ*, so as to maintain a normal percentage of carbon dioxide in the alveolar air—that is, provided the respirations are not forced; the compensation in this case for frequencies of respiration not greatly exceeding the mean is complete. But it appears not to be complete in pneumonia, as is evidenced by the working of the alæ nasi which indicates an excessive stimulation of the respiratory centre, which is most probably caused by excess of carbon dioxide in the circulating blood. On the other hand, Speck has given the following results:—

Type of breathing.	Volume of expired air per minute.	Percentage of oxygen.	Percentage of carbon dioxide.
Normal	7,527 c.c.	16·29	4·21
Very shallow	5,833 ,,	15·50	4·63
Very deep	17,647 ,,	18·29	3·17

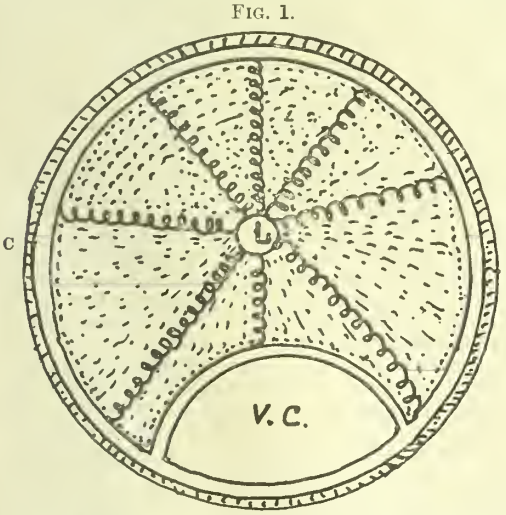
This shows how the percentage of carbon dioxide increases in the alveolar air when the respiration is shallow, the amounts of carbon

It thus appears that the short, quick, and shallow breathing seen so frequently even at the very outset of an attack of pneumonia favours an accumulation of carbon dioxide in the blood in two separate ways: (1) by diminishing the pumping action of the chest the venous blood stream is slowed so that less blood passes through the lungs in a given time; and (2) by preventing efficient exit of carbon dioxide from the alveolar air.

This accumulation of carbon dioxide in the blood has itself a further deleterious effect on the rate of circulation through the lungs. If a dog's peptone plasma (that is a plasma which does not coagulate spontaneously like ordinary blood *in vitro* but otherwise appears to be identical with it) has a stream of carbon dioxide passed through it, it will first become more viscous and then coagulate. It appears from recent work that an acid like carbon dioxide, introduced into a colloidal fluid, has the power of reducing the number of free negative charges in the fluid, which, if the colloidal particles are themselves negatively charged, help to keep the colloidal particles discrete and apart, and the colloidal liquid therefore in a liquid state. When the free negative charges diminish in number from being neutralised by the positive ions of the carbon dioxide or acid radicle, the colloidal particles tend to aggregate and the colloidal liquid becomes gradually more viscous, and finally may coagulate and become solid. The venous blood then, as a negative colloid, when it becomes more highly charged with carbon dioxide, becomes more and more viscous and flows less readily, thus aggravating the condition of slow circulation arising from the deficient pumping action of the chest. Thus a vicious circle is established and we can now readily understand how the thick and tarry dark venous blood which may be obtained from a patient's arm even in the early stages of an attack of pneumonia is produced, and the desirability of a deepening of the respiration becomes apparent.

These effects can be noted before any extensive consolidation of the lung has taken place, and when occurring thus early seem to be due to the inhibitory nervous reflex initiated at the site of the visceral lesion in the lung, causing defective respiratory action. But consolidation of the lung, if at all extensive, aggravates the circulatory difficulties very seriously. Besides the more or less obvious ways in which it may act, it has an important effect which is worth discussing. When the lung is normal and the volume of the chest increases on inspiration, the pressure of the atmospheric air expands the lungs against the tension of its elastic fibres and stretches them. These fibres, for the purposes of a diagram (see Fig. 1), may be imagined as radiating outwards from the

FIG. 1.



C C, Cage of chest. L. Centre of lung. V C, Venous cavity.

centre of the lung to the periphery, and as always tending to pull the periphery towards the centre. Fig. 1 shows the chest containing: (1) the lung with its elastic fibres always tending to contract its volume; and (2) a cavity representing the right auricle and the large veins of the chest which open into it, and which for short may be called the venous cavity. Now consider what would happen in different states of the lung when the chest expands and contracts.

First case.—If the lung cannot expand but remains fixed, then when the chest expands the venous cavity alone will expand and the pressure inside it will be less than atmospheric; when the expansion of inspiration is followed by the contraction of expiration the venous cavity will be squeezed and the pressure in it will rise to the atmospheric. Thus the venous cavity will be subjected to sudden alterations of pressure corresponding in frequency to that of the respiration, and there will be a tendency to water-hammer in the veins.

Second case.—If the lungs were perfectly free to expand and offered no resistance to expansion—that is, if there were no elastic fibres and no tendency for the lung to contract from its periphery to its centre, then when the cage of the chest expanded the air from outside would rush in and fill the increasing cavity without resistance, and the pressure upon the venous cavity would remain constant at that of the atmosphere. During inspiration and expiration the pressure on the venous cavity would remain the same, saving for the very slight difference in pressure due to the friction of the air in its course to and from the lungs. There would be no aspiratory effect on the venous cavity in this case, in marked contrast to the aspirating effect in Case 1, which latter would be equal to the total muscular effect of the muscles causing expansion of the chest. Thus in the first case there would be sudden and violent jerky aspirations of the venous cavity; in the second there would be no action at all.

Third case.—Consider the case of the normal elastic lung. When the cage of the chest expands, the elastic fibres of the lung tend to cause the lung to remain contracted and thus allow an aspirating effect on the venous cavity as in the first case. But there will be no jerk, because the atmospheric pressure at once overcomes the contractile force of the lungs and expands them and stretches them so that the two surfaces of the pleura are always in contact. All the time the lung is expanding it is doing so against the force of its elastic fibres so that there is a sub atmospheric pressure on the venous cavity exactly corresponding to the amount of pressure the atmosphere has to exert to overcome the resistance of the elastic fibres. This aspirating effect will not be so great as at the beginning of the inspiratory effort in the hypothetical first case, but it will be a continuous one because it will last during expiration. In the first case the sub-atmospheric pressure suddenly changed on expiration to full atmospheric. In this, the normal case, the contracting of the chest wall during expiration is accompanied by a contraction of the elastic lung from its periphery to its centre due to the force of its stretched elastic fibres, and this force tends to diminish the volume of the lung with exactly the same intensity as it did during inspiration; this must be so because during both inspiration and expiration the pressure of air within the lung is that of the atmosphere if we neglect the very slight differences due to the friction of the flowing air. Wherever the surface of the lung is in contact with the boundary of the venous cavity it is tending to shrink away from it with the force due to the stretching of its elastic fibres and thus to cause a vacuum.

As an illustration, take a glass jar (Fig. 2) the mouth of which is covered by a thin sheet of indiarubber; if now

FIG. 2.

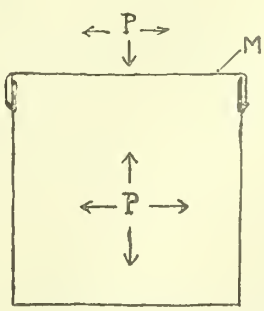
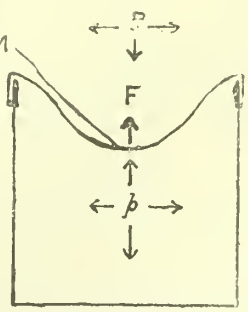


FIG. 3.



Jar the mouth of which is closed by an elastic membrane, M
P = the atmospheric pressure.

some air be aspirated from its interior, or, what comes to the same thing, if its volume be increased, there would be a

dioxide expired per minute being (calculated from the table): 317 c.c. for normal breathing, 270 c.c. for shallow breathing, and 559 c.c. for deep breathing.

lessened pressure or partial vacuum in its interior, and the air pressure of the atmosphere will force the elastic membrane down into the bottle so as to reduce its volume content and increase the interior pressure, and we will get the appearance of Fig. 3. Now the air pressure inside 3 will not be exactly equal to the atmospheric, but will be less than this by the amount of pressure necessary to stretch the elastic membrane to its altered shape. If P be the atmospheric pressure, F the force with which the elastic membrane tends to retract, and p the pressure inside the bottle, then $P = F + p$, that is, $p = P - F$; or in other words, the pressure inside the bottle is less than the atmospheric by the amount of force necessary to stretch the elastic fibres. If now we replace in our imagination the bottle by the chest and venous cavities and the membrane by the lungs the action of the elasticity of the lungs becomes clear.

We see that with a normal elastic lung there is a *continuous* aspirating effect on the venous cavity within the chest, the elastic lung performing the function of a regulator, reducing the force of aspiration during inspiration and giving it out again during expiration, so as to maintain a continuous aspiratory effect upon the venous cavity. This is a very beautiful mechanism. There are now no abrupt and too violent changes of pressure in the venous cavity. There is now no tendency to water-hammer. The flow of blood is all the time encouraged towards the heart. The function of the right auricle and contractile sinus is now easily seen; when full they have merely to contract against the uniform and easy negative pressure which is measured by the lungs' elasticity and empty themselves, and then allow the oncoming blood to fill them again whilst they are being expanded through the negative pressure.

Having considered these matters, it is now seen what effect œdema or consolidation of the lung must have on this mechanism. As the lung becomes consolidated or œdematous it loses its powers of expansion and contraction, and thus the mechanical elasticity of its elastic fibres is rendered more or less inoperative. If both lungs were full of fluid or completely consolidated we should have the condition of Case 1. The function of the elastic fibres would be completely suspended. This, of course, never happens, but to whatever extent the lungs are consolidated, and to a less extent in cases of œdema, by so much is the normal mechanism above described interfered with, and the unfavourable condition of Case 1 approached; and I am inclined to think that it is largely by interfering with the elasticity of the lung and its function as a distributor and regulator of the power exerted by the respiratory muscles in helping the venous circulation that consolidation embarrasses the circulation and throws a strain upon the heart.

It may be here remarked that emphysema is a pathological condition giving an approach to Case 2, and I think some of the difficulties the heart meets with in such cases may be explained on the above lines.

I have considered the case of consolidation for the sake of completeness, but in this paper I am more concerned with the conditions which usually obtain in the early stages of the septicæmia due to Fraenkel's pneumococcus. Usually at an early stage there occurs a lesion near the periphery of the lung with involvement of the pleura and a nervous reflex which has for its effect a shortening of the respiratory amplitude of which I have endeavoured to show the consequences. In support of the theory there is some clinical evidence. Thus on several occasions during the first, second, or third day of an attack of acute pneumonia in an adult, when the respirations were quick, short, and shallow, and before any extensive area of consolidation was noticeable, I have bled the patients from the median basilic vein. In each case the blood was abnormally viscid, so much so that it flowed with some difficulty; it clotted almost at once in the basin, more quickly than normal blood; it was very dark in colour.

It would be desirable to make exact experiments in the matter, a thing which I have had no opportunity of doing. I would suggest that syringefuls of venous blood should be taken from the arms of patients in the early stages of pneumonia and quantitative estimations made of the amount of carbon dioxide in the blood and of its correlation with the rate and amplitude of the respiration and the composition of the expired air as regards content of carbon dioxide. At the same time the coagulation time and the viscosity of the venous and arterial blood should be determined. The amount of correlation amongst the observed data would afford a test of the theories.

The chief danger in pneumonia (I am referring always to the acute septicæmia of Fraenkel's pneumococcus in adults) is that the blood may coagulate and form a white thrombus which attaches itself to the tricuspid valve and gradually grows into and blocks up the pulmonary artery. In most fatal cases of pneumonia which I have examined I have found this condition. Unfortunately, in India we do not often get the opportunity of performing a necropsy, and I therefore speak with diffidence; but I believe it is generally held that there is a special danger of ante-mortem clotting in the right heart in pneumonia.

The causes of clotting, whether *in vivo* or *in vitro*, are as yet very imperfectly understood. Practically no advance has been made since Wooldridge died—an unhappy day for pathology. But it may be fairly safely affirmed that retardation of the blood stream, water hammer, and saturation with carbon dioxide are powerful factors in its production, and if by any means we can minimise these evils we will lessen the great danger there is of clot forming in the right side of the heart. We know too little as yet to make it safe to try to affect the blood itself directly by injecting substances into it, though it offers a very promising field for research. But if the slowing of the blood stream from the mechanical causes I have indicated be a fact, then we have, I think, in morphine an agent by means of which, owing to its power of relieving pain and lessening the inhibitory visceral reflex, we can modify the conditions in a direction favourable to the patient during the early stages of the disease.

Having cleared the ground so far it remains to discuss some practical points in the treatment and management of a typical case of acute pneumonia.

The history of the treatment of pneumonia affords a good example of that irrational empiricism in medicine which is beginning to give way before the cold facts of scientific observation and experiment. In a violent and dangerous and distressful disease like pneumonia, often threatening a valuable life in its prime, there is a great temptation put upon the medical men in charge of the case *to do something*. The friends and anxious relatives expect it of him; it is what they pay him for—if they do pay him. Well may it be, then, for himself and his patient if he can practise arts like those of the homœopathist and cloak a masterly inactivity under the guise of a sustained and attentive therapeutic zeal. He knows that Nature is fighting the battle for him. The blood is swarming with pneumococci, and somehow, somewhere, the body is manufacturing those subtle substances—antitoxins, lysins, complement, and what not—which, given the time, will destroy the parasites and their poisons in about a week. This is *the cure:* Nature effects it, never the medical man.

Until he knows how to manufacture these antidotes himself or assist his patient to manufacture them his management of the case must reduce itself to: (1) abstaining from any therapy for which he has not got a clear *rationale* in case it may injuriously affect any of the unknown processes by which the body manufactures its antidotes; (2) putting the patient in the best condition to live long enough to survive the attack; and (3) watching for complications. These are often important and amenable to surgical treatment. To discuss the subject fully under any of these three heads would be wearisome and platitudinous, but a few observations may be pertinent.

Under the first head I wish to protest against the practice of a large school of present-day practitioners who treat pneumonia with large doses of alcohol and digitalis. I have been surprised at the lengths to which some medical men I have known have carried this practice. I have known men who, as soon as they diagnose a case as pneumonia, forthwith prescribe for the patient from 2 to 6 ounces of brandy or whisky and from 20 to 30 minims of tincture of digitalis per diem, and when the case gets worse even increase these amounts. "Make him drunk," one man said. I do not think that there was anything in the worst excesses of the bleeding school which was worse than this. There is no *rationale* in this treatment. These gentlemen, I suppose, *pace* the pharmacologists, regard alcohol and digitalis as "stimulants" of the heart. Even if they were, the heart requires no stimulation; it is perfectly willing and active and does its duty to the utmost of its powers throughout the disease; but

it cannot do the aspirating which is the function of the respiratory muscles and lungs, and it cannot drive blood through the pulmonary artery if the latter becomes blocked by coagulated plasma and leucocytes. It is pitiful to see a man drugging his patient with poisonous doses of so-called heart stimulants when the circulation is stopping because a clot is blocking up the pulmonary artery. There would be more chance of saving his patient by opening the chest and removing the clot. That alcohol hinders the formation of antibodies has often been shown by laboratory experiments; and it has other injurious actions. The work on digitalis goes to show that its value is confined to cases of failure of compensation in the left ventricle, and that otherwise it is a poison.

As regards the second and most important rôle of the physician—to put the patient in the best position to live past the crisis. The body of the patient is being poisoned by the pneumococcus and is trying to manufacture antidotes. It will do so to the best advantage if it has no other intoxications to fight against; of these, that due to carbon dioxide is incidental to the lesion in the lung, but can be minimised. Another intoxication may arise from the alimentary canal. The effects of constipation on the circulation are well known: the circulation tends to be sluggish, the feet and hands to be cold, the lips bluish, and the skin is liable to show a dusky bluish mottling on exposed parts; all this tends to show that intestinal intoxication favours an accumulation of carbon dioxide in the blood. How very important it is then that any such poisoning should be eliminated at the very outset of a case of pneumonia! The freest purging is called for. The alimentary canal should be thoroughly emptied and the mouth well cleansed. During the remainder of the illness no food of any kind should be given. To do so is to poison the patient. Any patient with a high temperature is incapable of proper digestion: there is a stoppage of the flow of saliva and we may be sure that there is a similar stoppage of the flow of the other digestive juices. Cells in a state of cloudy degeneration cannot be expected to perform their functions properly. To put food into the patient is merely to furnish material for the bacterial flora of the alimentary canal to feed upon and to convert into quantities of substances toxic to the patient. One of these is *gas*, which in pneumonia is harmful mechanically, because the more empty the abdomen is the more readily can the breathing be carried on. No professional singer who values his reputation will sing except when fasting. He knows that unless his chest and diaphragm have free play he cannot sing properly, because singing requires a full use of the breathing powers. The heart also is liable to be handicapped if there is pressure on the diaphragm from below. What runner ever won a race on a full stomach?—a case of pneumonia is, so to speak, running all the time.

For the sake, therefore, of giving the utmost scope and freedom to the respiratory and circulatory apparatus during their time of trial we must empty the alimentary canal and keep it empty. Water alone must be given as this is a necessity of life which requires replacement from outside the body, whereas foodstuffs are contained in ample and just proportions in the fat and muscles of the body and are available with the least expenditure of energy.

In normal subjects the ingestion of food has a marked effect on the production and discharge of carbon dioxide. Thus Zuntz and Lehmann, Magnus-Levy, Johansson, and others have shown that the respiratory exchange and output of carbon dioxide reach a minimum in from 12 to 24 hours after the last meal, and remain practically constant at that value till food is again taken. After food is taken the output of carbon dioxide soon rises and in about an hour's time may be from 14 to 97 per cent. higher than it was in the fasting condition, according to the nature of the food. The pneumonia patient is finding the greatest difficulty in eliminating carbon dioxide, so that anything which tends to increase its production in the body must be avoided, and anything which causes its production to be a minimum must be encouraged: of these conditions, sleep and rest are the chief. Thus, E. Smith found that a man discharged the following amounts of carbon dioxide per minute: During sleep, 161 c.c.; walking at two miles per hour, 569 c.c. Thus a man's lungs will have to eliminate about three and a half times less carbon dioxide during the very restful condition of sleep compared with a condition of even gentle exercise. This shows the importance of ensuring rest and, if possible, sleep, which is the completest form of rest.

Rest in bed and abstention from food the physician may ensure. To obtain sleep and diminish restlessness is more difficult, and it is here that, in my opinion, morphine shows itself as a most valuable drug; and, besides this, it has, I think, a direct action whereby it tends to minimise those impediments to the discharge of carbon dioxide from the lungs which I have discussed. I have endeavoured to show that the lesion in the lung, at quite an early stage before consolidation is extensive or advanced, by shortening the amplitude of respiration causes an accumulation of carbon dioxide. There is an inhibition tending to keep the injured lung at rest. But, unfortunately, the lung cannot be allowed to rest; if it rests too much the patient may die. If there be pain, the difficulty in respiration, the restlessness and sleeplessness are aggravated. There is nothing more exhausting than severe visceral pain.

Now it is the most striking action of morphine that it has the power of relieving visceral pain *par excellence*. At the same time that it relieves the visceral pain it tends to remove the inhibitory reflex of which the pain seems to be merely an irradiation to a higher perception centre in the brain. As instances of this are the following.

1. A case of gall-stone in common duct, no gall-bladder, stone removed by operation, subsequent history of rather severe attacks of gall-stone pain. To relieve one of these attacks all that is necessary is an injection of 0·008 gramme of morphine; in three minutes' time the pain begins to disappear, and at the same time there are heard gurglings and squirtings in the abdomen indicating an active peristalsis and movement in the intestines. On auscultation during an attack of pain and before morphine is injected there are no sounds to be heard; all is perfectly still, held in the bonds of inhibition. When the morphine removes the inhibition the normal activity becomes re-established.

2. In acute painful dry pleurisy when the patient can hardly draw breath, as soon as enough morphine is injected to relieve the pain the inhibition is removed, and the patient can draw easy and adequate breaths and get a sleep which was before impossible.

A fact which I have often noted in these painful visceral conditions is that during the pain and before the injection of morphine the lips and complexion are bluish, as if there were an accumulation of carbon dioxide in the blood. After the injection when the pain is relieved the blue or dusky appearance passes away, and may be succeeded by the healthy reddish colour of an active circulation.

It is my practice, therefore, to give morphine in the early stages of pneumonia if there is pain preventing sleep, or if there is much restlessness, or if the amplitude of the respiration appears to be sufficiently diminished to cause an accumulation of carbon dioxide. The diminution in amplitude of respiration is no doubt a protective process which gives rest to the inflamed lung. On the one hand, we have the diseased lung for which rest and repair is the best thing; on the other hand, we have the patient, the owner of the lung, to whom a certain continued respiratory activity is essential. The physician must try to hold a judicious balance between these more or less temporarily conflicting interests, always remembering that he must ease the amount of physiological work the lungs have to do as much as possible, and at the same time enable the patient to live over the crisis.

The first dose of morphine I give is usually 0·008 gramme, and one seldom requires to give more than 0·016 gramme. I invariably give morphine hypodermically; it is the only sound and safe way, as the effect of the dose becomes apparent in a few minutes and there is no danger of unabsorbed doses causing unexpected poisoning.

During the last ten years I must have given morphine to between 200 and 300 adults suffering with acute lobar pneumonia. I have usually given it during the first three days of the attack, most frequently on the evening of the first or second day. Out of all these cases I cannot recollect a single instance in which there appeared to be any harmful effect. On the contrary, the benefits have usually been marked. The breathing becomes easier, the pain is relieved, the circulation improved, and the patient gets some of that rest and sleep which is such an important element in conserving the energy of the patient and in diminishing the

manufacture of carbon dioxide. The use of ice, hot compresses, poultices, &c., may be dispensed with, and the patient need no longer battle with a gigantic poultice on his already overtaxed and overheated chest; morphine relieves the pain and gives sleep far more efficiently.

My experience causes me to doubt the soundness of those warnings against its use which are at the present day indulged in. Ideas of this sort when they get into a text-book or are endorsed by some prominent teachers are apt to take very deep root and to be propagated from text-book to text-book and from mouth to mouth, although they may have very little justification in fact. After my own experience it seems to me probable that the fear of using morphine has been based on some unfortunate results, possibly really unconnected with its exhibition, perhaps due to its employment in an injudicious way, as, for instance, by oral administration, combined with somewhat plausible reasoning as follows: "Here is a respiratory disorder: blood badly aerated: necessity for utmost activity of the respiratory centre: any weakening of this may cause the death of the patient: morphine contra-indicated because it is a respiratory depressant, and therefore dangerous."

The answer to this is that there is no evidence of functional weakening of the respiratory or cardiac centres: rather the contrary. But there is an inhibitory reflex at work in the respiratory centre which shortens the amplitude of respiration. This inhibition can be counteracted to some extent by morphine. Morphine tends to deepen respiration, which is what is wanted in pneumonia, as I have endeavoured to show. It is only in excessive doses that morphine paralyses the respiratory centre. One only observes a paresis of the respiratory and cardiac centres in pneumonia when the patient is dying, not because these centres are being paralysed by the toxins of the disease proper, but because they are being killed by an excess of carbon dioxide and a deficiency of oxygen due to mechanical stoppage of the circulation in the chest.

Regarding the third duty of the physician, to watch for complications, a few remarks may be made. The patient is so ill that when once the diagnosis of lobar pneumonia has been made the physician is disinclined to worry and fatigue him with frequent or searching examinations. Nevertheless, he should closely watch and examine; events of the most serious nature are apt to develop with great rapidity, and they are sometimes amenable to direct surgical treatment; of these may be mentioned:—

1. *Purulent pericarditis.*—This is difficult to diagnose unless careful examinations are made, and it is not a very uncommon complication. I was called once to take over a case of pneumonia from a medical man who was going away. He pointed to the man and said he was dying. And so he was: he was practically unconscious, gasping, pulse a flutter. I noticed his feet were œdematous, and I examined his heart carefully and came to the conclusion that he had developed purulent pericarditis. The aspirator confirmed the diagnosis, so I operated at once. An anæsthetic was not needed as the patient was too moribund to feel. I removed the cartilage of the left fifth rib and it was then quite easy to make a vertical incision in the tense pericardium and to sew its edges to the wound. About ten ounces of thick yellow pus escaped and the furry surface of the heart was easily seen and felt. The patient rapidly improved and was sitting up in bed with a normal temperature a week afterwards. He then went out of my charge, and on the fourteenth day a hospital assistant syringed out the pericardial sac and infected it, for death occurred from stinking pericarditis on the seventeenth day. The case shows well enough that life may be saved by timely recognition and treatment of purulent pericarditis.

2. *Purulent pleurisy* is by no means infrequent. I once had eight cases of pneumonia sent to my hospital on the same day from a regiment on route march. Two of these developed pus in the chest and were saved by operation and a third developed a large abscess in the peri-peritoneal tissue between the umbilicus and the pubes. All the cases recovered. One must always regard pneumonia as a septicæmia and be prepared to discover pus, especially in connexion with the great serous surfaces of the viscera, the pericardium, the pleura, and the peritoneum. These cases are best treated when recognised soonest.

Lastly, I think the time has come seriously to consider whether it is not justifiable to try to save a patient who is dying on account of clot in the right heart and pulmonary artery. I think the symptoms are usually sufficient to justify the diagnosis, and when the patient is evidently dying the most desperate procedures become permissible. The clot is usually a big solitary one and can be reached from the trunk of the pulmonary artery. It is thick and strong and can be pulled out entire. The operation has already been attempted two or three times on the living subject for embolism, and there is reason to think that it can be done successfully. In pneumonia the condition of the patient is less favourable than in embolism, but on the other hand the operation could be done before such urgent symptoms supervene as in a case of embolism. I have done the operation several times on the cadaver and it seems to be quite feasible. The sternum should be trephined in three places high up, and reflected to the left with the cartilages of the second and third ribs. Doyen's trephine is the safest kind to use. The crown trephines are not at all suitable. The pulmonary artery can be very quickly exposed. It seems to be worth trying as offering the only hope in these cases.

THE RADICAL CURE OF HÆMORRHOIDS: MODIFIED WHITEHEAD'S OPERATION.

By JOHN O'CONOR, M.A., M.D. DUB.,
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SOON after I became resident medical officer of the British Hospital, Buenos Aires, in 1891, I undertook my first "Whitehead," and as I had not seen it performed at home I closely studied the steps of the operation in Sir Frederick Treves's "Operative Surgery." In accordance with the instructions in the book I commenced with forcible dilatation of the sphincter, and was rather surprised to find that I had in a moment converted a rifle bore into that of a Gatling gun—truly a startling change in perspective for a novice. I confess I had not proceeded much further on my way before I concluded that I was tackling a big job. However, by the end of an hour the operation was concluded, with considerable bloodshed. The wound healed somehow, no contraction supervened, and permanent cure resulted.

During the following three years I operated in a similar manner on 40 cases, one of which resulted in fibrous contraction and some few of which developed the unpleasant complication, moist eczema ("weeping bottom"). One day I was tempted to depart from the orthodox lines, and I omitted the dilating performance, with the result that I found that I did the operation in 20 minutes with comparative ease and little hæmorrhage, and that I had most effectively removed the whole pile-bearing area right up to what I shall describe as the supra-morgagnitic circle. Having sown the act I reaped the habit, and for the past 17 years no dilatation beyond the insertion of the index finger to examine for growths, ulcer, &c., has been practised by myself or by my assistants, with the result that in 450 cases the average time occupied by us did not exceed 15 minutes, and all the patients were in a fit state to get up by the tenth day, and generally left hospital two or three days later.

I wish to invite the attention of surgeons to the various steps of what is looked upon in this hospital as a trivial and absolutely safe and curative operation, and before doing so I wish especially to emphasize the fact that the object in view is not to remove the whole rump but only the thin cuff of mucous membrane along with the loose areolar tissue which contains the hæmorrhoidal venous plexus which lines the anal canal. Also, I most strongly urge the necessity of using the senses of sight and touch so that no nipping or injury be done to the external sphincter during the primary dissection, and that Sir Charles Ball's sound advice should be scrupulously followed—viz., not to encroach too much on the skin when making the primary circular incision. Once having absorbed these few rudiments the rest is easy.

The day prior to operation the patient receives 5 grains of calomel, followed a few hours later by an ounce of castor oil. On the morning of operation a large soap-and-water enema is given, followed by a mercurial sitz bath. Ether by the open method having been administered, the part is thoroughly washed with alcoholic mercurial lotion (hyd. bichlor., 1 part; tartaric acid, 5 parts; water, 200 parts; alcohol, 800 parts) and dry sterilised towels are placed above

and below the operation field. About one minute is deliberately spent in placing four of Lane's artery forceps to the four cardinal points of the anal circle; these, irrespectively of rugosities, are applied exactly at the junction of the mucous membrane and the skin. The forceps, say, on the north and east are seized, one by myself and the other by an assistant, the intervening portion is rendered taut, and with a good scissors the muco-dermal line is rapidly divided; the same process is repeated with the remaining three segments, and thus the circular discission is effected. So far I should say the operation has lasted three minutes. The depth of this primary cut includes skin and some subcutaneous tissue.

In the next stage I introduce my left index finger into the anal canal to act as a guide, and I snip carefully with scissors right round and straight down to the submucosa; as the external sphincter comes into view it is pushed upwards with a blunt dissector. This process of defining the submucosa and pushing the sphincter up out of harm's way must be thoroughly carried out all round, and on no account must any advance be made until the adit level is struck the submucous coat, which "is composed of loose areolar tissue, which allows of a free movement of the mucous layer on the muscular coat, and which also admits, under certain abnormal conditions, of a prolapse of the mucous membrane through the anal orifice; the hæmorrhoidal plexus of veins is contained in this layer" (Cunningham). So convinced do I feel on this point that I honestly recommend any surgeon who cannot conscientiously satisfy himself that he has struck the Whitehead adit to sew the wound up, otherwise he will probably end in destroying the lower segment of the rectum. At the same time, I can guarantee anyone who cares to give this method a trial tnat he will be astonished to find with what ease, after a comparatively few snips of a scissors and gentle blunt dissection the whole lining of the anal canal can be freed from its attachments without any hæmorrhage worthy of the name. During this process of freeing the mucous cuff it is necessary to apply six or eight pressure forceps to the cut edge of the mucous membrane for traction purposes; the latter, by the way, must be done gently, for the forceps are liable to slip off or tear their way out. Indeed, it would express my thoughts better if I were to state that the mucous tube must be coaxed, not dragged, out of its bed. The cuff having been freed up to the transverse fold of the mucous membrane which indicates the site of the internal sphincter, I make a vertical slit in the former up to this point, and immediately suture the apex of the same to the skin, a series of small transverse snips are then made through it at this level, and I suture (continnous, No. 2 Lord Lister's catgut) as I go along. If any vessel spurts it is seized and ligated. When concluded the area of sutured circle ought not to exceed the size of a penny, unless there has been considerable previous prolapse, and even then a five-shilling bit ought to cover it.

I advise beginners not to suture too deeply; all that is necessary is to adjust the cut mucous membrane to the skin, and the less one attempts to use the suture for hæmostatic purposes the neater will be the line of union and the better will be the healing.

A morphine suppository is inserted, the part is thoroughly cleaned and dried, and a dry gauze sponge is applied and is kept in position by a pad of wool and a T bandage.

On the third evening 5 grains of calomel are given, followed by a tablespoonful of oil on the fourth morning. As often as the bowels act the dresser cleanses and dries the part, and reapplies dry gauze dressing. Frequently we find about the seventh day that there are some skin excrescences or tags remaining, which the dresser removes by first applying cocaine and then snipping them off flush with the skin.

On the tenth day the patient is allowed out of bed and is discharged a few days later with a pot of carbolised vaseline, into which he is instructed to dive his right index finger and nsert the same into his rectum three times a week for a month.

It is no exaggeration to state that during the past ten years not half a dozen cases ever troubled to come back for inspection. In all my operations (some 500) I have had only two cases of fibrous stricture resulting, one of which I eventually cured by Hegar's dilators; the other patient, a Hebrew, ran away, and may have sought relief in the Pool of Siloam for all I know. We know of only one instance of even partial relapse, which occurred in a case in which the patient had subsequently developed cirrhosis of the liver. There has not been a death.

I wish here to take the opportunity of thanking my assistants Dr. Cruickshank, Dr. Phelps, Dr. E. Burr, and Mr. J. Morris, not only for their personal assistance at my operations, but also for the thorough manner in which each of them in turn mastered the details of the procedure, and put it successfully into practice in scores of cases.

I regret to have occnpied so much space in so minutely describing the steps of this simple operation, but as I know for a fact that London students rarely see it performed I considered it expedient to enter very fully into detail. Why Mr. Whitehead's method should be tabooed in England I cannot surmise, unless it be due to some ignorant prejudice on the part of men in important clinical positions who have never troubled to master its details. Surely it is the acme of pedantic cant to be told by surgeons, who are unable to state that they have ever personally performed the operation, that Whitehead's is the worst one that has ever been invented for the cure of piles. What can be expected of any method if embryo surgeons are not taught how to do it in their hospitals? And I wonder what kind of results would hysterectomy, gastro-enterostomy, or even tracheotomy give under similar conditions. One might as well expect a man who had never been taught to bat to go in and make a century in a test match. As far as my knowledge goes, Whitehead's operation is the only one which merits the name of radical cure, and in my opinion it deserves universal application in the treatment of this common malady.

Buenos Aires.

MALIGNANT DIPHTHERIA WITH MULTIPLE LESIONS IN AN INFANT.[1]

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A FEMALE child, aged 6 weeks, hand-fed, was admitted to the Grove Fever Hospital for diphtheria on Dec. 4th, 1909. I am indebted to Mr. Redmond Roche, who certified the case, for the following history. The baby had suffered from snuffles since birth, but had shown no other signs of congenital syphilis. On Dec. 1st there was some nasal obstruction, but no discharge, and there was a small crack at the left angle of the mouth, but otherwise the mouth and throat were quite clean. The lungs were normal. The temperature was 99° F. On the 4th membrane was seen in the mouth and on the tonsils, and the child was removed to hospital. No source of infection could be discovered. On admission membrane was seen on the tonsils, anterior pillars, and uvula. Membrane was also present in the anterior nares, on the buccal mucosa, extending inwards for about an inch from each corner of the mouth, on the labia majora, and on the skin round the anus. From all these lesions diphtheria bacilli were cultivated. There were profuse nasal discharge, stertor, and a mucopurulent secretion from the eyes, but no membrane on the ocular or palpebral conjunctiva. 12,000 units of antitoxin were given subcutaneously on admission and on each of the two following days. The stools were frequent and green. On the morning of the 6th, in spite of an evident desire to take the bottle, all the feeds were regurgitated. Death occurred at 3.30 P.M. that day. During the three days that the child was in hospital the temperature did not rise above 98°.

At the necropsy membrane was found on the buccal mucosa, tonsils, anterior and posterior pillars, uvula, and epiglottis. The rest of the larynx and the trachea were free. There were double broncho-pneumonia with a recent infarct in the lower lobe of the right lung, and an ante-mortem clot in the right ventricle. The liver was large and congested. The other organs showed no macroscopical changes.

This case is of interest on account of the early age of the patient, the multiplicity and unusual situation of some of the lesions, and the malignant character of the attack. The

[1] A specimen of the case was shown at the Section for the Study of Disease in Children of the Royal Society of Medicine on Jan. 28th, 1910.

rarity of diphtheria during the first year, and especially during the first two months of life, is illustrated by the following figures. Of 7285 cases of diphtheria admitted to the Grove Hospital between August 23rd, 1899, and Dec. 31st, 1909, only 76, or 1·04 per cent., were under 1 year, and of these only four, including the present case, were under 2 months of age. This low morbidity has been attributed to various causes, such as immunity acquired in utero (Ehrlich),[2] antitoxin transmitted through the mother's milk (Schmid and Pflanz),[3] the acid reaction of the infant's mouth which is inimical to the growth of diphtheria bacilli (Monti),[4] and the relative isolation of children during the early months of life (Jacobi).[5]

Though the morbidity is low the mortality is high. In spite of serum treatment the mortality among the 76 patients under one year was 36·8 per cent., as compared with a mortality of 7·9 per cent. among the 7285 diphtheria patients of all ages. The high mortality is due to several causes. In the first place the infant's powers of resistance to infection are feeble under the most favourable circumstances, and they are still further reduced with artificial feeding, since gastro-intestinal troubles, as in the present case, are sure to be present. A blood examination which would probably have shown the absence of a protective leucocytosis was unfortunately not made in this case, but the lack of any reaction to the infection was illustrated in another way by the persistently subnormal temperature in spite of the extensive broncho-pneumonia. Secondly, the onset of diphtheria is unusually insidious and misleading in infants, often simulating an ordinary nasal catarrh. Serotherapy is consequently postponed until it is powerless to check the disease. Thirdly, the greater liability for diphtheria patients under one year to develop broncho-pneumonia helps to explain the high mortality. Thus the percentage of broncho-pneumonia among the 76 patients under 1 year was 28·9, as contrasted with a percentage of 1·10 among 7285 diphtheria patients of all ages.

As is the rule in infants, the diphtheritic process in the present case was primarily nasal, but instead of being confined to the nose, as is often the case at this age, the buccal mucosa and fauces were extensively invaded. As often happens in malignant diphtheria, the epiglottis was the only part of the larynx affected. The ano-genital diphtheria was probably due to auto-inoculation of pre-existent lesions due to diarrhœa. Cutaneous diphtheria, coexistent with diphtheritic angina, which was not infrequent in the time of Bretonneau and Trousseau, is rarely seen nowadays, and, as in the present case, is almost always the mark of a grave toxæmia.

The malignant character of the attack is shown not only by the extensive exudation and complete absence of reaction to antitoxin, but also by the early onset of palatal palsy, the occurrence of which before the third week is always a grave sign. Beyond slight epistaxis, no hæmorrhages were noted either in the skin, mucous membranes, or organs after death.

The case had been artificially fed, but children at the breast are not altogether immune to diphtheria. Epidemics in sucklings have been recorded by Siredey[6] in 1877 at the Hôpital Lariboisière and Hôpital des Enfants Assistés in Paris, and by Schlichter[7] in 1892 and Riether[8] in 1897 at foundling hospitals in Vienna. Six of Schlichter's 21 cases were from 1 to 3 months old and the rest from 6 to 20 days old. In 19 the fauces as well as the nose were affected. In the epidemic described by Riether 22 of the 31 infants were under 2 months old. All but 9, in whom the disease was purely nasal, had both faucial and nasal diphtheria. Most of Schlichter's and Riether's cases occurred in children naturally feeble or exhausted by previous illnesses, such as gastro-enteritis, bronchitis, or congenital syphilis.

I have been able to collect from the literature of the last ten years 11 sporadic cases of faucial diphtheria in sucklings whose ages ranged from 4 days to 8 weeks.[9] With antitoxin treatment 9 recovered and 2 died. In 8 the mother or other member of the family had recently had diphtheria. In the rest the source of infection, as in my case, was not discovered.

Grove Hospital, S.W.

[2] Quoted by Forest, loc. cit.
[3] Wiener Klinische Wochenschrift, 1896, p. 955.
[4] Quoted by Bilik, loc. cit.
[5] Twentieth Century Practice of Medicine, vol. xvii., 1899, p. 78.
[6] Thèse de Paris, 1877.
[7] Archiv für Kinderheilkunde, xiv., p. 129.
[8] Wiener Klinische Wochenschrift, 1897, p. 666.
[9] Auden: THE LANCET, vol. i., 1902, p. 1104. Bilik: Archiv für Kinderheilkunde, vol. xliii., 1906, p. 329. Forest: Ibid., vol. xlii., 1905, p. 75 (three cases). Lissner: Ibid., vol. xxvi., 1899, p. 371. Royer: The British Journal of Children's Diseases, 1908, p 307. Seibert: Archives of Pediatrics, 1905, p. 116 (two cases). Steen: Brit. Med. Jour., vol. i., 1900. p. 575. Uffenheimer: Jahrbuch für Kinderheilkunde, vol. lxviii., 1908, p. 76.

Reviews and Notices of Books.

Progressive Medicine: a Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, &c. Assisted by H. R. M. LANDIS, M.D., Visiting Physician to the White Haven Sanatorium, &c. Vol. I. March, 1910. London: Rebman Limited. Pp. 322. Price £2 net per annum (4 vols.), or 12*s.* each single volume.

THIS digest has now so firmly established its reputation as a most valuable summary of medical and surgical progress that further praise appears almost superfluous. The volume before us deals with the surgery of the head, neck, and thorax, with infectious diseases, with diseases of children, and with rhinology, laryngology, and otology. The first section is contributed by Dr. Charles H. Frazier and covers 113 pages. Among the matters with which it deals we may note the discovery that the facial nerve possesses some sensory fibres and the consequent operation for the removal of the geniculate ganglion for certain forms of otalgia; and also the advances made in the surgery of the pituitary body, in the direction of removal of tumours affecting this structure. Operation for the relief of Graves's disease is still in favour, and faith is still placed in oöphorectomy for cancer of the breast. In the domain of the surgery of the thorax advances are being made by means of the differential air-chamber, which may lead before long to procedures of great practical value; while operation for removal or relief of œsophageal cancer may also be proved feasible. The advice is given that in all operations for the removal of tuberculous glands in the neck, in cases in which there is any focus of disease in the lung, chloroform should be used for anæsthetic purposes.

The section on infectious diseases is written by Dr. John Ruhräh. In this field the proof afforded of the infective nature of acute anterior poliomyelitis is perhaps the most striking advance of the past year; while Still's identification of the microbe of posterior basic meningitis with the meningococcus has received confirmation. The writer notes that the common house-fly is "coming in for general condemnation as being a carrier of typhoid, dysentery, and of infantile diarrhœa, as well as other diseases at times, to say nothing of the contamination of milk and food by bacteria producing decomposition." In the field of treatment the leucocyte extract of Hiss has been found useful, while the view that stock vaccines are as efficacious as those cultivated from the actual patient (a view which we should hesitate to endorse) has led to more common application of this method of treatment. The study of leprosy has been stimulated by the annexation of the Philippine Islands by the United States, and one of the group, named Culion, has been set apart as a leper colony. The general opinion with regard to Calmette's ophthalmic reaction as a test for tuberculosis appears to be unfavourable on the ground of risk, but von Pirquet's modification may be valuable in children. A Wassermann reaction may be found in patients suffering from enteric fever before the appearance of the Widal test. In children with this disease perforation of the bowel is not uncommon; we are surprised to see the mortality of this accident placed as low as 44·28 per cent. The causal agent

of pertussis seems to have been identified by Bordet and Gengou.

No very striking advances in the domain of pædiatrics seem to have been made in the last year, but in the digest made here by Dr. Floyd M. Crandall we notice some work on the subject of the status lymphaticus, an obscure condition which is only gradually being elucidated, and in the field of infant feeding the unfavourable results obtained by the use of lactic acid bacilli in babies, as well as the doubt expressed as to the value of milk sugar as part of their dietary. The review of rhinology and laryngology is by Dr. D. Braden Kyle. Considerable attention seems to be at last being paid to the common "cold in the head," in which there would seem to be both constitutional and local factors, while the sequelæ of neglected colds are sometimes serious. Most recent work, however, has been devoted to the sinuses in connexion with the nose. In the fauces the tonsils are acquiring fresh importance from the point of view of the dentist, tonsillar trouble being both a cause and an effect of dental disease. The surgical treatment of laryngeal tuberculosis is now generally recommended. In the province of otology, here treated by Dr. Arthur D. Beal, much interesting work has been done on affections of the labyrinth and their connexion with nystagmus and vertigo, especially in relation to the so-called "fistula symptom." A plea is also made for more careful classification of cases of deaf-mutism.

We have only essayed in this brief account to glance at some of the matters noticed in the book before us. Each article is by a competent authority and is full of interest. We can cordially commend the book to all who are in need of a trustworthy account of recent researches in the subjects dealt with in this digest.

The Work of the Digestive Glands. Lectures by Professor I. P. PAVLOV, St. Petersburg. Translated by Professor W. H. THOMPSON, M.D. R.U.I., F.R C.S. Eng., Trinity College, Dublin. Second English Edition. Illustrated. London: Charles Griffin and Company, Limited. 1910. Pp. 266. Price 10*s.* 6*d.* net.

THE first edition of this work—which secured for its author the Nobel Prize in 1901—appeared in its English garb in 1902. Much progress in the subject with which it deals has been made since then. We welcome this second edition, which has been brought up to date mainly by the addition of the results of investigations carried out by pupils or former pupils of the St. Petersburg Laboratory. Most of these additions are scattered throughout the text, and for the most part they can only be discovered by the reader on comparing the present with the first edition. The increase in bulk of from 196 to 266 pages is partly accounted for by two extra lectures which have been added by the translator himself (Lectures X. and XI.)—about 50 pages—which deal with the passage of food through the alimentary canal under the following heads: deglutition, movements of the stomach, and passage of the food through the small and large intestines. In the first edition the number of lectures was nine; in the present edition there are 13, including the two additional ones.

The new arrangement of the lectures is distinctly better, and we may also say that there are considerable improvements in the translation itself. Many sentences have been recast and verbal changes made and all are for the better. One alteration may be puzzling for English readers. Russian names such as the following in the first edition—Pawlow, Wassiliew, Kuwschinski, Bassow, Chigin, become respectively Pavlov, Vasilieiev, Kuvschinski, Bassov, and Khizhin. The newer spelling is the more correct, but several of these well-known men, notably the author now under review, have always been designated in our pages under the older style. Confusion is therefore inevitable unless the reader is on his guard.

The first three lectures are substantially the same with additions, a full description with an added illustration being given of the details for making Pavlov's stomach-pouch for obtaining pure gastric juice. The fourth lecture on the nervous mechanism of the salivary glands is recast, added to, and greatly improved. Here also we find a important correction on p. 70, where salivary fistulæ are dealt with. For in place of Mendeljeff's "clip" (p. 68, first edition), we find Mendeliev's "cement" (p. 70, second edition). The efferent nerves to the salivary glands are spoken of as "commanding"; afferent nerves exciting them, "signalising" nerves. The study of the afferent side of the salivary nervous mechanism—the functions of the peripheral end organs of the buccal nerves—and the psychic secretion of saliva are carried over into Lecture V., which closes with the interesting and well-known account of fictitious feeding and the psychic secretion of gastric juice. Here again new matter has been added. The value of appetite is again and again insisted upon. "Appetite spells gastric juice" (Lecture VI., p. 95). Water, it appears, is an excitant of the gastric glands even after section of both vagi nerves.

Lecture VIII. is devoted to the pancreas and is one of the most interesting of the series, having regard to the recent discovery of "secretin"—a full account of the work of Bayliss and Starling, as well of the earlier observers, being included. So far Pavlov has been unable to prove any exciting effect of starch on pancreatic secretion, while fat yields more direct results, and so does sodium oleate when introduced into the stomach of a dog. The author cites experiments which appear to him to point to a direct psychic influence through the secretory nerves of the pancreas, such as has long been established for the secretory mechanism of the stomach. He even maintains that water is an independent and direct excitor of the secretory mechanism of the pancreas.

One lecture (IX.) is devoted to bile and succus entericus, a much better arrangement than in the previous edition. The actions of erepsin, arginase, lipase, and enterokinase are discussed. The translator in his two lectures gives an admirable account of the movements of the alimentary canal and the propulsion of food along this tube. In his account he has included the researches of Cannon and Hertz by means of the X rays. Several useful figures are introduced, including some by Cannon and Hertz and Starling. These two lectures add very considerably to the value of the work as a whole.

We feel sure that this edition will prove most useful both to students and practitioners—in some respects more useful than its predecessor. We cordially commend it not only as an admirable example of the value of physiological research as an aid to practical medicine, and as a sure basis for the treatment of disease, but also as a repository of facts connected with one of the most interesting and practical fields of experimental physiology.

International Clinics. Edited by HENRY W. CATTELL, A.M., M.D., Philadelphia, U.S.A. Volume I., Twentieth Series, 1910. London and Philadelphia: J. B. Lippincott Company. 1910. Pp. 301. Price 35*s.* net.

AMONGST the many interesting articles in this volume are three dealing with the modern methods of diagnosis of syphilis. Dr. H. F. Swift (New York) writes on the serum diagnosis of syphilis. He discusses at length the principles upon which the method is based, the theories of the nature and mechanism of the reaction, and its various modifications. He then describes the practical application of the reaction. He considers that it should be an important guide in

treatment and lays down the following rules: 1. As soon as a positive reaction appears in primary syphilis treatment should be instituted. He considers that the reaction, with the presence of spirochæta pallida, renders a diagnosis positive, and that by starting treatment before the appearance of secondary symptoms a dangerous saturation with the virus will frequently be avoided and the peril of the patient becoming an active distributer of the spirochætæ minimised. 2. In the first three years of the disease treatment can be more rationally controlled than by merely following the rule of a certain amount of treatment with periods of rest. By means of frequent observations in many cases the disease can be controlled with a small amonnt of mercury, whilst others will require constant recourse to treatment. 3. In the late latent period a positive reaction is an indication for further treatment, and, as a rule, this should be continued until the reaction becomes negative.

Dr. H. Noguchi (Rockefeller Institute for Medical Research) contributes an article entitled, "Further Studies on the Serum Diagnosis of Syphilis, with Especial Reference to the Antihuman Hæmolytic System." He gives a detailed description of the method he has introduced. It differs chiefly from the Wassermann technique in using human cells and antihuman hæmolysin instead of sheep cells and anti-sheep hæmolysin. In this way the source of error arising from the hæmolytic serum for sheep cells is eliminated. The Newer Diagnostic Methods of Syphilis of the Nervous System are described by Dr. B. Sachs (New York). He concludes that the Wassermann reaction is a great addition to our diagnostic methods. He urges that it should be practised regularly in every neurological ward as a guide to treatment, and that a knowledge of it should be part of the equipment of every neurologist.

Other interesting contributions to this volume are: The Tuberculins and Their Diagnostic and Therapeutic Use, by Dr. J. B. Nichols (Washington); The Diagnostic Value and Therapeutic Effects of the Bismuth Paste in Chronic Suppuration, by Dr. E. G. Beck (Chicago); and Tabes Dorsalis: Its Rational Treatment in the Light of Its Real Pathogenesis, by Dr. T. A. Williams (Washington).

Fevers in the Tropics: Their Clinical and Microscopical Differentiation, including the Milroy Lectures on Kala-azar. By LEONARD ROGERS, M.D.Lond., F.R.C.P.Lond., F.R.C.S.Eng., B.S.Lond., Major, I.M.S., Professor of Pathology, Medical College, Calcutta. Second edition. London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 428. Price 21*s.* net.

WE reviewed the first edition of this encyclopædic work in July, 1908. Since this appeared the present great advance in our knowledge of fevers in the tropics has necessitated the publication of a second edition. Inasmuch as the official duties of the author have rendered the work of revision very difficult, he has in the volume before us deemed it best to write an addendum comprising an account of the most important progress made during the last two years with regard to these fevers; the main additions relate to sleeping sickness, plague, blackwater fever, epidemic dropsy, and unclassified fevers. He has also recorded his further experience on the prevention of liver abscess by the cure of the early stage of the affection, and an important section on amœbic abscess of the liver based on a large number of cases, including recent advances in its treatment, has been added. We shall therefore in this review consider only the matter mentioned in the addendum.

With respect to kala-azar, Major Rogers opines from the facts ascertained by Ross concerning the biology of the parasites in this disease and in Delhi boil, that it is clear they are of different species, and hence that these two diseases are quite independent. Any prophylaxis for kala-azar to be obtained by the employment of a vaccine derived from Oriental sore is therefore not to be expected. Respecting sleeping sickness the author enters fully into the life-history of the glossina palpalis and the development of the trypanosoma Gambiense in tsetse flies. The prophylaxis of this terrible disease is considered under the heads of the destruction of the glossina palpalis, the destruction of the parasite in the human blood, the removal of the population from fly areas, and the prevention of the spread of sleeping sickness to new areas. As regards the actual treatment of a case, atoxyl, atoxyl and mercury, soamin, antimony, and arseno-phenylglycin are considered; and one fact with regard to these drugs stands out clearly—namely, that there is no one specific drug which can be relied on permanently to destroy the parasite within the animal tissues, as a few resistant forms survive and produce a relapse sooner or later, although the parasite may have disappeared previously from the blood, often for long periods. The most hopeful plan of treatment is to employ a different drug from that which has caused the parasites to disappear previously; thus, supposing this has been atoxyl, then when the relapse occurs mercury, arsenious acid, orpiment, or antimony should be tried.

Major Rogers next narrates his further experience of the ipecacuanha treatment of amœbic hepatitis in preventing tropical liver abscess. A number of instances of the success of large doses of ipecacuanha in rapidly curing very acute hepatitis with suspected abscess formation are now on record in India. At the European hospital in Calcutta this treatment was adopted in 25 cases during 1907–08. The very satisfactory result of this treatment is shown by the fact that in the general wards of this hospital no case has occurred during the last four years of acute hepatitis going on to the formation of liver abscess after admission, though previously this was a frequent occurrence. Still more striking is the number of patients sent from distant places for operation for liver abscess who completely recovered under treatment by ipecacuanha, having come under observation just in time to prevent suppuration taking place. Major Rogers has conferred a great benefit on suffering humanity by reviving the ipecacuanha treatment, which was so firmly impressed on his hearers by that master of tropical diseases at Netley, Surgeon-General W. C. Maclean, who always used to insist in his lectures that ipecacuanha was of equal avail in acute congestion of the liver as in dysentery.

In the chapter on æmœbic suppurative hepatitis the author gives a very comprehensive survey of the whole subject. He enters fully into its geographical distribution and the predisposing causes with regard to age, sex, and race incidence. As to the last factor, Major Rogers shows that liver abscess is much more common amongst the natives of India than has commonly been admitted hitherto. Alcohol, though by no means essential as a cause, yet predisposes in a marked degree; whilst as regards malaria, the author knows of no reliable evidence that it in any way favours the formation of liver abscess. The many points of difference between amœbic and bacterial liver abscess are pointed out, and we are glad to see it noted that there may be abscess without any fever whatever. Respecting the actual cause of tropical abscess Major Rogers holds this to be the amœba, no bacterial pyogenic organisms being required to assist its evolution. The relationship of antecedent dysentery to amœbic liver abscess has long been a subject of dispute, there having been much difference of opinion concerning this question. The author, as the result of his extensive experience as professor of pathology in the Medical College, Calcutta, definitely states that the whole of the evidence he has collected points to the former disease as constantly preceding the latter. This opinion should carry weight as being that of a thoroughly

trustworthy witness. The symptomatology, varieties, complications, and pathological anatomy are detailed in a manner leaving nothing to be desired. Finally, the various methods of treatment are portrayed. Attention is drawn to the great success following Manson's operation, Mr. Cantlie having had 82 recoveries in 100 cases. Major Rogers advises in addition the daily washing out of the intestine with sterile quinine solution, a method which he follows in his own procedure with his flexible sheathed trocar for sterile syphon drainage. He also advises that as soon as the patient can stand it a course of ipecacuanha should be given in the after-treatment of every amœbic liver abscess. Where the abscess has burst through the lung it is often difficult to decide whether operative procedures are advisable or not; the majority of cases make a good recovery without surgical interference, whilst where necessary the latter may be rather difficult to carry out. If the patient be losing ground the abscess should be drained through the chest wall without delay. This section ends with the method of treatment by aspiration and injection of quinine without drainage, a method introduced by the author; the experience so far clearly shows it to be worthy of an extended trial in all cases where there is no definite contra-indication to its adoption. The remaining sections of the addendum deal with epidemic dropsy, certain unclassified long fevers, the recent work on blackwater fever, and the etiology of plague.

In conclusion, we can only express the pleasure we have had in reviewing this work. No physician in India should be without it.

Die Krankheiten der oberen Luftwege. (*Diseases of the Upper Respiratory Tract.*) By Professor MORITZ SCHMIDT. Fourth edition. Edited by Professor Dr. EDMUND MEYER. With 180 figures in the text, 1 helio-engraving, and 5 coloured plates. Berlin: Julius Springer. 1909. Pp. 766. Price M.22.

Professor Edmund Meyer, in editing this the fourth edition of the late Professor Moritz Schmidt's work, has done so without either sinking his own identity or altering the previously expressed views of Professor Schmidt. The first and fourth chapters are devoted to anatomy and physiology of the upper respiratory tract, and these are more comprehensive than is usual in English or American text-books and go much more fully into the subject, though the desirability of doing so is quite open to discussion. We are inclined to think that the more a book is meant as a book of reference the less need there is for material properly belonging to works on anatomy, physiology, &c. The third chapter deals with errors of development and their causation; the fifth with general etiology and prophylaxis; next symptomatology, general and local, followed by methods of investigation, subdivided into illuminants, disinfection of instruments, position of examinee and examiner, and the methods adopted for each separate part of the upper airways, including the œsophagus. The medicinal local therapy, the galvano-cautery, &c., and the local operative therapy are all disposed of *seriatim* with an attention to minutiæ distinctly more frequently found in continental than in the Anglo-American text-books. Catarrhal conditions, acute and chronic, tonsillar affections, nasal sinus diseases, tuberculous and syphilitic diseases, and abnormal states of the upper respiratory tract caused by acute specific fevers, exanthems, and other diseases of the body affecting these parts, directly or indirectly, receive full attention at the hands of Professor Meyer. The chapters on new growths of the nose and throat are of peculiar merit, and those on nerve lesions and neuroses contain all that is known on the subject. Professor Meyer has performed a useful work in keeping all parts of this well-known book up to date. To students who are thorough German scholars it will prove of the greatest value, and for teachers it will form a real addition to their reference library.

LIBRARY TABLE.

Das Altern und der Physiologische Tod. (*Ageing and Physiological Death.*) Von M. MÜHLMANN, Prosektor in Balachany (bei Baku). Jena: Gustav Fischer. 1910. Pp. 44. Price M.1.20.—This brochure is one of a series of anatomical and physiological discourses that are issued under the direction of Professor Gaupp and Professor Nagel. Ageing and physiological death are both old and familiar subjects, more especially the former, though authors have treated them from very different points of view. Ageing is taken here as involving the idea of growth and the changes that accompany growth. The author deals with what he calls physical growth—i.e., the growth and changes in the tissues and organs which accompany age. To this end he begins with a study of what was formerly called fatty pigmentary degeneration in nerve cells, but which, in the light of recent researches, he prefers to call lipoid granulations; and he expresses the opinion that the enfeeblement of the nervous system with age is associated with anatomical changes in nerve cells, especially as represented in degenerative pigmentary atrophy. But pigment granules are not confined to aged nerve cells. They occur normally in young nerve cells, and undergo changes in depth of colour, aggregation and number, and perhaps in chemical constitution with age. This is an interesting chapter on the subject of pigmentary degeneration, and should be useful both to the physiologist and pathologist. The lipoid changes occur both in the protoplasm and in the nucleoli of the nerve cells. The degenerative changes associated with age are set forth on p. 13, and a summary of the author's views is given on p. 33. Indeed, he refers the atrophy of the skin, muscles, bones, brown atrophy of the liver and the heart which occur in old age, to degeneration of the nerve cells, and comes to the conclusion that "Der physiologische Tod ein Hirntod sei"—i.e., that physiological death is due to the brain. Proceeding to deal with physical growth, with its periods of progression and retrogression, he points out that all the various systems do not reach their several maxima at the same time. The retrogressive changes take place chiefly in internal parts because, compared with external parts, they are less efficiently nourished. Then follows an interesting account of the physical growth of the body, the weight of skeleton, brain, and muscles. The growth in the muscles and skeleton runs parallel with the total body weight, but not so the other organs. He then deals with the theories of growth, and regeneration of tissues and the elementary structure of living matter, and ends with the dictum, "Das Wachstum bewirkt den Tod" (Growth brings about death). It is an interesting and readable essay.

A Handbook for Nurses. By SYDNEY WELHAM, Resident Medical Officer, Charing Cross Hospital. London: Mills and Boon. 1910. Pp. 230. Price 3*s.* 6*d.* net.—This volume does not profess to be a manual of nursing, but rather to provide an elementary guide to the symptoms of the commoner diseases, and to the methods of treating them, which come into the nurse's sphere of action. The ideal of the book is not an easy one, and the result is decidedly unequal in value. It is not full enough for a book of reference, and as a text-book of general instruction its value is marred by inexpert writing and feeble construction. In spite of these defects, which may easily be remedied in subsequent editions, the author's wide and accurate knowledge of work in hospital wards has ensured a useful introduction to modern therapeutical methods and modern classification of diseases. Nurses will certainly find the handbook a valuable aid to their practical work, as the author

has the gift of writing down to the level of a lower scientific education than his own—a gift which by no means belongs to all.

Nightshade. By PAUL GWYNNE. London: Constable and Co. 1910. Pp. 431. Price 6*s.*—To those who like lurid portrayal of lurid incidents this novel will appeal. The story is a confusion of feverish incidents and unlikely characters, but it is certainly not dull. A musician, who is the subject of some form of defect of colour sense which is so intense as to render him completely blind, is the hero. The little science to which we are treated is as unconvincing as the character of the quack oculist who deals with the blind man. Only lovers of sensational fiction should attempt the volume.

Where Shall She Live? The Homelessness of the Woman Worker. By MARY HIGGS and EDWARD E. HAYWARD, M.A. London: P. S. King and Son. 1910. Pp. 216. Price, cloth, 2*s.* 6*d.*; paper, 1*s.* 6*d.* This little volume gives an excellent account of the difficulties experienced by lone women in finding suitable housing accommodation in London and large towns. It is published under the auspices of the National Association for Women's Lodging Houses, and forms a considered reply to the numerous inquiries which are constantly addressed to the secretaries of this association. The authors have both wide and practical experience of their subject, though it covers such diverse fields as casual wards, common lodging-houses, and "living-in" barracks attached to large shops. The book is free from any undue sentimentality, and cannot fail to be of value to all workers for social reform who have to advise and assist young women.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by Sir E. RAY LANKESTER, K.C.B., F.R.S., with the coöperation of ADAM SEDGWICK, M.A., F.R.S., SYDNEY J. HICKSON, M.A., F.R.S., E. A. MINCHIN, M.A., and GILBERT C. BOURNE, M.A., F.R.S. With lithographic plates and text-figures. London: J. and A. Churchill. New Series, No. 218. Vol. LV., Part 2. June, 1910. Price 10*s.*—This part contains six articles: 1. The Structure and Life-history of Crithidia Melophagia (Flu.) an Endoparasite of the Sheep Ked, Melophagus Ovinus, by Annie Porter, B.Sc. Lond., Zoological Research Laboratory, University College, London, with two plates and 15 text-figures. The sheep ked, or louse or tick, is a blood-sucking dipterous insect, with extremely reduced wings, belonging to the Hippoboscidæ. The parasite is of peculiar interest, since Miss Porter is able to establish a double mode of infection, both hereditary and casual. Owing to the effective operation of the "dip" laws in England specimens of "keds" are hard to procure in this country, and it seems probable that they may become extinct. Many specimens of the melophagus, however, were found to be infected by a fungus, and when the fungus was present crithidia very rarely occurred; the fungus was fatal to the crithidia. Crithidia can be found throughout the length of the alimentary canal of melophagus ovinus. In the fore part they are small, rounded, non-flagellated forms, which when they come in contact with the blood rapidly develop and divide, the products of division becoming the typical flagellates throughout the rest of the canal. The ovaries and ova serve as places in which a kind of post-flagellate development occurs, passing through a resting stage. No flagellate was found in the sheep's blood. Miss Porter describes the very active movements of the flagellates. The blepharoplast or kinetoblast stains deeply. Chromidia are present. The flagellate divides longitudinally, and is described. Anticoagulin seems to be present in the alimentary canal of melophagus ovinus. 2. Studies in the Experimental Analysis of Sex, by Geoffrey Smith, Fellow of New College, Oxford, with a plate. This article deals with the effect of Sacculina neglecta on the male spider crab or Inachus and on young immature females. 3. Some Observations on a Flagellate of the Genus Cercomonas, by C. M. Wenyon, M.B., B.Sc. Lond., with 19 text-figures. 4. Some Observations on a new Gregarine, Metamera Schubergi (*nov. gen., nov. spec.*), by H. Lyndhurst Duke, B.A., B.C. Cantab., with two plates. 5. On the Anatomy of Histriobdella Homari, by Cresswell Shearer, M.A., Trinity College. Cambridge, with four plates and five text-figures. This animal is a normal inhabitant of the branchial chamber of the European lobster. It appears to be a highly specialised ossiculate form retaining many rotifera features. It is to be placed close to dinophilus. This article contains a very carefully drawn-up account of the histriobdella and ends with a good bibliography. 6. On the Artificial Culture of Marine Plankton, by E. J. Allen, D.Sc., director of laboratories and secretary of the Marine Biological Association, and E. W. Nelson, assistant naturalist. The solutions and the conditions for preserving the lives of many marine animals are given.

Jahreskurse für Ärztliche Fortbildung. August, 1910. (Annual Post-Graduate Course in 12 monthly parts.) Munich: J. F. Lehmann. Price 16 marks per annum.—This month's part deals with general therapeutics in the largest sense of the word. It is somewhat characteristic of the German attitude towards anæsthesia that this should be treated as a problem of pharmacology and dealt with by a pharmacologist, Professor Kionka of Jena. His article is devoted to a consideration of the various ether and chloroform mixtures and the very numerous methods and kinds of apparatus which are employed. The conclusion arrived at is that a proportion of chloroform to ether of about 1 to 5 or 6 is the best. The same author, under the heading of Balneotherapie, discusses the influence of baths containing a large proportion of calcium salts upon the metabolism. The rôle of calcium in relation to the blood and all the secretions, especially those of the genital organs, is being more and more recognised as a matter of importance. Dr. Strasser considers the subject of hydrotherapeutics in relation to the treatment of acute infectious diseases. The work begun by Brand, and now adopted almost universally in America and on the Continent, in treating enteric fever by regular baths is well known, and the results obtained have been so striking that it is wonderful how English physicians can still regard it with indifference. Probably they are prevented by popular sentiment from carrying out this treatment, and therefore it is hardly likely that it will be adopted in such diseases as measles and scarlet fever, in which we are told that it gives very good results. Dr. Determann gives an excellent summary of the various factors concerned in the action of air and light in the treatment of disease. The indications and contra-indications for this treatment are clearly set out. Dr. Strauss's article on chloride-free diet explains the advantages of this in the treatment of kidney diseases and dropsy, and it gives a very useful table showing the percentage of chlorides contained in the various common articles of diet. The subject of sick nursing is discussed by Dr. Salzmedel, who considers the newly introduced State examination for nurses in Prussia. A highly technical article on the reaction of living organisms to electrical currents by Dr. Frankenhäuser is followed by one by Dr. Holzknecht dealing with Roentgenology. The action of the X rays upon myomata, leukæmia, Graves's disease, and chronic arthritis is described, and some figures are given relating to the results obtained in hematology. The improved technique of Roentgen apparatus is

reviewed shortly. The volume concludes with an article by Dr. Freund on light treatment. Every page of this number is full of practical interest.

Edinburgh Medical Journal.—In the September number Dr. Arthur J. Hall and Dr. J. M. Beattie record a case of chronic interstitial pneumonia, which appeared to follow influenza. No bacteriological examination, except a search for tubercle bacilli, which was negative, is mentioned. The authors regard the pulmonary fibrosis as due to extension from the pleura. Dr. A. Dingwall Fordyce writes on the care of the infant and young child in Edinburgh; his article is to be continued in the next issue. Dr. R. J. Dick reports three cases of acute pancreatitis with hæmorrhage; the first patient recovered from one attack, to die in a second; the second patient recovered after operation; and the third died in spite of surgical aid. No gall-stone was present in the first case—the only one to come to necropsy. Mr. James Hodsdon gives notes of a case in which a sarcoma was successfully removed from the brain, the patient being still alive and well two years and four months afterwards.

Birmingham Medical Review.—In the August number Mr. A. W. Nuthall reports two cases of cervical abscess due to the diphtheria bacillus, in which recovery took place after specific treatment. In the first the true Klebs-Löffler bacillus was found and antitoxin used; in the second the "pseudo-diphtheria" bacillus was found and vaccine treatment employed. Dr. W. H. Wynn contributes a review of recent investigations on epidemic poliomyelitis.

New Inventions.

THE "QUARTZLITE LAMP."

By the courtesy of the Brush Electric Engineering Company, Limited, of Falcon Works, Loughborough, Leicestershire, we have recently been able to examine closely the properties of the intense light given by the mercury quartz lamp which they have placed upon the market for the purposes of general illumination.

The construction of the lamp is most ingenious, the mechanism of it providing for the automatic coupling up of the mercury electrodes, which is momentarily necessary before the light can be a going concern. The "burner" consists of a vacuum tube of quartz, this material having, in fact, made the mercury lamp possible, as glass is not able to withstand the heat. At either end of the quartz tube are small U tubes, which, containing mercury, serve as the negative and positive mercury electrodes. The tube is placed in a cradle, which on switching on the current tilts so that the mercury flows down, and the electrodes are momentarily brought into contact, and as they separate an arc is formed which vaporises and renders incandescent the small quantity of mercury existing in the vacuum space. The result is a steady horizontal column of intense light, which is very rich in those chemical active rays of the sun known as the ultra-violet rays.

A maximum of intensity is reached after a few minutes' working. The lamp can be connected with the ordinary socket usually employed for receiving the incandescent filament lamp on a circuit of from 100 to 250 volts, but the light given by the mercury-quartz lamp on this circuit is from 1800 to 2500 candle-power. The general appearance of the quartzlite lamp is seen in the accompanying illustration. It is probable that this system provides the most economical and efficient method of lighting large open spaces, such as harbours, docks, shipyards, sidings, and goods yards; while it is suitable also for textile, printing and other factories and workshops in which the colour of light is not so important as its quantity. These commercial applications are, of course, of great importance, and in the event of the system becoming general it is of equal importance to determine what the influences on health may be of the particular kind of light produced by the discharge of electricity through attenuated mercury vapour. On the face of it the effects should be in its favour, since to the ultra-violet rays of the sun are attributed the virtues of sunlight itself. They produce, for example, ozone, and the smell of ozone when the quartzlite lamp is "burning" is very obvious, and its presence is readily detected by chemical tests. It follows that the quartzlite lamp must have a favourable influence on the air, for organic impurities are readily destroyed by ozone. Then it is well known that ultra-violet rays are destructive to bacterial life, so that the quartzlite lamp is calculated to effect both a chemical and biological purification of the air in buildings where such purification is very often sorely needed. Of these purifying effects we have gained distinct evidence. The lamp imparts a curious and attractive freshness to the air of the room; there is a peculiar feeling of vitality about it characteristic of pure fresh air. Its oxidising effects are shown by the rapid appearance of iodine in an acid solution of iodide, effects which are absolutely identical with those obtained when sunlight is applied to the same reagent. Acid solutions of quinine exhibit a brilliant blue fluorescence in the rays, but the most brilliant demonstration of the richness in ultra-violet light of the quartzlite is seen when a solution of fluorescein is brought into the neighbourhood of the lamp. The light fails, however, to illuminate coloured bodies in the same way as sunlight owing to the absence of chiefly yellow and red rays, but this has been compensated for to some extent by the use of a pole of tantalum. Still the colour of the flesh appears somewhat ghastly owing to there being no response to red, and the face and fingers look a livid blue. These effects are, however, very much softened when the lamp is placed in a high-up position, and when the rays are diffused through a frosted globe. The impression the lamp then gives is that of a room brilliantly lighted by moonlight, soft, cool, and unirritating. The penetrating power of the light is great, and details are shown with remarkable sharpness. We hope to record later some experiments made with this lamp on certain pathogenic organisms. It may safely be anticipated that when this lamp is combined with some device which will supply the rays now missing in its spectrum an admirable source of illumination will be found, since it will be nearest sunlight that human agency has so far been able to find for artificial lighting purposes. As it is, it gives the active part of the sun's radiations in unstinted quantity.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Karl Franz, professor in the University of Kiel, has been appointed Professor of Midwifery and Gynæcology. Dr. Hübener, staff surgeon, who has published a considerable number of important researches, mainly on bacteriological questions, has been granted the title of Professor.—*Cairo:* Dr. H. B. Day and Dr. L. Powell Phillips have been appointed Professors of Medicine.—*Clausenburg:* Dr. Franz Veress has been recognised as *privat-docent* of Dermatology.—*Göttingen:* Dr. Wolfgang Heubner, extraordinary professor and director of the Pharmacological Institute of the University, has been promoted to be Ordinary Professor.—*Jena:* Dr. W. Stock, extraordinary professor in the University of Freiburg, has been appointed to the chair of Ophthalmology in succession to Dr. Wagenmann.—*Kiel:* Dr. Louis Michaud has been recognised as *privat docent* of Medicine.—*Leysin:* Dr. Friedrich Quensel, *privat-docent* of Neurology, has been appointed to succeed the late Professor Windscheid as Chief Physician to the Schkeuditz Institute of Nervous Diseases.—*Marburg:* Dr. Paul Ostmann, extraordinary professor of otology, has been promoted to an Honorary Professorship. Dr. August Gürber has been appointed Professor of Pharmacology.—*Padua:* Dr. Ferdinando Soprana, *privat-docent* in Sassari, has been recognised as *privat-docent* of Pathological Anatomy.—*Palermo:* Dr. Ettore Savagnone has been recognised as *privat-docent* of Pathological Histology, and Dr. Gerolamo Rizzuto as *privat-docent* of External Pathology.—*Parma:* Dr. Andrea Manno has been recognised as *privat-docent* of Anatomy.—*Pisa:* Dr. Mario Carnis has been recognised as *privat-docent* of Experimental Physiology and Dr. Italo Franceschi as *privat-docent* of External Pathology.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 24, 1910.

The Present Position of Vaccine Therapy.

ALTHOUGH bacteriology is comparatively a parvenu among the biological sciences, its outlook was so tremendous that it was inevitable that it should profoundly influence the theory and practice of medicine. This was seen from the first by the more clear-eyed members of the medical profession, and its recent developments in connexion with the diagnosis, prophylaxis, and treatments of disease are bearing out their prognostications. It has rendered our conceptions of the reactive processes induced in the body by pathogenic organisms more exact and more definite. The abstruse and complex researches into the nature of immunity, which with their intricate, redundant, and involved terminology are the despair of the busy practitioner, have yielded practical results the importance of which it is difficult to over-estimate, and the ultimate applications and uses of which it is not easy to forecast. The discovery of serum therapy was a notable advance, and though it may be, as yet, of somewhat limited application, yet in regard to diphtheria and some other infections it has enriched our methods of treatment and prophylaxis. It is, however, in connexion with recent developments in the use of vaccines that interest and indeed controversy, sometimes of a somewhat acrimonious character, have been aroused. It is too often supposed that vaccine therapy is the newest form of treatment derived from bacteriological researches. This is far from being the case, since some of PASTEUR'S methods of treatment were by means of vaccines, while KOCH'S original methods of treatment by tuberculin were also of this nature. The new features in regard to vaccine therapy are its widespread applications, its developments in regard to mixed infections, and the claim that it should be controlled by the opsonic index. The report of the important discussion of the subject before the Royal Society of Medicine during May and June deserves careful consideration by all who are interested in the progress of rational therapeutics. It will appear soon in the journal of the society, and with the view of enabling our readers to follow the argument more readily we published in last week's issue of THE LANCET Sir ALMROTH WRIGHT'S introductory address, together with an abstract of the remarks of subsequent speakers. We do not now exactly review the present position of this means of treatment and the methods of dosage and control so much as indicate what are the arguments put forward for or against them. Sir ALMROTH WRIGHT in his interesting and stimulating address made a somewhat breezy digression as to the relations of the bacteriologist and the practising physician to one another and to the patient. We cannot quite agree with his contention that there is any desire on the part of clinicians to oppose the application of bacteriological methods, to belittle the achievements of the bacteriologists, or to prevent them from receiving their due professional recognition and emoluments. Speaking from our own experience here, where the joint work of the clinician and the bacteriologist is so often under consideration, we believe that there is an honest desire on the part of every right-minded practitioner to master not only the methods of bacterio-therapeutics but also, in so far as is possible to him, the principles underlying them also. We are, however, in complete accord in regard to Sir ALMROTH WRIGHT'S dictum that an acquaintance with bacteriological methods sufficient to enable them to be utilised practically should be part of the curriculum of every medical student. All will allow, we believe, that the patient must be studied at the bedside and that purely laboratory investigations can never, with safety, replace the careful study of the patient and his symptoms which forms the basis of clinical medicine. But there can be little doubt that methods of diagnosis and means of treatment will be evolved in laboratories to an increasing extent, in the application of which clinical knowledge and experience must continue to be of importance.

The essential feature of vaccine therapy is that it makes a direct appeal to the patient's own protective mechanisms and endeavours to evoke or to increase them sufficiently to enable a successful resistance to be made against the infective bacterial agent and its local or general effects. To quote Sir ALMROTH WRIGHT, the fundamental principle of vaccine therapy "is to exploit in the interest of the infected tissues the unexercised immunising capacities of the uninfected tissues." (The aphoristic phrase is but one of a score of felicities with which his address abounds.) The vaccine itself consists of bacteria devitalised by heat, or modified by some other agency or conditions, or it may be composed of extracts derived from the bacterial protoplasm by various means. The injection of the vaccine, if the dose be properly adjusted, leads to the development locally of antibacterial substances in quantities more than sufficient to neutralise the bacteria or bacterial substances introduced, leaving a surplus which can be carried by the blood and lymph to other parts to augment the resistance offered to the original infection. The response to the inoculation of a vaccine can be studied in various ways—first, the production of antibacterial substances can be measured by studying the opsonins, the agglutinins, or other antibacterial substances evolved; secondly, the effect of the injection upon the clinical manifestations of the infection—the local lesions, upon the temperature chart, and upon the general condition of the patient may be observed. Vaccines have now been employed in the treatment of a large number of infections, both general and local, with results sufficiently encouraging to warrant the hope that this method of treatment will prove to be of general application and utility. In some instances, for example, in furunculosis and other localised staphylococcal infections, and in cystitis and other infections of the urinary tract due to the colon bacillus, the results have been most striking, so that apart from questions of dosage and methods of control, this form of treatment has practically passed beyond the stage of controversy in these conditions. In regard to many other diseases it is still in the experimental stage, but in some of these, such as pneumonia, typhoid fever,

gonococcal infections, septicæmia, and endocarditis, encouraging observations are on record. Sir WILLIAM B. LEISHMAN, in his contribution to the discussion, referred to some observations made under his direction concerning the therapeutic applications of typhoid vaccines with results that he regarded as distinctly encouraging. In some forms of septicæmia and infective endocarditis vaccine therapy appears at present to offer the only hope of success, and in such conditions it is being extensively tried. In regard to tuberculous infections, there is considerable difference of opinion. By some writers tuberculin in one or other of its many forms is hailed as being of the utmost value, while by others its use is condemned. From published cases it appears to be of value in localised tuberculous lesions, including those of the skin and glands. In regard to pulmonary tuberculosis, no general consensus of opinion has yet been arrived at. It is used in many sanatoriums, and statistics are on record of cases treated with it giving greater proportions of successful results with longer periods of freedom than in cases not so treated. The question of auto-inoculation and its control by carefully graduated exercise and labour is also an important factor in the treatment of pulmonary tuberculosis, and one closely cognate to that of vaccine therapy. On the broad question of the value of tuberculin in the treatment of this disease the time is, however, hardly yet ripe for dogmatic pronouncement, and the attitude of the judicious is one of attentive expectancy—an attitude that has its wisdom though it is so often condemned as cowardly. The question of mixed infection is one which is now actively engaging the attention of the protagonists of vaccine therapy, and it is possible that the apparent failure of vaccine in some cases may be due to the fact that only one of the infecting organisms has been attacked. In any case, this aspect of the problem is one which demands careful consideration and one the further developments of which we shall await with interest. Sir ALMROTH WRIGHT in his plea for the general importance of vaccine therapy pointed out that "it is still comparatively unfamiliar matter that jaundice, bronchitis, common colds, many cases of asthma, infantile paralysis, and almost all cases of cardiac disease are one and all referable to microbial infection." He also brought forward evidence, which he regarded as suggestive, of the occurrence of a bacterial factor in the formation of scar tissue, in the production of X ray dermatitis, toothache, pruritus ani, hay fever, urinary calculi and enuria, and therefore he regards all these conditions as possibly open to amelioration by treatment with vaccines. Another application of vaccines which has afforded valuable results and is probably capable of yielding further advances is in the prophylaxis of disease. Prophylactic inoculations in connexion with typhoid fever and plague have now become almost routine procedures for those likely to be exposed to these infections. Sir ALMROTH WRIGHT goes so far as to suggest that since it is usual for each individual to possess a susceptibility to some special organism, vaccine therapy will in the future enable him to escape the consequences of this susceptibility by affording him a protection. We find him here on debateable ground, but he has thrown down a gauntlet which no one appears to have picked up.

Indeed, one of the striking features of the discussion before the Royal Society of Medicine was the fact that the speakers almost without exception testified to the value of the method of treatment by vaccines. The actual points which came in for criticism and discussion were the limitations of the method and the various modes of administration. The postulates laid down by Sir ALMROTH WRIGHT were in brief—the necessity for an exact and complete bacteriological diagnosis, kept up to date during the treatment; the necessity for bacteriological knowledge on the part of the person employing the method; the facts that there are definite limits to the responsive power of the patient, that successful results can only be obtained where an efficient lymph stream can be conducted through the foci of infection, and that in long-standing infections a long succession of inoculations may be necessary. He also maintained that in a not inconsiderable percentage of cases it is essential to success that the dose of vaccine shall be controlled by measurements of the opsonic index. It was this contention which was subjected to most criticism during the discussion. While many speakers admitted its utility, they pointed out the difficulty it imposed upon the use of vaccines owing to the time, labour, and expense involved in its repeated determination. Dr. T. J. HORDER said without compromise that the doctrine of the opsonic index was the great artificial limitation to the use of vaccine therapy, while Dr. A. LATHAM pointed out that if the opsonic index was necessary as a guide this must greatly restrict the utilisation of vaccines. All the speakers who regarded the opsonic index as unnecessary maintained that careful study of the temperature chart and of the clinical symptoms would afford sufficient indications as to the effects of the vaccines given, and enable the doses to be properly adjusted as regards quantity and as regards the intervals between the administration of successive doses. In connexion with the mode of administration, most of the speakers favoured the hypodermic method as more certain and more effective than the oral. The net result of the discussion was to indicate a widespread belief in the usefulness of vaccine therapy and to prove an expectation of great results from it in the future, when the questions of the proper control of dosage have been more definitely worked out. Our own contribution to the debate is of the tritest. It must be remembered that vaccines are potent agents and require using with discrimination and only when the bacteriological indications for their use have been established. Their indiscriminate or fortuitous administration is dangerous and can only lead to disappointment or disaster, and so to discredit of the method.

Surgery in Japan.

THE introduction of European learning into Japan has manifested itself in all branches of science, and in medicine and its ancillary sciences the progress has been as remarkable as in any other sphere of knowledge. At first the Japanese were indebted to European teachers, but only a few years elapsed before it was possible to supply all the professorial chairs with native students who had been trained in European universities. The receptive nature of the

Japanese mind made the absorption of foreign learning easy; its originality has enabled it to contribute its share to all branches of medical science. It is perhaps in pathology and bacteriology that we are indebted chiefly to Japanese research, and not improbably the intense power of application and attention to minutiæ so characteristic of the Japanese mind is peculiarly adapted to researches in these subjects. In the present issue of THE LANCET we publish the first part of an interesting summary of his recent clinical work by YOSHIHIRO TAKAKI, Professor of Surgery at the Medical College of the Tokyo Charity Hospital, and we hope in a later number to print as a sequel a further contribution from his pen dealing with the ever-fresh subject of appendicitis. The article appearing in to-day's issue deals with three matters: firstly, the treatment of internal piles by Whitehead's operation; secondly, the thymus treatment of carcinoma; and thirdly, perforation of the intestine in typhoid fever: the variety of the topics selected for treatment is a proof of the general preparedness of surgery in Japan.

Whitehead's operation from its introduction has met with a very mixed reception at the hands of the surgeons of this country. By some who use it largely it has been extolled as the best method of radical cure of internal hæmorrhoids; its results are looked upon as perfect, its performance is claimed to be simple, and harmful sequelæ are said not to exist. A very different opinion, however, is held by others, for these maintain that the operation is difficult, that the risk of a fibrous stricture is very great, and that much blood may be lost during its performance. By these the operation is utterly condemned, and as a consequence never performed. Where we meet opinions so diametrically opposed some explanation must be forthcoming, and this explanation is undoubtedly to be found in the method in which the operation is performed. The enthusiasm of those who perform the operation is very great, and amongst these must be classed Professor TAKAKI. He has, he tells us, performed the operation in 176 cases and he is thoroughly satisfied with it, but to attain his measure of success it is necessary, he claims, to pay attention to many details. He discusses the various stages of the operation, and the point on which he chiefly insists is the importance of performing the excision in stages. He considers deliberately the objections which have been raised against Whitehead's method. In text-books, for example, the complaint is sometimes made that the operation takes a long time, and half an hour has been given as the time required. Professor TAKAKI acknowledges that in some of his earlier cases, owing to his inexperience, the operation took about this time, but now he can perform it in from 10 to 15 minutes. The amount of hæmorrhage also is often advanced as an objection to the operation, but here we have it pointed out that if the method by stages of removal of the hæmorrhoidal tissue is used but little blood will be lost. Should a cicatricial ring form he considers that it is due to the giving way of some of the stitches, probably brought about by too early an action of the bowels. On two points in the after-treatment Professor TAKAKI insists. The patient must be kept in bed for at least two weeks and no aperient should be given until the evening of the ninth day. Of the 176 cases in which he has performed the operation all were completely successful except seven, and the failures appear to have been nearly all due to preventable causes—for instance, of the three cases of resulting stricture two of the patients left the hospital a few days after the operation, and we find the result was attributed to want of care on their part; and in the third case the bowels were allowed to act before the wound had had time to unite completely. There was one fatal result in which death was caused by pulmonary embolism. In this case the operation was performed on a patient in a condition of extreme anæmia caused by hæmorrhage from the piles, and Professor TAKAKI operated after trying, without success, other methods of arresting the hæmorrhage. It will be of interest to our readers to see another paper in THE LANCET of to-day on Whitehead's method of treatment of piles. This is by Dr. J. O'CONOR of Buenos Aires, who approves highly of the operation and has performed it some 500 times, the point that he considers of most importance in the technique being the omission of the usual preliminary dilatation of the sphincter. We are inclined to support both Professor TAKAKI and Dr. O'CONOR in their contention that the operation is capable of producing perfect results provided due care is taken of the mode in which it is performed by the surgeon. It is an interesting example of the wide dissemination of the doctrines of modern surgery that we should be bringing together under one cover contributions from such vastly separated sources agreeing in so many essential particulars.

The thymus treatment of carcinoma has been but little employed in this country, though the somewhat similar method of treatment by thyroid extract had a temporary and restricted vogue. Professor TAKAKI was induced to try the thymus method through reading an account of six cases in which Dr. F. GWYER of New York had employed it with some measure of success. Dried and powdered thymus gland was administered in doses of 1 to 4 drachms three or four times a day. It is regarded as essential that some sodium phosphate should be administered at the same time in order to eliminate the toxins set free. Professor TAKAKI has employed the method in six cases and he gives a brief report of its use in one other case by another physician. As the result of his experience he has come to these conclusions: There is a great diminution or even a total cessation of the pain. The size of the tumour tends to diminish, and if not its rate of growth is retarded. It will thus be seen that we are not asked to expect much from the administration of thymus gland, but it might be deserving of trial in inoperable cases. Lastly, Professor TAKAKI gives details of two cases of perforation of the intestine in typhoid fever in which he had performed laparotomy. In one case the perforation occurred on the twenty-second day and in the other on the thirteenth. It may be mentioned that in the second case no definite perforation could be seen, though at one place it may have occurred. In both cases the operation was borne well and complete recovery followed. We have made this attempt to focus the attention of our readers upon Professor TAKAKI'S paper, for we welcome the assistance afforded by the young and energetic nation of Japan in the solution of the many difficult problems of medical science.

The Meat Industry and Meat Inspection.

ANIMAL flesh occupies such an important place in the daily human dietary that no organisation can be too complete or careful which aims at procuring for the public an unblemished supply. It is certain that in the past some ugly revelations have been brought to light of the very undesirable and offensive conditions under which the business of many of the stockyards and slaughter-houses of the world has been carried out, and we are glad to remember that we have taken an active share in exposing the insanitary and inhumane methods which our Commissioners have found to exist at certain of our great meat-producing and meat-distributing centres. We know that our attitude on this subject has very materially assisted in strengthening the machinery which provides for the efficient inspection of both live-stock and meat, for it would not have been so resented unless it had been effective. The announcements made from time to time in this country and elsewhere in regard to the wholesale rejection of meat on the ground of its being unfit for human food, and of the seizure of large quantities of unwholesome animal foods in general, prove how necessary in the interest of the health of the community is a strict system of inspection. It would be assuming too much to say that any precautionary measures form an absolute safeguard to the public, for there will be found offal-mongers even in the most highly civilised community, who feel no compunction at all about purveying unwholesome meat to the public when the slightest chance is offered, just as there are milk-dealers who add water to milk in spite of the existence of the Food and Drugs Act. There can be little doubt, however, of the progress which has been made during the past few years in regard to bringing the question of meat-supply into a line with hygienic demands. When a system of inspection is thoroughly carried out, which commences with the live animal itself and the methods adopted for its slaughter, and proceeds to consider the carcass and finally the meat exposed for sale, we may hope for a reasonable assurance that the character of the public meat-supply may be trusted. Help is needed in this great hygienic movement, and fortunately there are not wanting signs that help of a substantial kind is constantly coming forward.

But it is a remarkable fact that until the issue recently of a comprehensive work [1] upon the subject, the great meat industry has possessed no authoritative text-book of its own to which those concerned in any branch of it could refer for trustworthy information. There are, of course, several excellent well-known manuals intended for the guidance of medical officers, inspectors, and others, but no work which could claim equally the attention and interest of, say, the breeder, the butcher, the curer, the salesman, the sanitary officer, and the abattoir official. In short, the meat trade has been so far without its peculiar encyclopædia. The publication, therefore, of a work which deals comprehensively with the interests and aspects of the producer, importer, seller, buyer, inspector, and consumer, and which bears the stamp of authoritative treatment, is an event of the utmost importance, having regard to the relations of a pure meat-supply to the public health. These relations will be fully understood by a mere inspection of the many realistic diagrams in the work under notice, referring to diseased organs and carcasses. In addition will be found upwards of a thousand illustrations of cattle, sheep, pigs, fish, poultry, as well as of all the instruments concerned in the technique of the cattle trade. Vital questions as to the defects of methods of inspection, as to standards which ought to be upheld, and as to the critical position of the meat markets are adequately treated from more than one standpoint. Well-recognised authorities on leading public health questions both at home and abroad have been appealed to, and the result is a collection of information by text and picture which cannot fail to advance the cause of a pure meat-supply. Original photographs have been placed at the disposal of the editors by Professor S. DELEPINE of Manchester, Professor R. F. C. LEITH of Birmingham, and Dr. E. W. HOPE of Liverpool. The editors form a fortunate combination of a professor of comparative pathology and meat inspection, Dr. GERALD R. LEIGHTON, with an expert on the meat industry in the person of Mr. LOUDON M. DOUGLAS. The coloured plates, which are startling in their realness, have been drawn under the personal advice and supervision of Professor LEIGHTON. There are in all five quarto volumes which are handsomely bound, and a brief outline of the subjects apportioned to each volume shows how very thoroughly and broadly the entire question has been treated. Volume I. deals with the breeding of cattle, sheep, and pigs utilised for meat purposes. In this section also will be found an account, which makes very interesting reading, of the source and origin of the supply of meat for the British markets. Later, there is a section on the physiology of digestion and another on swine husbandry, and the diseases of pigs, while there is added a valuable account of the fish industry. In Volume II. reference may be made to the practical articles on the industrial and commercial aspect of the meat industry, including such subjects as abattoirs, sausage-making, refrigeration, and the use of by-products in preparing slaughtered cattle for the market. The same volume includes an important contribution on the standards of excellence used for the judging of meat in the carcass. An excellent attempt is here made to found the practice of judging the soundness of meat upon a scientific basis. In Volume III. the details in regard to practical meat inspection are set forth, and the meaning of bacteriology is made clear to the inspector and to the superintendent of the slaughter-house; while in Volume IV. the chief meat markets of the world are described. The fifth and last volume sets forth the present position of the law upon the subject, the regulations of the home Government, and the control which is brought to bear upon the exportation of meat from abroad to this country, while especial reference is made to the condition of the meat industry in the British colonies as well as to the frozen-meat trade.

Professor LEIGHTON and Mr. DOUGLAS have brought

[1] The Meat Industry and Meat Inspection, by Gerald R. Leighton, M.D., C.M., F.R.S.E., and Loudon M. Douglas. Five volumes. The Educational Book Company, Limited, London. 1910.

together a wealth of facts about an enormous industry which concern the welfare of every individual, and the publication of this work must be counted a decided asset both to the great meat industry and to those who are constituted its tribunal—namely, our public health authorities. Nothing is better calculated to champion the cause of a wholesome meat food-supply than an intelligent and reasonable combination between these two forces, the producers and their critics. We regard the issue of the work, therefore, as a real public service.

Annotations.

"Ne quid nimis."

THE INFLUENCE OF AGE AND TEMPERATURE ON THE POTENCY OF DIPHTHERIA ANTITOXIN.

IT has been customary to mark packages of antitoxins and sera with a date beyond which the contents could not be expected to yield their specific results. In the case of diphtheria antitoxin most of the producers have recommended the return of the packages in nine months, while a few have made the period as long as one year. Until recently, however, no definite data were available as to the keeping properties of such preparations, with the result that some physicians doubted the propriety of using an antitoxin when the time-limit had almost expired. In 1906 Dr. John F. Anderson of the United States Hygienic Laboratory started experiments to determine the rate of decrease in potency of diphtheria antitoxin, so that it might be known how much excess to allow for any loss in strength that might occur on keeping. His results, which have now been published,[1] show that the average loss in strength of 14 samples, when kept for three years at room temperature, was 44·2 per cent.; at 15° C., 24·6 per cent.; and at 5° C., 15·9 per cent. The average loss in potency of the same sera for two years at room temperature was 32·8 per cent.; at 15° C., 18·5 per cent.; and at 5° C., 12·4 per cent. The average loss for one year at room temperature was 18·7 per cent.; at 15° C., 10·2 per cent.; and at 5° C., 6·7 per cent. The maximum loss of any serum examined in three years at room temperature was 59 per cent.; at 15° C., 36·4 per cent.; at 5° C., 24 per cent.; and the minimum losses for the same period were 34·6, 16 7, and 12·5 per cent. respectively. One of the very interesting points brought out by these experiments was as to the relation of the antitoxic content of a serum to its therapeutic value. It was found that in the test mixtures the protective value of the serum was in direct accord with its unit value. For example, 1/1500th cubic centimetre of a serum containing 1500 units per cubic centimetre was of the same protective value as 1/150th cubic centimetre of a serum containing 150 units per cubic centimetre. It was noticed that all sera, even of the same age and kept under the same conditions, did not deteriorate in the same ratio. Whatever the cause of this may be it appears to be independent of external influences and probably depends on some inherent property in the serum. The addition of preservatives, such as chloroform and tricresol, apparently did not exert any influence upon the deterioration of the antitoxin, as there was no appreciable difference between the behaviour of sera preserved with these two substances. Dr. Anderson concludes that the opinion held by some physicians that sera bearing return dates which have expired should not be used is without scientific basis. The only reason for not using such sera would be that a larger amount would have to be given to make up for the decrease in potency. When diphtheria antitoxin is placed upon the market and kept under unknown conditions as regards temperature, it should be labelled with a return date not longer than two years and it should contain an excess of at least 33 per cent. to allow for decrease in potency. In addition, when the serum is sold in syringes with an absorbable piston, an excess should be added for this loss. Dr. Anderson found that dried diphtheria antitoxin when kept in darkness at 5° C. retains its potency practically unimpaired for at least five and a half years. It was not tested at ordinary temperatures, but Dr. Anderson thought that it would have retained its potency at 15° C., with at most a slight loss. The stability of dried serum having thus been established, it would seem that the dried form is peculiarly suited for shipment to the tropics and for use on ships making long voyages. The only drawback to its use appears to be in the making of a sterile solution, and this could be largely overcome by the exercise of aseptic precautions on the part of the producer and user of the serum.

[1] Bulletin No. 66, Hygienic Laboratory, United States Public Health and Marine Hospital Service, Washington, D.C., June, 1910, pp. 108.

THE ILLUSTRATED GUIDE TO THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS, ENGLAND.

IN a delightfully written volume of some 120 pages the Conservator of the Museum of the Royal College of Surgeons of England introduces the treasures under his charge to those who make their first visit to the world-famous Hunterian collections. This "Guide" to the Museum has been issued by order of the Council of the College, which latter institution is to be sincerely congratulated on its possession, in trust for the nation, of such a collection under a conservator at once so learned, so zealous, and so well equipped as a literary and scientific exponent. Dr. Arthur Keith has had some very eminent predecessors, notably Owen, who were unsurpassed in the care of that which the trustees of the Hunterian collection committed to their charge. It has been left to him, as it were, to put the last polishing touches to their work and to throw open the doors of the temple which they, perhaps, too jealously guarded. There is a vast, an almost grotesque difference, between the College Museum of to-day, popularised and accessible as the booklet before us proves, and the same collection a century ago. Then, as Mr. Conservator Clift's unpublished "Diaries" show, visitors to the Museum were rare and privileged persons—Princes of the Blood, distinguished savants from abroad, and small groups of our own medical men, who seem to have gone to the College oppressed with a sense as of exceptional favours being conferred upon them. Even as late as 1857 the feeling seems still to have prevailed that its precincts were very hard to enter and very awesome and medico-legal within. To laymen of that day it ranked with the Morgue of Paris. Charles Dickens gave voice to this feeling in the pages of his journal "All the Year Round," when he described the officers of the College as a kind of dignified ghouls, only prevented by their industry, combined with a love of gossip, from going raving mad in their gloomy and morbid surroundings! The sensational side of the Museum has been so often described that we need not do more than indicate some of the most notable specimens now authoritatively "calendared." Of the pieces of gut removed from the body of Napoleon the Great at the post-mortem examination in St. Helena, the conservator is now able to state "that a recent investigation of Napoleonic literature leaves little doubt that they are authentic." They are exhibited side by side with death-masks, modern English and

Peruvian mummies, a chastity belt, manacles for the insane, "Danes' skins" from church doors, and a curious Tibetan anatomical chart, in the newly opened historical cabinet, which has gathered within it specimens not of "intrinsic scientific value, but interesting because of past associations, or illustrative of superstitious customs long since passed away." The eighteenth century mummies in this collection (Mrs. Van Butchell and a young woman who died from phthisis) have always struck us as particularly interesting, for their faces are sufficiently preserved to give a good idea of the looks of everyday people more than a hundred years ago. The oldest Egyptian mummy, recently described by Professor Elliot Smith as "at least eleven hundred years older than any other mummy yet discovered," is in Room I. It belonged to Ra-Nefer, who seems to have been of "a corpulent habit of body." In the same room are the famous Barnard Davis collection of skulls, together with those of Eugene Aram and John Thurtell, and the skeletons of Caroline Grachami, the Sicilian dwarf, and of Charles O'Brian (or Byrne), the Irish giant, whose body John Hunter caused to be "snatched" on its way to a sea burial. Close by is the skeleton of Jonathan Wilde. The specimens of foreign bodies lodged in different parts of the human body have always attracted the attention of visitors to the Museum. They are now described. Among them are the shaft of a chaise, about which a book has been published, and the pivot of a try-sail, accompanied by one of Clift's admirable water-colour sketches. The persons transfixed recovered. The top of an iron railing is also mentioned which was extracted from a man's face by the donor, Sir Frederick Treves. Of the effects of lightning, as evidenced by a well-known exhibit of the tattered clothes and possessions of a labourer, the "Guide" remarks that they are apparently explosive in character. Here, again, the wearer of the clothes received only slight injury. The "Guide," of course, does not concern itself principally with the sensational exhibits which we have mentioned, but by them chiefly the Museum has always been known to the curious. "The whole Museum may be regarded as a discourse on the human body," and as such it is described. From the time of its inception by John Hunter this discourse has been kept steadily in mind by successive conservators and an able band of helpers, which includes such names as Huxley, Banks, and Brodie. Among the members of the Museum staff occur a number of distinguished names from Clift, Scharf and Silvester, to Doran and Shattock. Mention of these and of such collectors as Towne and Barnard Davis will be found in Dr. Keith's pages.

THE MICROSCOPIC EXAMINATION OF TUMOURS DURING OPERATION.

THE diagnosis of a tumour is often not complete at the time of commencement of an operation, and even when the growth has been incised a certain diagnosis may still be impossible from naked-eye examination only. In such a case anything that will transform this doubt into certainty should prove of the utmost value, for the operation to be performed in most cases will depend greatly on the diagnosis. Should the tumour be malignant, the modern extensive operation will be necessary if any hope of preventing recurrence is entertained. On the other hand, should a tumour prove to be benign in nature a very limited operation may be all that is needed. In the present number of THE LANCET we publish an article by Mr. E. H. Shaw, pathologist to the Great Northern Central Hospital, on the great value of the immediate examination of the tumour during the course of an operation. He mentions a large number of cases in which he has found the information so obtained of inestimable value to the surgeon, and he supplies details as to the methods which in his hands have proved most useful. The first essential for employing such a method is that it should be capable of giving a report within a very few minutes, and Mr. Shaw tells us that five minutes, or even less, will generally suffice. The prolongation of an operation to this amount is perfectly permissible, and on that score nothing more need be said; but another point of equal, or even greater, importance, is the certainty of the correctness of the report; and on this point there may not unreasonably be some grounds for difference of opinion. In many cases the diagnosis of malignancy may leap to the eyes, but in many the same degree of certainty can hardly be looked for. Even with all the assistance afforded by a series of sections the diagnosis may be very difficult or be even impossible. Therefore, in such cases it cannot be expected that the rapid examination of one or two sections in the operating theatre can supply a certain diagnosis. Some of the granulomata may closely simulate sarcomata, and mistakes may readily occur even with careful observers. A greater difficulty still must arise in those cases where a process, inflammatory in nature, has commenced the infection, and later on malignant disease has supervened. In such a case a single section may well mislead even a careful microscopist. We have no wish to belittle the method, for we feel that it is capable of affording valuable assistance at many a critical moment, but we would urge that too much must not be expected from the use of the method. Many things can be said in its favour, and these have been well put by Mr. Shaw in his paper, to which we refer our readers.

CLIMATIC DYSMENORRHŒA (?).

IN spite of the large amount of literature which has accumulated on the subject our knowledge of the causation of the pain in dysmenorrhœa is still of the scantiest description; we know but little of its causation, and our understanding of its pathology is equally imperfect. Whatever may be the exact cause of the pain, as to its occasional severity there can be no doubt, and the fact that in some cases it approaches in intensity the most severe forms of colic is well known to all practitioners. Whether the pain is produced by irregular painful contractions of the muscles of an imperfectly developed uterus, or by the excessive contractions of a hypertrophied uterus, we are at any rate certain of the fact that it is diminished or increased in direct proportion to the condition of the patient's general health. In many cases the onset of the pain follows some depressing illness, and in other cases it is directly associated with a condition such as anæmia or malnutrition, which requires treatment before any relief can be obtained. It is a well-known fact that in some of these cases a change of climate or of residence relieves or prevents the occurrence of the attacks. Of this it would not be difficult to collect a number of instances from medical literature, while a most striking example of the kind is to be found in the present issue of THE LANCET, p. 976. The case recorded by A. H. is certainly a most remarkable one, and appears to be an example of the relief of dysmenorrhœa by change of habitat of the most certain kind. Spasmodic dysmenorrhœa has been compared not inaptly to spasmodic asthma, and, indeed, there is a further analogy between the two diseases, for just as it is possible that some turgidity or erection of the bronchial mucous membrane plays a part in the production of the spasm of asthma, so we may believe that congestion of the uterine mucosa is a factor in the production of spasmodic dysmenorrhœa. Such an effect must undoubtedly often result from the sedentary occupation, the anæmia and the chronic constipation so commonly seen in cases of severe dysmenorrhœa. Further than this, a condition of catarrh of the uterine

mucous membrane is not uncommonly to be met with in these cases, and we do not think that such a condition is always to be regarded as secondary, while even if it is of this character it may well lead to an aggravation of the symptoms. If spasmodic dysmenorrhœa may be contrasted with spasmodic asthma, the fact that the former like the latter disease is often cured by a change of residence or of climate is not surprising. We know too little of the effects of climate and too little of the nature of dysmenorrhœa to explain how this result is produced. In cases of asthma in which the atmospheric conditions must be of immense importance it is what we might expect, but in cases of spasmodic dysmenorrhœa such a result when it does occur is undoubtedly most striking. That the gouty diathesis may also play a part in the causation of the pain is more than probable, but that the amount of lead discovered by in the drinking water of his patient was sufficient to be an important factor in the production of the spasm appears to us to be more doubtful. The explanation given by A. H. is ingenious, and as to the baleful effect of lead in producing abortion there can be no doubt. It must, however, be remembered that the cause of the abortion in cases of plumbism is the previous death of the fœtus attributable to the lead poisoning, and so far as we are aware there is no evidence to show that the administration of lead, even in large doses, is sufficient by itself to cause contractions of the non-pregnant uterus. That it may have aggravated matters by increasing the gouty condition of the patient is possible, but that it set up the painful uterine contractions is a much more dubious proposition. Indeed, it has been shown that lead passes readily through the placenta and diffuses itself through the fœtus, being found in the nervous system, the skin, and the liver; and the large mortality among children born of mothers suffering from lead poisoning is due to the accumulation of the poison in the nervous system. There is another interesting fact to be borne in mind with regard to A. H.'s communication, and that is that gout due to lead is much less common in the north where his patient resides than it is in the south of England.

THE STANDARDISATION OF DIGITALIS.

DIGITALIS is one of the few drugs that can still maintain unchallenged a place in materia medica; it has not had to share its therapeutic claims with some modern chemical creation. On the other hand, the cry for a preparation exhibiting a uniform action has long been sounded, and many are the attempts which have been made to issue a standardised preparation. A most valuable contribution to this chapter of pharmacology has been furnished by the recent publication by O. Schmiedeberg in the *Archiv für Experimentelle Pathologie und Pharmakologie*[1] of the result of experiments conducted on behalf of the German Imperial Board of Health with the view of elaborating a method of standardisation of digitalis leaves. After alluding to the fact that the uncertainty in the action of digitalis is often ascribed to differences in drying, time of collection, place of growth, &c., Schmiedeberg draws attention to an important point—viz., that the active principles of digitalis are relatively slowly absorbed, and that this occurs within an unequal length of time for each of the constituents. Therefore, leaves which possess the same pharmacological value may exhibit differences in action due to unequal absorption of the three principal constituents. The rate of absorption is also affected by the presence of gastric disturbances, for even on a sound stomach the preparation is badly borne. Another point to be remembered is that digitalein and digitalin are glucosides, while digitoxin is a hexosid or a pentosid, and these are easily split up by ferments and enzymes. This may occur in the intestines and lead to a reduction in the action of the drug. Schmiedeberg insists upon the necessity of first of all obtaining digitalis leaves of equal pharmacological value by establishing a direct connexion between the value of digitalis and some chemical body of definite composition. All other questions relating to the action of digitalis can only, in his opinion, be established by clinical research, but to carry these out he considers it necessary to first of all secure uniformity in the pharmacological value of all digitalis leaves issued for medical use. The experiments conducted by Schmiedeberg with this object were based on the use of three kinds of standardised digitalis leaves in powder and of strophanthin from S. gratus. The infusion was prepared in such a way as to correspond as closely as possible to ordinary conditions: 70 cubic centimetres of boiling distilled water were poured on one gramme of powdered leaves, and the infusion left for five minutes on the water bath, shaking occasionally. It was then filtered through paper, and sufficient water poured on the filter to produce 100 cubic centimetres. By this method it was found that only 5 per cent. of active principles were not extracted. For the experiments frogs were used, but instead of the method whereby the action of digitalis is referred to the weight of the frog Schmiedeberg applied the infusion direct to the heart, using as the medium ox blood diluted with two parts of a 0·7 per cent. solution of sodium chloride and the William apparatus. As a basis for the estimation of the pharmacological value of digitalis, the time required by a given amount to produce stoppage of the heart's action (stoppage of the ventricle) was taken. The following figures show the averages obtained from a series of 207 experiments:—

0·05 mgrm. of strophanthin caused stoppage of frog's heart in 32 mins.								
0·1	,,		,,		,,		25	,,
0·15	,,		,,		,,		13	,,
"A" leaves:	2	c.c. of infusion caused	stoppage	in	23	mins.		
,,	,,	3	,,	,,	,,		10	,,
"B"	,,	2	,,	,,	,,		27	,,
,,	,,	3	,,	,,	,,		21	,,
"C"	,,	2	,,	,,	,,		23	,,*

(* i.e., equal to "A" leaves).

From the above the following relationships in action may be deducted:—

2	c.c. of "A" leaves infusion	equal to	0·114	mgrm.	of	strophanthin.	
3	,, ,,	,,	0·171	,,		,,	
2	,, "B"	,,	0·085	,,		,,	
3	,, ,,	,,	0·128	,,		,,	

(Leaves "A" and "C" were found to be of identical strength, therefore "C" is not mentioned.)

The result of these experiments would prove that the action of leaves "A" stands to that of leaves "B" in the ratio of 100 to 134—i.e., if for the preparation of an infusion 1 gramme of "A" were taken, it would be necessary to take 1·34 grammes of leaves "B" in order to obtain an equally effective infusion. The proportion found a rather startling confirmation when experiments were conducted in the same manner using digitoxin. It was found that stoppage of the heart occurred after 27 minutes with 0·1 milligramme, and after ten minutes with 0·2 milligramme of digitoxin. Compared with leaves "A" this gives an average of 2 cubic centimetres of infusion, equal to 0·128 milligramme of digitoxin, while for 2 cubic centimetres of infusion from leaves "B" the equivalent amount of digitoxin was found to be 0·095 milligramme, in other words, the same ratio of A : B = 100 : 134. In the course of the experiments an interesting fact came to light, showing that the season during which the frogs are obtained and the experiments conducted is not without some influence on the results.

[1] Vol. lxii., Nos. 4 and 5.

Experiments condncted in the months of Jannary and February gave the following figures :—

0·05 mgrm.	of strophanthin	caused	stoppage	of heart	in 32	mins.
0·1 ,,	,,	,,	,,	,,	25	,,
0·15 ,,	,,	,,	,,	,,	13	,,

In Augnst and September the results were slightly different, showing that in these months the frog's heart has more power of resistance :—

0·1 mgrm.	of strophanthin	caused	stoppage	of heart	in 31	mins.
0·2 ,,	,,	,,	,,	,,	23	,,

Schmiedeberg does not propose that the above figures should be used as an exact comparison of the value of digitalis to strophanthin or digitoxin, but merely as aids towards establishing a basis for standardisation. The first step would be to standardise all the leaves issned, so that they all correspond to a fixed pharmacological standard of activity. In the following year the new leaves would be standardised so as to fully correspond with those of the preceding year, and so on. By this means it would be possible to settle the dosage by tests on patients, as the dose would be identical in both years, and he regards the question of dosage as being a matter of supreme importance. Digitalis does not act on patients in the same manner nor in the same proportions as exist between digitalis on the one hand and digitoxin or strophanthin on the other in frog experiments. He concludes his paper by advocating the establishment of a central institute, to which should be entrusted the task of supplying digitalis leaves of uniform pharmacological strength.

WERTHEIM'S OPERATION FOR "FALLING OF THE WOMB."

THE inefficiency of the great majority of the operations performed for the so-called cnre of prolapse of the nterus and vaginal walls has long been the opprobrium of gynæcological surgery. The number of different operations which have been devised is very large, but their very number is evidence of the fact that in only too many cases they fail to effect their object. Nor is this a surprising result when we consider the nature of the tissues upon which these plastic measures have to be practised. The laxity of all the tissues of the pelvis and the mobility of the contents of the pelvic cavity is a *sine quâ non* in view of the function of childbearing, and it is precisely the adaptation of the tissues to this process which leads to the common condition of falling of the womb and at the same time renders its radical cure so difficult. Thc ordinary plastic operations carried ont with the intention of tightening up the tissues and so increasing the support given to the pelvic contents are so unsatisfactory that many gynæcologists in despair have abandoned their use. Those which aim at nniting the muscles when these are torn are no doubt more satisfactory, but it is just those cases in which there is little tearing but a great deal of stretching of all the tissues, including the muscles, which are the most difficult to deal with by ordinary plastic methods and which at the same time lead to the worst degrees of prolapse of the uterus. In the present number of THE LANCET Professor J. B. Hellier, in a very interesting and practical paper, draws attention to the operation originally devised by Wertheim and now largely practised by its originator and Professor Freund and Professor Schauta, and points out what an admirable operation it is and what excellent results it gives in selected cases. Our own experience enables us to confirm all that he says with regard to this operation. It is most important that other operators who have employed this method should, as he has done, publish thc after-results of their cases after a sufficiently long period of time. In this way alone can we form a true estimate of the value of this or of any other similar operation. At the present time snch after-histories are very few in number. While we agree with all that Professor Hellier says with regard to this operation, the very important objection must be remembered that it necessitates the sterilisation of the patient, a serious matter in a young woman, and one about which there should be a clear understanding before the opcration is undertaken. There is another point to which we would like to direct attention, and that is the failure which is likely to result if the uterus is small and atrophied, as in such a case the cystocele often recurs. Luckily, in the very cases in which the operation is indicated, the uterus, far from being atrophied, is more often, as Professor Hellier points out, hypertrophied, and this objection does not therefore often hold good. In yet other cascs, however, the uterus is too large, and it is necessary to excise wedge-shaped portions from the fundus in order to allow of its being fitted into place under the bladder. Deaths have occurred both from hæmorrhage and also where large resections of uterine tissue have been necessary. The operation should therefore only be performed in selected cases, and patients such as the one recorded by Professor Hellier, where the woman, aged 69, died, should not have such a relatively severe operation performed upon them. To this limitation he himself draws attention in his remarks. We trust that this paper may lead to other surgeons publishing their experiences of this operation in these troublesome but important cases.

THE PHYSIOLOGY OF THE CORPUS CALLOSUM.

AT a time when the study of cerebral physiology was an integral part of the science of metaphysics, philosophers and savants outdid each other in their endeavours to localise the soul somewhere within the encephalon. Descartes, for instance, placed it in the pineal gland, Willis, in the corpus striatum. The corpus callosum, forming as it does so important a feature of cerebral structure, was not likely to escape. Thus we find Lapeyronie, in a memoir presented to the Académie des Sciences in 1741, and entitled "Observations whereby an Endeavour is Made to Discover the Part of the Brain where the Soul Exercises its Functions," discussing whether the corpus callosum is not the abode of the soul. The clinical case which he quotes in support of his thesis is sufficiently curions. A comatose patient was trephined and an abscess of the corpus callosum discovered. Its evacuation led to an immediate recovery of the patient's senses, which became obscured as the cavity filled up again, and were recovered by a second operation. The daring experimenter then proceeded to pump some injection into the cavity by means of a syringe, and noted that "reason" and "sentiment" disappeared as he did so; they returned when the fluid was allowed to escape. Two months later "the patient was perfectly cured, and experienced no inconvenience whatever, although he had lost a considerable portion of brain substance," presumably of the corpus callosum. Dr. Lévy-Valensi, from whose work the incident is taken,[1] remarks that the most curious feature of the case is the recovery of the patient. The true value of the record, such as it is, is that it suggests that the corpus callosum has comparatively little physiological significance, and however surprising this opinion be there is no lack of evidence to support it. Experimental section of that structure in animals has led to equivocal results : in thc most recent instance (a series of seven monkeys operated on by Dr. Lévi-Valensi) they were entirely negative. Electrical stimulation, again,

[1] Le Corps Calleux: Étude Anatomique, Physiologique et Clinique. By Dr. J. Lévy-Valensi. Paris: G. Steinheil. 1910.

has not proved of much value; the same observer obtained certain movements in animals differing considerably from those obtained previously by Mott and Schäfer; on the other hand, Ferrier, and also Lo Monaco, failed to elicit any movements at all. Many cases are on record of entire absence of the corpns callosum, in association usually with idiocy and imbecility. Yet there are other cases of this defect with integrity of cerebral function, and these certainly *donnent à penser*. In fact, it is quite conceivable that the mental impairment of patients with congenital absence of the corpus callosum is due not to that circumstance but to the commonly accompanying malformations, such as microgyria, cerebral sclerosis, and hydrocephalus. To deny any physiological importance to the corpus callosum, nevertheless, is ill considered, in view of recent advances that have been made in clinical neurology. Bristowe, Ransom, Schuster, Schupfer, and, more recently, Raymond, have endeavoured to establish a callosal syndrome whereby tumonrs of the commissure could be diagnosed. All have laid emphasis on certain mental symptoms of frequent occurrence, but there is nothing specific about them, unfortunately. Owing, moreover, to the general intracranial disturbance produced by tumours we cannot expect to learn as much of cerebral physiology from them as from localised vascular lesions. The most valuable and most instructive of all cases of corpus callosum disease have been two or three published in the course of the last year or two where there has been a thrombosis of the anterior cerebral artery, or rather of its branches supplying the genu of the corpus callosum. In these cases apraxia, or inability to perform certain movements without any paralysis, has been specially looked for and found. The study of this subject is difficult, and is, one might almost say, in its infancy, but evidence is slowly accumulating which tends to show that the corpus callosum, in its anterior part at least, is a structure whose function is to ensure that correlation of the hemispheres which is essential for the correct carrying out of a movement or series of movements, together constituting an "act."

THE FEE FOR LIFE INSURANCE EXAMINATIONS.

ALTHOUGH we have in many previous issues expressed our views in regard to the fees offered to medical men for examination of candidates for life insurance, it seems necessary from time to time to recur to the subject. A complaint from a correspondent that he has been asked to accept fees of 3*s*. 6*d*. to 7*s*. 6*d*. on insurances of £25 to £100 is the occasion of the present recurrence. The medical report which onr correspondent is asked to furnish is as usual in two parts, the first a report of information elicited with expert knowledge and questioning of the candidate, and the second a report of the medical referee's detailed examination and his opinion as to the value of the life. A thorongh and careful examination of the character requiied by the insurance company is not adeqnately rewarded by the fees that they offer. The company is entitled to expect a medical man to carry out what he undertakes, and as a matter of business it cannot be to their interests to underpay him. A medical man should remember that a document to which he appends his signature is a statement to which that signature attests his full and unreserved assent. The fact that the fee which is to be paid is not an adequate one for the task enjoined is no excuse for a perfunctory performance of the duty, but in the interests of the medical profession at large these paltry fees should be refused altogether and the work declined. If for actuarial reasons it is not possible to pay large fees upon small insurances, a medical opinion in general terms, founded upon a general impression without detailed examination, and carrying no responsibilities, may possibly be procurable for such fees as some companies are disposed to offer. This is a matter for the company, but we would earnestly enjoin upon all medical men the duty which they owe to themselves and their profession of refusing to furnish a detailed medical report for so paltry a fee as our correspondent has been offered.

TREATMENT OF EMBOLISM OF THE FEMORAL ARTERY BY IMMEDIATE MASSAGE.

THE treatment of embolism laid down by the anthorities, with the exception of the recent operation of arteriotomy and removal of the clot, is generally declared to be the same as the treatment of venous thrombosis—rest. It is curious that the fact seems to have been overlooked that the problem is really essentially different in the two cases, and that so far from the indications being the same they may be diametrically opposite. In venous thrombosis the all-important indication is immobilisation of the affected limb lest a portion of clot be detached and pulmonary embolism result. In embolism the breaking up of the clot and driving it towards the periphery may be desirable, for this should favour the restoration of the circulation. Clinical evidence in confirmation of this view is not wanting, though it seems to have escaped the observation of many of our writers, yet the point was made in an annotation which we published some years ago.[1] An embolns may break up spontaneously and the circulation be restored. Potain published a case in which an embolus was first arrested at the bifurcation of the aorta, producing complete but transitory paraplegia; next day it had reached the external iliac artery, leaving the corresponding limb inert; on the third day it had reached the popliteal artery, as was shown by return of pulsation in the femoral.[2] As long ago as 1880 Deroyer proposed to break up the clot in embolism of the aorta by intermittent pressure. Several cases in which massage was snccessfully used to break np an embolus have been reported from time to time by French writers. At a meeting of the Société Médicale des Hôpitaux of Paris on June 10th M. Paul Claisse reported the following case. A woman, aged 33 years, suffering from mitral stenosis, which was evidently due to an attack of rheumatic fever at the age of 12 years, was admitted into La Pitié Hospital. The pulse was small and irregular, and there was slight œdema of the ankles. Under rest, milk diet, and digitalis she improved, and the œdema disappeared. At 7 o'clock one morning she felt intense pain in the left leg, particularly in the calf, and tingling and darting pains extended throughout the whole limb, even to the toes. At 9 o'clock M. Claisse saw her. The pain persisted, and he found the left foot very cold. Pulsation was present in Scarpa's triangle, but none was perceptible below this. Evidently there was embolism of the lower part of the femoral or of the popliteal artery. In order to break up the clot M. Claisse at once massaged the thigh and leg, performing energetically pétrissage of the tissues, especially over the internal surface of the thigh, calf, and popliteal space. The massage was well borne and did not increase the pain. The pain soon diminished, the temperature of the two lower limbs again became the same, and pulsation returned in the dorsalis pedis. In short, after 20 minutes the signs of embolism had disappeared. The clot was broken up into small portions which were carried to smaller arteries in places where the collateral circulation was assured and their presence was no longer a source of danger. Possibly snch a favourable result might have followed spontaneously, but the early performance of massage greatly increases the chances of recovery. Professor Berger

[1] THE LANCET, 1903, vol. ii., p. 1517.
[2] Semaine Médicale, 1888, p. 65.

has reported a case in which the violent pains of embolism of the posterior tibial artery disappeared under massage. M. Pierre Merklen has recorded a case of mitral regurgitation in which the circulation in one lower limb became arrested above the knee. For nearly two hours he and a colleague, relieving one another so as not to interrupt the process, energetically performed pétrissage of the femoral, popliteal, and posterior tibial arteries until the patient was relieved. Heat and sensibility returned to the limb, but numbness and formication persisted, and pulsation could not be felt in the dorsalis pedis for two months. Eventually recovery was complete.

THE VACANCY ON THE IRISH PRISONS BOARD.

WE have already made reference to the fact that a vacancy is pending on the General Prisons Board of Ireland, and we trust that in making the appointment to fill the same, Mr. Birrell, the Chief Secretary to the Lord Lieutenant of Ireland, will give full recognition to the desirability of securing for the post a medical man specially qualified in mental diseases. Mr. Birrell in choosing his man regardless of all politico-religious influences, considering only the best interests of prison reform, would have the support of the whole medical profession, and it is to be hoped he will select a candidate of administrative experience, having a knowledge of psychiatry, and, if possible, someone who has done work in criminology.

THE TREATMENT OF PNEUMONIA.

IN another column we publish an interesting article on Pneumonia by Captain W. E. McKechnie, I.M.S. The writer makes some suggestive observations on the mechanical conditions which may occur in the chest in adults suffering from an infection with the pneumococcus of Fraenkel, and these remarks will well repay perusal. Captain McKechnie's views on the treatment of the disease will most likely meet with considerable criticism, and the majority of physicians will probably consider that he has not altogether succeeded in establishing the standpoint he has taken up. With regard to the employment of morphine in cases of pneumonia, its administration in the early stages can be recommended. As he suggests, when pain prevents sleep, or if there is much restlessness, or "if the amplitude of the respiration appears to be sufficiently diminished to cause an accumulation of carbon dioxide," then morphine, given in the doses suggested by Captain McKechnie, may be given with advantage during the first and second day of the disease, but when the disease is well established it must be given with great caution, and the hypodermic injections are better replaced by Dover's powder. To clear the intestines by means of a purge is certainly desirable, but the suggestion that the intestinal canal should be kept empty and that only water should be given is certainly one that requires close attention before it is generally adopted. Elderly or weakly patients especially require quantities of nourishment, and diet is rather a matter which must be considered in regard to each individual patient; no general rule can be adopted without some risk. Captain McKechnie considers that the chief danger in pneumonia is that the blood may coagulate and form a white thrombus, which "attaches itself to the tricuspid valve and gradually grows into and blocks up the pulmonary artery," and he even goes so far as to suggest operative procedure. He remarks that the clot is "usually a big solitary one, and can be reached from the trunk of the pulmonary artery. It is thick and strong and can be pulled out entire." He proposes that the sternum should be trephined in three places high up and reflected to the left with the cartilages of the second and third ribs, when "the pulmonary artery can be very quickly exposed." It is true that after death the heart, particularly its right chamber, is distended with firm, tenacious coagula, but we believe that ante-mortem clotting has not been definitely proved to occur in pneumonia, although this phenomenon has been said to take place; the majority of observers still hold that the extensive clotting takes place during the death agony. Although we have criticised some of Captain McKechnie's remarks, nevertheless the communication as a whole is an instructive one and contains much that will be found useful in the treatment of pneumonia, apart from its debateable suggestiveness.

VOMITING OF BRAIN TISSUE IN FRACTURE OF THE SKULL.

IN the *Boston Medical and Surgical Journal* of August 4th Dr. Gordon T. Brown has reported a case of fracture of the skull in which the diagnosis was aided by the finding of brain tissue in the vomit—an occurrence so rare as to constitute one of the curiosities of medical literature. On June 8th, 1907, at 11 P.M., an electric-car conductor, aged 35 years, stepped from the rear platform on to the running board while his car was going rapidly round a curve. His head struck a telegraph post and he was knocked off the car. He was taken to hospital, where he arrived about 1 A.M. In the admission room he remained quietly in the dorsal decubitus position. The pulse was 88 and good, but slightly irregular, and the respirations were 40. The eyelids were greatly swollen and closed. The pupils were moderately and equally dilated and did not react to light. Over the right frontal bone was a deformity, apparently due to a depressed fracture. The patient began to vomit blood and stomach contents. Once he vomited so suddenly that some of the vomit, instead of being received into the basin, fell on the blanket on which he lay. In this a piece of tissue, measuring about 1·5 by 0·5 centimetres and looking like brain, was noticed. This view was confirmed by section, which appeared to show white and grey matter. The specimen was placed in alcohol. A mouth gag was inserted, a procedure which was actively resisted, and blood was seen oozing from the naso-pharynx. The vomiting of bloody fluid continued for eight hours. The patient grew restless and noisy and had to be held in bed. He was unable to take food and passed urine involuntarily. At 9 P.M. on June 9th an operation was performed for the depressed fracture of the frontal bone. A piece of bone measuring 3 by 2 centimetres was removed. No improvement followed, the respiration became of the Cheyne-Stokes type, and death occurred on the 12th. The necropsy showed an extensive stellate fracture of the right frontal bone, with which a fracture of the orbital plate was continuous. There was also a comminuted fracture of the cribriform plate. The orbital and lateral surfaces of the frontal lobe of the brain were lacerated extensively. It was thought that a portion of the orbital cortex might have been torn off and carried into the nose. Microscopic examination of the piece of tissue found in the vomit confirmed the view that it was brain and rendered the conclusion probable that it was derived from the orbital cortex. It showed the intermediate precentral type of cell arrangement and was distinguished from motor cortex principally by the absence of the large Betz cells.

THE opening address of the winter session of the Central London Throat and Ear Hospital, Gray's Inn-road, will be delivered by Dr. Purves Stewart on Monday, Oct. 17th, at 4.30 P.M.

A VISIT TO PROFESSOR TREUPEL'S CLINIC: THE USE OF "606."

BY J. G. GARSON, M.D. EDIN.

THE rush to Frankfort to see the results of nsing "606" reminds one a little of that made some years ago to Berlin when it was announced that Koch had discovered a remedy for tuberculosis in tuberculin, but in the present instance it is on a smaller scale. Nevertheless physicians and surgeons from all quarters of the globe have flocked to Frankfort to learn what they could about "606." Patients have also repaired thither, often from great distances, hoping to have an injection of "606" administered to them to cure their ailments and enable them to return next day. Professor Ehrlich's Institute has been besieged with visitors all anxious to obtain his new "Mittel," but their hopes and desires receive a sudden and probably unexpected cold douche on entering, for there is posted up the announcement, "Präparat 606 kann wegen Materialmangel vorläufig nicht abgegeben werden" (Preparation "606" cannot be given out for the present on account of its scarcity). Other notices bear the more consoling information that "demonstrations of '606' patients" will take place in the skin clinic of the town hospital on Monday, Wednesday, and Friday mornings at 9 o'clock, and that Professor Ehrlich's consulting hour for physicians is from 12 to 1 o'clock. Taking heart then, I went to see Professor Ehrlich at the appointed hour, and on entering his waiting-room found several physicians from Russia, Austria-Hungary, Roumania, Scandinavia, and other places on the same errand. Our names having been sent in, Professor Ehrlich received us *en bloc*, and told us how impossible it was to issue the material at the present time, as experiments are being made with it not only as to its effects, dose, &c., but as to satisfactory means of administering it, and until more progress has been made in getting it into practical form it could not be made available for the profession generally. One cannot but sympathise with Professor Ehrlich, inundated as he is with correspondence and visits from all quarters and from all conditions of men, and recognise that he is taking the best and most sensible course in hardening his heart and refusing to have his preparation prematurely issued.

The demonstrations of patients treated with Ehrlich's preparation at the Städtisches Krankenhaus have been well attended by earnest bands of medical men anxious to learn what they could about the treatment. The cases shown have been those of syphilis in all stages, ranging from primary sores to tertiary forms. In many instances the results are very striking, ugly sores healing up rapidly after the injection without any other treatment, and in several instances without much pain following the injection. In other cases a good deal of pain, lasting from two to 11 days (the latter in one case), has been caused by the treatment. There were two cases shown in which the results were not so good, the injection being followed in one case by abscess and in the other by a large slough of the skin over the seat of injection. Two cases were shown in which the injection was not followed by much progress in the healing of the sores and in which "606" was experimentally applied with good effect to the sore itself. From the cases shown at the demonstrations, even at this stage, the new remedy must be regarded as an important and powerful factor in the treatment of syphilis. The demonstrations were strictly confined to *showing* patients on whom the injection had already been made, and it was very evident that considerable dissatisfaction existed amongst the visitors, all of whom were medical men, in many instances holding important posts in their own country, that so little information was given generally and that absolutely nothing was said about the manner in which the preparation was being used—a matter of much importance, as we were all aware that different methods were being followed. So much then for what I may call the official demonstrations arranged for Professor Ehrlich's visitors.

A meeting of the Medicinischer Verein was held at Frankfort on Sept. 12th, at which communications of great interest were made upon "606" by Professor Treupel and Dr. Weintraud, who narrated their procedures and experiences with it. Their papers will no doubt be published shortly and will well repay perusal. Professor Treupel administered the preparation by subcutaneous injection and described the changes he had found desirable to make in preparing the injection, dose, &c. He showed some patients in whom excellent results had been obtained. In one case the patient showed before he had undergone the treatment well-marked paralysis of one side, Romberg's sign, ptosis, and other nerve symptoms of considerable standing, all of which had almost entirely disappeared. Dr. Weintraud, on the other hand, advocated intravenous injection and set forth its advantages, claiming that the effects were much more rapid and the pain less. Professor Ehrlich took part in the discussion and was received with much applause. That much remains to be done yet in determining the best form in which to make up the preparation for administration, as well as in giving it to the patient, is the impression which one would undoubtedly form as a result of the discussion at the meeting.

Professor Treupel was good enough to invite me to his clinic at the Krankenhaus zur Heiligen Geist, and I gladly availed myself of the invitation. If visitors felt that they did not see as much as they would have liked to see at what I have called the official demonstrations, previously alluded to, the same could not be said regarding Professor Treupel's clinic. Nothing could exceed the kindness and attention given us by Professor Treupel and his assistants, and every item of information that we asked for was generously and freely placed at our disposal. An assistant was told off specially to show us the cases in which "606" had been used, so that we had not only time to see them, but also to examine them carefully each day, and later we had the advantage of going round the wards with Professor Treupel and of hearing his clear and impressive remarks upon them. Here also the effects of the preparation in parasyphilitic conditions, such as tabes and the like, could be observed, as well as cases showing more recent syphilitic infection. After the visit we saw the "606" prepared for injection and the injection administered, and could follow the subsequent effects it produced upon the patient and the disease. The doses used of "606" nsually vary from 0·3 to 0·9 gramme and are regulated by the sex, hodily weight, and condition of the patient. In most cases 0·6 gramme is the amount used. The now celebrated preparation is a yellow powder which is put up in glass ampullæ. The manner in which it is now usually prepared for injection is as follows: The end of an ampulla is broken off and the contents turned out into a small mortar. To the powder is added a certain quantity of a 20 per cent. NaHO solution, the amount varying with the quantity of the powder used in the proportion of 0·072 cubic centimetre of NaHO solntion to every 0·1 gramme of "606." Thus for a dose of 0·6 gramme of "606" there is added 0·432 cubic centimetre of NaHO solution. The powder and sodium solution are thoroughly rubbed together into a paste, and chemical action between the materials results wherehy an interchange of atoms takes place which can best be explained by the use of the chemical formulæ. From 1 to 2 cubic centimetres of distilled water is added to the paste and triturated very thoroughly till the mixture forms a fine homogeneous cream; finally, 5 cubic centimetres of physiological NaCl solution (strength 0·75 to 0·9 per cent.) is stirred up with the cream-like mixture to thin it down to a consistence sufficiently fluid to be injected. The injection mass is then tested to ascertain that it is quite neutral. Meanwhile the patient is prepared for the operation; the spot at which the injection is to be made, usually just below the lower angle of the scapula, is carefully washed with soap and warm water, and without loss of time after the injection fluid is ready it is drawn up into a sterilised syringe and injected into the patient's back fairly quickly and with steady pressure. Delay in injecting the dose when ready is apt to cause a block in the syringe in consequence of the fluid becoming viscid at the orifice. The needle used for the injection is a moderately coarse one. The pipettes, rods, and glasses used in the process of preparing the fluid are thoroughly sterilised and the solutions of sodium salts are freshly prepared. It should be noted that Professor Treupel lays stress upon the needle being introduced thoroughly below the skin and the injection made into the subcutaneous cellular tissue so as to avoid the possibility of abscess formations or sloughing of the skin subsequently. He also introduces the needle nearly its whole length and gradually withdraws it as the injection fluid is pressed into

the tissues. After the needle is entirely withdrawn a small piece of gauze is placed over the puncture and retained by a piece of rubber plaster. Little action is shown in and about the site of the injection next day, but by about the third day infiltration of the part is quite discernible and steadily increases for several days till a hard mass can be seen and felt, which is only gradually absorbed after several weeks. When the injection is prepared and given in the way just indicated it is usually followed by little or no pain or rise of temperature, nor have any serious complications occurred under Professor Treupel's own hands; but in two cases out of over 150 erythematous eruption followed, which in one shown us had spread from the seat of the injection over the body, but was not attended by any serious consequences in either instance. The mode described of preparing the injection is known as Blaschko's method. Another method used by Professor Treupel in preparing "606" for injection is dissolving it directly in liquid paraffin. This gives a rather more viscid solution than the other method and a larger needle has to be used. When the paraffin solution is used it is injected into the glutei muscles.

Professor Treupel lays stress upon the patient being kept very quietly in bed for several days after the injection has been made. The Wassermann reaction is tested before and after the injection. A positive reaction given by the patient before injection usually becomes negative afterwards and remains so, but the preparation is used in cases also when the reaction is negative from the first. The improvement shown in the cases of syphilitic origin is very marked. Several had been previously treated by mercurial inunction and by injection with little improvement till "606" was used, after which sores healed rapidly, and throat and skin affections, including indurations, rapidly disappeared. Cases of periostitis very quickly showed signs of subsidence. The injection has been practised on some cases of tabes, but it would be premature to say what its effect will ultimately be. A case of psoriasis widely spread over the body (non-specific) was injected with 0·6 gramme and was watched by us with much interest; certainly some improvement was visible within a few days.

Frankfort a/M., September, 1910.

THE WANDERING WOMB AND FUMIGATION:

A CHAPTER IN PRIMITIVE GYNÆCOLOGY.

BY DAN MCKENZIE, M.D. GLASG., F.R.C.S. EDIN.

No department of early medicine contains so many strange beliefs and ideas as that which concerns the sexual and reproductive functions. In this department the diver into the depths of folk-lore and primitive physiology finds many nooks and crannies full of the most absurd and amusing speculations, but there is probably none so absurd and none so amusing as that which looked upon the uterus, not as an organ of the female body, but as Aretæus called it, "as it were an animal," living an independent, though not, strictly speaking, a parasitic life within the body of its hostess, an animal which could move about not only inside but also outside the body, which manifested likes and dislikes, and which required food for its support and maintenance like any other animal.

That this extraordinary belief was held by our medical forefathers in all seriousness as a definite, formal, and recognised doctrine is evident from the fact that, having passed from the popular philosophy into the classical physiology of ancient Greece and Rome, it influenced, as we shall see, the ideas even of Plato, Aristotle, and perhaps also Hippocrates, to say nothing of many more recent teachers of medicine.

What the age of this strange idea may be there are no trustworthy records to prove, but from the fact that it is met with widely over the world, and that its traces are evident in the Ebers papyrus, we may confidently surmise that the belief must be as old as civilisation itself, and perhaps older. With regard to the ideas which gave rise to it, there is still less reliable evidence upon which to base a well-substantiated theory. All we can offer is a tentative hypothesis. It is possible that the actual observation of prolapse of the uterus and of the symptoms of hysteria, which for ages have been ascribed to over-long virginity and to sterility, together with the thoughts naturally suggested by certain of the phenomena of sexual life, and the analogous superstition that the soul is a mannikin inhabiting the body, united to form the belief that sexual phenomena were the result of the actions of a small and lively animal inside the body of women. In the Malay Archipelago, and even, as I myself have heard, in Scotland, *sperma genitalia* is looked upon as the food of this animal, the absence of which will lead to female complaints of a hysterical nature. Whatever the origin of the belief may have been, however, there it was, and there is no doubt that out of it there sprouted up, in their turn, a further crop of superstitious notions and practices, several of which passed into orthodox medicine.

Hysterical attacks, as we have just seen, were quite plausibly ascribed to the vexation which the animal organ experienced when its desires were ignored, a vexation which made it restless and irritable and led it to forsake its normal situation and to wander about the body. In this way, we are told, when it reached the throat the patient experienced the feeling of a lump or a foreign body—the globus hystericus. As a consequence, the treatment of hysteria both in folk-medicine and in ancient regular medicine was based upon the animal theory. And, as we so often find in the other sections of bygone therapeutics, these particular methods survived by many centuries the belief which gave them birth, so that the pre-scientific treatment of hysteria retained the impress of the animal theory long after that theory as a serious proposition had been discarded from physiological teaching.

The nature and appearance of the animal uterus in folk-lore may first be described, and then I will sketch the course of the idea in medical history proper.

At the present day the folk-belief in the animal womb seems to be most strongly developed in Germany and in the Austrian Alps where the people refer the manifold symptoms of hysteria to *die Mutter* and where that complaint is known as *Muttersucht* (a word analogous in every respect to the Greek hysteria, *ὑστέρα*), while the globus hystericus is popularly termed *Hebmutter*—the rising womb. Elsewhere in these parts similar ideas are prevalent, and everywhere we are told that these conditions are caused by the uterus biting, thumping, or, most generally, crawling about the unfortunate woman's interior and interfering seriously with her vital functions. As to the nutriment preferred by this animal, I have already offered some information, and the folk in Germany, like those of Scotland and Malaya, are quite blunt and out-spoken on the matter, as indeed was Actuarius among the ancients. But there are not rarely obvious disadvantages attaching to a recourse to this therapeutic procedure, and so several other devices are employed to satisfy the hungry creature and to induce it to settle down quietly in its own proper locality. According to Fossel, the Styrians concoct a mixture of horse-mint, spirits of hartshorn, nutmeg, and other odoriferous materials, which they place in a walnut shell and lay on the patient's navel, surrounding it with three lighted candles. In the Tyrol and in Bavaria waxen images of the organ are laid before the Virgin and the saints in the churches as "votive offerings," and from these images we discover that the uterus is an animal not unlike a frog, with short extended legs.

But the excursions of the organ are not always restricted to the confines of the individual's body. Sometimes it extends the circuit of its Odyssey, and, like the soul, wanders away from its owner altogether, slipping from her when she is asleep, to roam about the mountains or to bathe in the wells of the neighbourhood. If the uterus returns and finds the woman's mouth open, well and good; but—again, like the soul—if on its return her mouth is closed, then it cannot get back again, and the woman becomes barren. In these circumstances, the Transylvanian Saxons lure it back by reciting the following magical incantation:—

> "The *Mother* sat on a marble stone,
> There came to her an aged one.
> Little Mother! Where goest thou?
> I go to spy the blood of a wife,
> I go to tear her heart in two,
> I go to steal away her life.
> That little Mother, thou dar'st not do!
> Here on the marble fixt thou't be
> Lest the wood-wife wild devour thee
> And all in pieces tear thee.
> In the name of the Father, the Son, and the
> Holy Ghost."

The Livonians have similar cures for a restless womb. According to that people the normal position of the organ is

in a hollow on the left side behind the navel, and the playful fancy of the folk has furnished her with a little house, a golden bed, and a golden chain. Here she lies curled up like a kitten fast asleep. She is as sweet as honey, they say, white and round, and *quite tame*. But in spite of her home-comforts and gentle disposition the mother occasionally betrays a regrettable tendency to go off on long journeys, sometimes as far as the mountains even, and then she can only be recalled and induced to settle down again quietly at home by the recital of incantations such as "The Mother has gone away into the fields! Thy little children are weeping and crying for thee! Return to thy seat! Sleep in the bed, where Holy Mary, the Mother of Jesus, placed thee!"

We are frequently exercised in our minds to decide which of the two, a particular medical teaching or its related popular superstition, occupies the prior position in time. In the belief now under consideration the probability is that the folk-idea was the first, and, as I have already said, that the medicine of Greece and Rome obtained it from the current folk-belief of these countries.

In the writings of Plato the uterus is spoken of as an animal greedy of conception, so that if its appetite be not sated it manifests its displeasure by wandering up and down the body, whereby the movements of the vital spirits are obstructed, respiration is embarrassed, and numerous diseases are engendered.

In the book upon "Diseases of Women," sometimes ascribed to Hippocrates, but rejected as a genuine work of his by Francis Adams, we find the power of the uterus to change its situation described in such wise that, although it is not definitely called an animal, there can be no doubt that the writer was impelled to write as he did by the belief that it was so. The uterus is able, he says, to finds its way downwards to between the thighs (evidently prolapsus), or it may be found in the loins, in the flanks (floating kidney?), or at the hips; it may reach the liver or stomach, the ribs, and may even venture as far as the head.

Soranus seems to have been the first to combat this teaching, but all the same he followed the established methods of treating the complaints attributed to vagrancy of the womb. Galen also was strongly opposed to the animal theory, but the criticism of these authorities was not powerful enough to expel the idea from general medical thought, and it was firmly and clearly enunciated by Aretæus, whose descriptions of the internal wanderings of the uterus are characterised by the utmost definition and assuredness. After this time, however, the teaching seems gradually to have passed under an eclipse, although the treatment which was popularly based upon the animal theory persisted in the regular medical practice for several centuries.

We have already seen that in German folk-medicine the wandering womb was restored to her normal habitat by sweet-smelling substances, and this particular treatment of uterine complaints in general, including hysteria, was likewise the vogue in medical circles from the time when the Ebers papyrus was written until the rise of modern gynæcology, a period, that is to say, of something like 4000 years. The ancient medical practice differed from that of the folk-doctors of Styria, by whom the odoriferous articles were laid upon the umbilicus of the patient. The remedies as a rule were burned and the sweet-smelling vapour was conveyed into the vagina, but the rational basis for both methods of treatment is the same.

It would take us beyond the limits of our subject to enter fully into the reasons which led the ancients and still lead the folk to resort to fumigation in the treatment of disease in general. I must therefore content myself with laying down the bald statement that my own opinion is that in the first instance the motive which led to fumigation was the simple idea of replacing a foul odour by one that was pleasant, an idea which, indeed, has not yet disappeared from popular opinion. For this reason, therefore, we may suppose that fumigation was first employed in uterine diseases with the object of combating the fœtor that sometimes characterises vaginal discharges. Having originated in some such manner then this therapeutic method was extended to those diseases or complaints which, though not characterised by any offensive discharge, had come to be associated with the uterus In this way fumigation became the accepted method of combating hysteria and all other kinds of uterine disorders. The ancient statement that fumigation was resorted to because the uterus-animal had a fondness for pleasant odours, therefore, may be looked upon as being to some extent one of that classes of excuses which folk-lorists have termed "etiological myths."

The earliest instance of the use of fumigation for vagrancy of the womb occurs in the Ebers papyrus. The reference runs as follows: "Remedies to induce the womb to return to her place: Chips of cedar-wood in a plate and on *Hefe*. Let your patient sit thereon," and "put an Ibis of wax upon coals and lead the smoke therefrom into the genital organs."

Paulus Ægineta, in his directions for treating "uterine suffocation" or the "hysterical convulsion," recommends: In order to draw back the uterus to its place "the injection of fragrant ointments" such as those made of marjoram and "Indian leaf." And in company with the other ancients he ordered that "things of a strongly fœtid smell are to be applied to the nose, such as an extinguished lamp, castor, liquid pitch, gum, vernix, burnt wool or rags." "Some," he adds, "have even brought close to the nose a chamber-pot containing stale urine or fæces." The undoubted efficacy of some of these unpleasant remedies in hysterical fits cannot but have supported the belief that the womb was an animal which loved sweet smells and fled from offensive odours.

In the list of remedies the presence of castor is to be noted, and in his commentary upon this section Adams remarks that according to Herodotus the ancient Scythians used castor for the cure of uterine complaints. Castor in the form of a tincture is, as everybody knows, still frequently employed as an antispasmodic, but those who prescribe it little imagine that its action, in the eyes of our medical predecessors, consisted in its driving the vagrant womb back into the pelvis.

The animal theory of the constitution of the uterus may have lingered on in the fanciful nonsense that passed muster for anatomy and physiology in the early Middle Ages, but it ultimately died out. The following quotation from a seventeenth century dispensatory, for example, shows that the European physicians at that time, no less than those of ancient Egypt, sought to restore the displaced womb to its normal condition by pleasant perfumes introduced into the vagina by fumigation or on pessaries: "*Hysteric Passion*. Some greatly recommend fumigations for the uterus of Musk, Civet, Storax and Benjamin" (or, as we say nowadays, *benzoin*).

Thus the treatment of hysteria by pungent appeals to the senses of the patient begins in the endeavour to neutralise unpleasant smells. Then it passes through a phase in which it purports to support and be supported by an absurd superstition which thereby found its way into the sober counsels of medicine. Finally, shorn of its absurdities, and in the class of remedies which we call antispasmodics, it finds at last a permanent place in the pharmacopœias of modern science.

This chequered history is by no means unique. There are many other trusted remedies which have had careers equally curious.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

Motor-car Licences.

THE attention of medical practitioners keeping motor-cars for the purpose of their profession is drawn to the fact that although the new rate of duty payable on a car may be the same as that paid on the existing licence, the form of declaration for use by medical men employing motor-cars, which can be obtained now at any post-office (Form No. 1A), must be filled up and forwarded with the old licence to the local authority for exchange, as all motor-car licences now held ceased to have effect on June 30th, 1910. In order to obtain the rebate on the licence allowed to the medical profession the certificate on the form must be signed by an authorised representative of the local authority. In the case of those residing in the County of London the declaration should be forwarded to the Comptroller, London County Council, 23, Cockspur-street, London, S.W., together with the additional duty, if any. The new licence will then be forwarded, and the amount, if any, by which the sum paid for the old licence exceeds the sum payable for the new will be returned. If preferred the new licence may be obtained at any postal money order office, but in that case the certificate provided for on the special form of declaration

must be obtained from the local county council authority for presentation at the postal money order office.

A Cure for Platinum Point Pitting on Trembler Coils.

Those who own cars with accumulator and trembler coil ignition have probably learnt the initial "tip" to look to the platinum points on the trembler of the coil if the engine pulls up suddenly. True, this is not much trouble, though some find dressing the two bits of platinum so as to be true with one another rather a fiddling job. Those who have done this will have noticed that the points wear similar to the carbons of an electric lamp—one becomes convex, the other concave. This fact, I presume, suggested to Messrs. Lodge Brothers of New-street, Birmingham, the idea of their patent automatic switch, by means of which each time the current is switched on its direction is automatically reversed. Thus the pitting action cannot take place on the platinum points for a sufficient period to have any susceptible effect, and the trouble and expense of filing are done away with. The automatic reversing switch will therefore be found to be a useful and economical fitting on all cars using trembler coils. By its means also either one or two accumulators may be placed in circuit, and the possibility of being able to bring two into use is of advantage in the event of both accumulators being partly run down.

Some Good Plugs.

Messrs. Lodge Brothers have also introduced a sparking plug which certainly has an air of solidity about it. The body is of steel, which stands the continual use of a spanner considerably better than brass. The porcelain is very solid, and is held firmly in place, with due allowance for expansion and contraction. It has three sparking points of pure nickel, and the spark is brought well into the mixture to be ignited. The Bosch Magneto Company, of Newman-street, London, W., have a plug fitted with either two or four electrodes. It consists of the usual central insulated pin, and the electrodes are fitted into the rim of the plug, with the other ends pointing towards the centre pin. One of the best known and most popular plugs is the "Poignon," a plug introduced by Messrs. Hobson, of Vauxhall Bridge-road, London; the porcelain is substantial and has been tested to a very high degree of heat, and even with a perfect compression they do not leak. Among other reliable makes are the Aimia, sold by the Abolo Company, of 133, Regent-street, London, and the E.I.C. plug, sold by the Electric Ignition Company of Birmingham. The particular features to see to in all plugs are that the central electrode is insulated and not shorting through a layer of burnt oil; also that the points are the correct distance apart—about 1-20th of an inch is a satisfactory gap, though with a run-down accumulator it is possible to reach home by approximating them a little more. It is less trouble to clean a plug at home than on the road, so it is a good plan to always carry a spare one, with the usual copper asbestos washer; and though a large number are said to be proof against over-lubrication, still it is no advantage to the engine to test this statement.

Foot Starting.

One of the few points which can be raised against a modern car where the doctor drives himself is that it is not quite compatible with one's dignity to have to go in front, on leaving a patient's house, to crank the starting lever round. Of course, with the Bosch dual ignition, if the halt has not been longer than for the usual quarter of an hour, pressing the button will generally put the engine in action. For those who have not the dual ignition fitted, and even for those who have and want to be sure to get away without pulling the handle round, Messrs. Duff Morgan and Vermont of Dover-street, Piccadilly, have introduced a foot starting device. This consists of a ratchet wheel fixed to the clutch shaft of the car and operated from above the food board by a press down pedal, the connexion being through a pivoted bar with notches, so that when the contrivance is out of action the pedal is down and the pawl out of gear. This method has been subjected to a Royal Automobile Club trial, and the certificate awarded states that "the car started from cold within five seconds, and after the second depression of the starting pedal it was driven for nearly three hours in London traffic, during which time nine stops were made. On six occasions one depression of the pedal brought the engine into action, on the other tests two, three, and four depressions were respectively needed." These results, I think, show that the device is a practical one and worthy the consideration of those who like to jump in their car and get away at once by means of merely pressing a pedal.

The Question of Licences to Drive.

At a recent inquest at Warrington the driver of a car which had run over a child was exonerated from all blame, but it came out that he had only been licensed to drive a car since June—a fact which led to some remarks condemnatory of the system under which licences can be obtained.

THE ORDER OF THE HOSPITAL OF ST. JOHN OF JERUSALEM IN ENGLAND.

IN most of the obituary notices of Miss Florence Nightingale it has been mentioned that, on her eighty-fourth birthday, the King conferred upon her the dignity of a Lady of Grace of the Order of St. John of Jerusalem in England; and the *London Gazette* frequently contains announcements of appointments to or of promotions in the Order, to which the Royal sanction has been given, and which, in a large proportion of the cases, refer to members of the medical profession. In these circumstances, and in view of the fact that the character and composition of the Order do not appear to be always very clearly understood, some account of its origin and history may perhaps be acceptable to our readers.

Origin and History of the Order.

From the time when Jerusalem first became a recognised place of pilgrimage for European Christians, some attempts had been made both to afford these pilgrims shelter and hospitality upon their arrival and also to protect them against some of the perils of the journey; attempts which were systematised by a body of merchants from Amalfi, who established an organisation for the purpose, and placed it under one Gerard as Master. Such was the situation as it existed prior to the formation of the kingdom of Jerusalem in 1099. Between that time and the middle of the twelfth century the Order, under Raymond du Puy, had built a hospice and two Christian churches in Jerusalem; and in 1118 Baldwin II., the then Latin King of Jerusalem, determined to confer the character of a military knighthood upon the Order, an example which was followed in the case of the Templars in 1130. Under its new organisation the Order was divided into three classes, first of whom in rank and position were the Knights of Justice. Admission to this grade was only given to those who could produce satisfactory proofs of the nobility of their descent; and every candidate was required to have received the accolade of knighthood from secular hands before he could be enrolled. The second class comprised the strictly ecclesiastical portion of the convent, and was eventually divided into two distinct grades, the Conventual Chaplains, who performed the religious functions of the Order at headquarters, and the Priests of Obedience, who carried on similar duties in other priories and commanderies of the Order throughout Europe. The third class were denominated Serving Brothers, and were again divided into two grades, the Servants at Arms, or Esquires, and the Servants at Office. The Servants at Arms performed the duties of Esquires under the Knights of Justice, and, if they were eligible, became in due time enrolled among their number. The Servants at Office were men of a lower class in life, who acted as domestics within the convent and hospital. This class, though wanting the position and dignity of their nobler brethren, possessed numerous privileges and emoluments which rendered admission into the Order, even in this grade, very advantageous to men of the humbler ranks of society. Ladies were first enrolled in the year 1259, and took their full share in the charitable work, soon rivalling in zeal the most earnest of the brethren.

Under this organisation the Knights Hospitallers, as they were commonly called, coöperated for many years with the Knights Templars in the defence of Jerusalem and of the Holy Land against the Saracens; although the two Orders were frequently hostile to each other at times when they were not compelled to turn their swords against the common enemy. In the beginning of the fourteenth century, the

Order of St. John, which had previously been a cosmopolitan brotherhood embracing all Christendom, was divided into the seven nations or tongues (*langues*) of Provence, Auvergne, France, Italy, Aragon, England, and Germany; and to these seven an eighth was subsequently added, in order to increase the influence of Spain in the general body. The *langue* of Aragon was divided, the new portion taking the title of the *langue* of Castile, and embracing Portugal. Under the new conditions, each *langue* became a semi-independent body, owing allegiance to the sovereign of the territory from which it was derived, and governed by a Grand Prior of its own election; while the Order as a whole was governed by a Grand Master, who could only be elected at a Chapter at which all the *langues* were represented. When the Order was finally driven from Jerusalem by the Saracens, its headquarters were successively established at Acre, at Cyprus, at Rhodes, and finally at Malta, where its sovereignty was recognised by the great Powers; and for some centuries it successfully held the Mediterranean against the Turks. On the death of Grand Master de Rohan, in 1796, Ferdinand von Hompesch, a Knight of the German *langue*, was elected as his successor, and soon showed that he possessed neither the ability nor the determination necessary for the post. In 1798 Napoleon, on his expedition to Egypt, landed a portion of his army in Malta; and, after three days of negotiation, Valetta was surrendered to him, and the sovereignty of the Order came to an end. A portion of the Knights took refuge in Italy, where they claimed to be not merely the Italian *langue*, but the Order; a claim which has never been recognised by the other *langues*, so that no Grand Master has subsequently been elected. An attempt was made by two successive Czars to occupy a position of general patronage to a revived Order, but nothing came of it, and the *langues* which still exist have become purely national institutions in their respective countries. That of Germany, for instance, flourishes under Imperial patronage as the "Johanniter," and its Grand Master, Prince Albert of Prussia, is an honorary Knight of Justice in England.

That the official name of the Order in England in the time of King Edward III. was the Order of St. John of Jerusalem in England is rendered clear by official records of proceedings in the law courts. These proceedings were consequent upon the granting to the Order of St. John of Jerusalem of the properties in England of the Knights Templars. In some instances these properties had passed into other hands, and the Order was obliged to take proceedings for their recovery. There is also some indication that at first the Prior was not familiar with the English legal title of the Order, for he questioned whether the whole of the property was not vested in him by virtue of his being the Lord Prior, but the Courts decided that the property was vested in the corporation styled the Order of the Hospital of St. John of Jerusalem in England, or shortly the Order of St. John of Jerusalem in England.

The result of this was that, as far as England and English laws were concerned, the Order in England bore the same name in England that it bears now. And a further result was that when, at the time of the dissolution of the monasteries, King Henry VIII. found that the Order, while acknowledging the King's supremacy in every matter connected with the tenure of land, and the duties consequent thereon, was still yielding allegiance in spiritual matters to the Pope, and when he consequently determined upon its dissolution, he could not dissolve the Order of St. John of Jerusalem, which was an international corporation created by Baldwin, King of Jerusalem, and had an international existence, but he could and did dissolve the English corporation of the Order of St. John of Jerusalem in England. This corporation, under the same name, was reconstituted by Royal Charter in the time of Queen Mary; and it is interesting to remark that upon that occasion, although the more general corporation still existed in its international character, a certain number of Knights, members of it, applied for and obtained a Royal Charter reconstituting them and their successors as the Order of St. John of Jerusalem in England.

In the reign of Queen Elizabeth the property of the Order in England was again confiscated, but nothing was done to take away the Charter, and there is some evidence that members of the English Order still continued to occupy in Malta the places which had appertained to the Order when in England. As a fact, the Charter granted by Queen Mary was never annulled, and matters remained in abeyance, as far as England was concerned, until after the extinction of the original Order by the surrender of Malta. Some 20 years later an attempt was made to reconstitute the Order as a whole, in consequence of the massacre by the Turks of the Christian inhabitants of Scio; and the documents relating to this attempt show that, although a complete Chapter of the Order could not be summoned, there was then in France the Venerable Ordinary Council of the Order, in which were represented sufficient of the *langues* to carry by a majority of the Chapter, had it been possible to summon one, any determination at which the Venerable Council might arrive. In these circumstances, the Venerable Council decided to re-establish the English branch of the Order, and also that its members might be members of the Anglican Church. Hereupon meetings of English Knights were held; and the Rev. Sir Robert Peat having been elected Grand Prior, he, in 1831, acting under the advice of Vice-Chancellor Sir Launcelot Shadwell, presented himself before the Court of King's Bench, and took before Lord Chief Justice Denman certain oaths which were required by the Charter of Queen Mary. But the revolution in France again dispersed the Knights, and a small fraction of them who had taken up their residence in Rome declined to acknowledge the action of the Venerable Ordinary Council, and have never accepted the reconstituted English branch of the Order. This, notwithstanding, continued to exist; probably, as far as English law is concerned, as a voluntary institution; but, as far as the Order is concerned, representing at least as much legal authority as that which has been claimed by the Roman Catholic Order, then and since. But in England, or in the British Empire, the question was set at rest in 1888 by the grant of a new Charter by Queen Victoria, giving the Order a status and constitution based upon the Charter of Queen Mary. This last Charter has fully revived the mediæval Corporation of the Order of the Hospital of St. John of Jerusalem in England, which was recognised as the English Order from the time of King Edward II. to that of King Henry VIII. The Charter preserves the name which the Knights bore in the time of King Henry VIII.—namely, Knights of the Order instead of Knights of the Kingdom; and the links with the past have been further strengthened by the acquisition by the English Order of buildings at St. John's Gate which formed part of the principal home of the English *langue*, and of the advowson of the old Church of the Order in Clerkenwell.

Development of the Ambulance Branch.

The chief merit of raising the Order in England from the status of a private society to that of an Imperial Institution should undoubtedly be given to the late Sir Edmund Anthony Harley Lechmere, Bart., M.P., who became a Knight of the Order in 1865, and was appointed its secretary in 1867. In conjunction with the late Sir Edward Perrott, Sir Vincent Kennett Barrington, and Colonel Duncan, M.P., and with Sir John Furley, still happily surviving and active, Sir Edmund Lechmere inaugurated that system of training bodies of men to render first aid to the wounded which has now extended to all parts of the Empire, and which, during the recent war in South Africa, enabled the Ambulance branch of the Order to supply 1500 trained bearers to the imperial forces, and thus permitted the Royal Army Medical Corps to cope successfully with an amount of work under which their own *personnel* would have been hopelessly overwhelmed. The St. John Ambulance Association, as this branch of the work of the Order is called, has also given instruction in first aid and in the conveyance of the sick or wounded to thousands of men engaged in dangerous occupations, or likely to be brought into contact with accident, such as railway makers and servants, miners, policemen, sailors, engineers, and many others, as well as to great numbers of the public. As one consequence of the general diffusion of such teaching the risks to which injured persons are exposed have been very materially diminished; and both in the metropolis and in provincial towns every occasion which brings together multitudes of people brings out also the local organisation of the Order, with its staff of nurses and bearers, upon whom it is common for the care of the subjects of numerous accidents to devolve. This branch of the organisation has of late years been mainly developed under the Secretariat

of Colonel Sir Herbert Perrott, son and successor of the Sir Edward Perrott mentioned above.

The instruction in first aid, which is thus one of the most important works of the Order, and which is carried on not only at home, but in all, or nearly all, of the colonies and dependencies of the Empire, has only been rendered possible by the hearty coöperation of the medical profession, the members of which have shown, generally speaking, the greatest readiness to undertake that teaching of classes for the purpose which is now conducted in a large number of centres; and this readiness has in many cases been recognised by the bestowal of the Honorary Associateship of the Order, or by the selection of practitioners who were already Honorary Associates to be Knights of Grace. Among the latter, for example, may be mentioned such conspicuous physicians and surgeons as Sir Dyce Duckworth, Dr. W. Bezly Thorne, Sir R. Douglas Powell, Mr. Edmund Owen, Sir Frederick Treves, Sir Alfred D. Fripp, Sir William H. Bennett, Dr. F. M. Sandwith, Sir Arthur Conan Doyle, a large number of men of highest rank in the Naval Medical Service and in the Royal Army Medical Corps, and many others. But the Order is also largely recruited from other callings, and, as at present constituted, includes some 50 Knights and 50 Ladies of Justice, over 200 Knights and about 100 Ladies of Grace, over 50 Esquires, a large number of honorary serving brothers and serving sisters, and about 300 honorary Associates, nearly all of whom are more or less actively engaged in the promotion of its work. Besides the ambulance branch, the Order maintains an Eye Hospital at Jerusalem which owes its foundation to Sir Edmund Lechmere, and which for many years has rendered admirable service; and it has an almoners' branch which carries aid to the families of hospital patients and to many other poor and deserving people. It also awards medals and certificates to persons who have saved or endeavoured to save life at imminent peril to themselves, and these certificates are annually given to the recipients by the Grand Prior, or, in India or the Colonies, by the local representative of the Sovereign.

The Charter of 1888.

Under the Charter of 1888 the reigning Sovereign is also the Sovereign Head and Patron of the Order, without whose approval no appointment or promotion in it can be made, and by whom the Grand Prior is nominated. This office, from the date of the Charter to the accession of King George, was held by the Prince of Wales; but King George, presumably on account of the Prince's youth, nominated the Duke of Connaught to the vacancy occasioned by his own accession. A large number of members of the Royal Family are Knights or Ladies of Justice of the Order, and on many occasions have taken part in its ceremonies, or have given to the successful candidates the prizes awarded under its competitions. The Members and Associates have decorations corresponding with their rank in the Order, and these are worn at Court, in uniform, or on other suitable occasions, in a manner prescribed by the King's regulations on such subjects, while all appointments or promotions in the Order, after having been approved by the Sovereign, are published in the *London Gazette* by Royal authority.

A Knight of Grace, an Esquire, or an Honorary Associate of the Order is required by the regulations to be "of sufficient social position," and for a Knight of Justice the original genealogical qualification is, as a rule, maintained. But this qualification is not required in any case in which promotion to the grade is made in obedience to a Royal mandate, or in which the candidate is already a Knight Grand Cross of the Bath, or of one of the other principal Orders of Knighthood. The Knights of Justice have the privilege of bearing the arms of the Order in augmentation of their own, much as baronets bear the red hand of Ulster.

THE MANCHESTER MEDICAL SOCIETY.—Mr. C. B. Lockwood will deliver an address on the subject of Inflammation and its Relationship to Malignant Disease at the opening meeting of the session 1910–11 of the Manchester Medical Society. The meeting will be held in the Medical School of the Manchester University on Wednesday, Oct. 5th, at 8.30 P.M.

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The City of Manchester.—The estimated population of Manchester for the year 1909 was 654,584, and of these 313,889 were males and 340,695 females. The birth-rate was 27·52 and the death-rate 17·70 per 1000, the infantile mortality, 135·6 per 1000 births, being low, as in the country as a whole. The percentage of deaths occurring in public institutions showed a marked increase, a circumstance which Dr. James Niven regards as undoubtedly due to the distress prevailing during 1909, and not presumably to the increased popularity of these institutions. As regards death-rates from epidemic diseases, Manchester does not, except in the case of scarlet fever and measles, occupy a very unfavourable position, and it is thought that the insufficiency of accommodation for scarlet fever explains the rise in the death-rate from that disease. This is an interesting explanation. Dr. J. R. Hutchinson, dealing with the prevalence of enteric fever in the city, reports that the experience of Manchester shows that no inconsiderable number of cases is caused by shell-fish, that a good investigation can discover the infecting source in a very large number of instances, and that overlooked cases, especially amongst children, are responsible for many "subsequent" ones. The effect of the occupation of the mother upon the health of her infant was investigated in the Ancoats division of Manchester during 1909, in common with similar inquiries carried out by the Home Office in certain other large towns. One of the more interesting points brought out was the large number of deaths which occurred amongst the infants of mothers who had not worked during the year before or after birth or who had worked before and not after birth. The explanation offered is that these were enfeebled mothers who had become unfit both for work and the production of healthy offspring. The inquiry, so far as it goes, brings out other interesting points which are difficult to summarise, and one of the conclusions arrived at is that the industrial occupation of mothers is decidedly injurious to their infants. This does not seem quite to agree with the experience of Birmingham. It is clearly necessary to bear in mind in all investigations of this character that the mothers who work are likely to be superior constitutionally, amongst the poorer classes at all events, to those who do not work, and unless this fact be accorded due weight some very misleading conclusions may be reached.

An increase is recorded in the aggregate death-rate from tuberculous phthisis in Manchester. This is due in large measure to the immigration of paupers from outside districts, who were admitted in exceptional numbers to the union hospital and who died there. As in past years a considerable portion of this report is devoted to the subject of pulmonary tuberculosis, and a detailed report on the measures locally needed for its prevention is appended. The voluntary notification of tuberculous phthisis was adopted in the year 1899, and since that time a decided fall in the death-rate therefrom has been observed, more especially in that portion of the community which has availed itself of the instruction proffered by the sanitary authorities. The influence of poverty in the production of tuberculosis, as well as that of pulmonary tuberculosis in the production of poverty, has become increasingly manifest in recent years. Both in its origin and in its progress tuberculous disease is powerfully influenced by malnutrition, and the spread of infection in a family is encouraged by poverty. Speaking generally, the working classes in Lancashire live from hand to mouth; consequently, when the breadwinners become incapacitated by phthisis the family resources rapidly sink to the vanishing point. From a calculation furnished to the medical officer by Mr. E. Lock it appears that in the year 1909 the loss of wages due to phthisis was not less than £48,000 in Manchester alone, and was probably much more than this. The number of deaths annually ascribed to phthisis exceeds 1000; and, on the assumption that on the average the patients are infective for three years before death, there exist not fewer than 3000 infectious cases constantly requiring supervision. Besides these there are probably at least 1000 cases, mostly

children, suffering from tuberculous disease of the bowels, kidneys, and glands, all of which are more or less infective. Although the number cannot be exactly determined, it may be estimated that the total number of sufferers from tuberculosis other than pulmonary falls little short of 4000. The chief reduction in mortality from tuberculous phthisis has occurred at ages between 15 and 65; among boys under 15 there has been no reduction whatever. Since 1899 tuberculous affections in children have diminished much more rapidly than has tuberculous phthisis—a circumstance which may be partly due to the operation of the milk clauses of the Manchester General Powers Act of that year. Most of the infection of children is probably caused by contact with cases of phthisis, and any improvement that has occurred may be assigned to the instructions given to families under the system of voluntary notification now in vogue. The class of persons frequenting common lodging-houses has not experienced any mitigation in the loss of life from this scourge. Dr. Niven insists that, in order to obtain satisfactory control over the ravages of the disease, compulsory notification of tuberculous phthisis is indispensable. In addition to this he regards it as important that the authorities of union hospitals should be required under statute to retain under medical treatment all phthisical paupers until their discharge is free from danger to others. He further is of opinion that poor phthisical persons should be prohibited from wandering from place to place or from one lodging to another.

In order to supervise the milk-supply of Manchester and to administer the provisions of the local Act of 1899, to which we have referred, Mr. J. W. Brittlebank, M.R.C.V.S., has been appointed, and his report is appended. The milch cows in the city byres, some 2000 in number, have been kept under constant supervision throughout the year, and the policy has been maintained of peremptorily excluding aged cows from the city cowsheds. Only one cow was detected to be suffering from tuberculosis of the udder, and it was promptly destroyed. Under the milk clauses of the Act samples of milk are obtained at the Manchester railway stations and immediately submitted to Professor Sheridan Delépine for examination. All samples found to cause tuberculosis are followed to their source at the farm by the medical officer of health and the veterinary surgeon. In the course of last year 645 samples of milk were examined, and of these 5·79 per cent. were found to be infective. As many as 535 farms, feeding in the aggregate 9000 cows, are concerned in supplying milk to Manchester from outside areas. Very encouraging are the results of applying the tuberculin test for keeping a large herd of milch cows free from tuberculosis. In Manchester the hospitals at Monsal, Clayton, and Baguley have for four years past been supplied with milk from that herd, and Mr. Brittlebank reports that in this period not a single animal has reacted to tuberculin. The complete success of this experiment should undoubtedly lead to the general practice of rearing stock from tubercle-free animals.

Under the head of infantile mortality the report gives an instructive account of the preventive action still carried on by the Ladies' Health Society, and reference is made to the investigation concerning the industrial employment of mothers carried out in Ancoats at the instance of the Home Office. Good work is being done in Manchester under the Midwives Acts. The report of the executive officer, Dr. Margaret M. Smith, has just been issued; it summarises the work done by the midwives supervision committee in the year 1909. *Inter alia*, the consent of the Local Government Board has been obtained for the inclusion of ophthalmia neonatorum among the infectious diseases to which the Notification Acts apply. Under the direction of the medical officer of health circulars have been issued to monthly nurses containing instructions on the care of women in childbirth. These have been highly appreciated by the nurses and, it is believed, have had happiest results to the patients. The education of midwives which has taken place under the Act has brought about a more careful habit of work and a higher standard of their responsibility towards the patients. The very poor lying-in women in the city are now sure of skilled care and attendance from the midwives working directly in connexion with St. Mary's Hospitals. The poorest of these who require gratuitous medical aid at the time of labour have the medical man's fee paid by the corporation after due inquiry. In some districts schools for mothers are established, where pregnant women and nursing mothers can obtain meals at a very small charge, as well as instruction in the care of infants. The whole report is one of progress in various sanitary and humane directions.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 7577 births and 4085 deaths were registered during the week ending Sept. 17th. The annual rate of mortality in these towns, which had been 12·1 and 11·7 per 1000 in the two preceding weeks, rose again last week to 12·6 per 1000. During the first 11 weeks of the current quarter the death-rate in these towns averaged 11·5 per 1000, and in London during the same period the death-rate, calculated on the probably over-estimated population, did not exceed 10·7 per 1000. The lowest reported annual death-rates in these 77 towns last week were 3 2 in Hornsey, 5·0 in Willesden and in Handsworth (Staffs), 5·9 in West Bromwich, and 6·0 in Aston Manor; the rates in the other towns ranged upwards to 17·5 in Grimsby and in Hull, 17·6 in Stoke-on-Trent, 17·7 in Bootle, 18·5 in Liverpool, 21·9 in Middlesbrough, and 23·1 in Tynemouth. In London last week the reported death-rate did not exceed 12·2 per 1000. The 4085 deaths registered in the 77 towns last week showed an increase of 290 over the number in the previous week, and included 643 which were referred to the principal epidemic diseases, against 720, 703, and 623 in the three preceding weeks; of these 643 deaths, 476 resulted from diarrhœa, 56 from whooping cough, 52 from measles, 22 from enteric fever, 19 from diphtheria, and 18 from scarlet fever, but not any from small-pox. The mean annual rate of mortality from these diseases in the 77 towns last week was 2·0 per 1000, against 2·2 and 1 9 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Tottenham, Derby, Reading, Newport (Mon.), Merthyr Tydfil, Smethwick, Handsworth (Staffs), Burton-on-Trent, or Dewsbury; the annual death-rates therefrom ranged upwards, however, to 4·1 in Barrow-in-Furness, 4·4 in Bury, in Burnley, and in South Shields, 5·9 in Bootle, 6·1 in Hull, and 7·8 in Middlesbrough. The deaths attributed to diarrhœa in the 77 towns, which had been 516, 527, and 465 in the three preceding weeks, rose again to 476 in the week under notice, and caused death-rates ranging upwards to 3·0 in Rhondda, 3·3 in Sheffield, 3·5 in South Shields, 3·9 in Stockton-on-Tees, 4 4 in Bury, 5 2 in Bootle, 5·6 in Hull, and 7·3 in Middlesbrough. The fatal cases of whooping-cough, which had declined from 79 to 50 in the five preceding weeks, rose again last week to 56, the highest death-rates from this disease being 1·2 in King's Norton, 1·3 in Coventry, and 1·9 in Great Yarmouth. The deaths from measles, which had been 77, 68, and 51 in the three preceding weeks, were 52 in the week under notice, the greatest proportional mortality from this cause being 2·5 in Barrow-in-Furness. The 22 fatal cases of enteric fever showed an increase of 10 over the number in the preceding week; of these 22 deaths, 6 occurred in London and 2 in St. Helens. The deaths from diphtheria, which had been 16 and 28 in the two preceding weeks, declined again to 19 last week, and included 5 in London, and 2 each in Manchester, Salford, and Rhondda. The fatal cases of scarlet fever, which had been 18 and 17 in the two preceding weeks, were again 18 in the week under notice; 6 were registered in Liverpool, 4 in London, 2 in Stoke-on-Trent, and 2 in Hull. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 1447, 1455, and 1462 at the end of the three preceding weeks, had further risen to 1509 at the end of the week under notice; 201 new cases were admitted during the week, against 183 in each of the two preceding weeks. The 1140 deaths from all causes in London last week included 120 which were referred to pneumonia and other diseases of the respiratory system, showing a slight increase over the numbers in the two previous weeks, and being nearly equal to the corrected average number in the corresponding week of the five years 1905-09. The causes of 31, or 0 8 per cent., of the deaths registered during the week in the 77 towns were not certified either by a registered medical practitioner or by a

coroner. All the causes of death were duly certified in London, Leeds, Sheffield, Bristol, West Ham, Nottingham, Leicester, Salford, and in 51 other smaller towns; the 31 uncertified causes of death in the 77 towns included 6 in Birmingham, 5 in Liverpool, and 2 each in Blackburn, Preston, Huddersfield, and Hull.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 785 births and 473 deaths were registered during the week ending Sept. 17th. The annual rate of mortality in these towns, which had been 13·6, 13·3, and 13·0 per 1000 in the three preceding weeks, was again 13·0 last week. During the first 11 weeks of the current quarter the death-rate in these towns averaged 12·8 per 1000, and exceeded by 1·3 the mean rate during the same period in the 77 largest English towns. The annual death-rates in the week under notice in the eight Scotch towns ranged from 7·8 in Leith and 11·7 in Edinburgh to 15 4 in Perth and 16·2 in Dundee. The 473 deaths from all causes in the eight towns last week were exactly equal to the number in the preceding week, and included 78 which were referred to the principal epidemic diseases, against 93 and 69 in the two preceding weeks; of these 78 deaths, 45 resulted from diarrhœa, 13 from whooping-cough, 10 from diphtheria, 6 from scarlet fever, and 4 from enteric fever, but not any from measles or from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 2·2 per 1000, the rate from the same diseases in the 77 English towns being 2·0 per 1000. The deaths attributed to diarrhœa in the Scotch towns, which had been 68 and 51 in the two preceding weeks, further fell last week to 45, of which 25 occurred in Glasgow, 10 in Dundee, 6 in Edinburgh, 2 in Aberdeen, and 2 in Paisley, The fatal cases of whooping-cough, which had been 10 and 8 in the two previous weeks, rose again to 13 in the week under notice, and included 9 in Glasgow and 2 in Greenock. The deaths from diphtheria, which had been 6, 7, and 5 in the three preceding weeks, increased last week to 10, of which 3 were registered in Glasgow, 2 in Edinburgh, 2 in Dundee, and 2 in Aberdeen. The 6 fatal cases of scarlet fever exceeded by 3 the number in the previous week, and included 4 in Glasgow, where 3 of the 4 deaths from enteric fever also were registered. The deaths referred to diseases of the respiratory system in the eight towns, which had been 49, 47, and 42 in the three preceding weeks, rose again to 58 in the week under notice, and were 17 in excess of the number in the corresponding week of last year. The causes of 12, or 2·5 per cent., of the deaths in the eight towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 713 births and 375 deaths were registered during the week ending Sept. 17th. The mean annual rate of mortality in these towns, which had been 17·1, 15·2, and 15 1 per 1000 in the three preceding weeks, rose again to 17·0 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these Irish towns averaged 16·1 per 1000; the mean rate during the same period did not exceed 11·5 in the 77 largest English towns and 12·8 in the eight principal Scotch towns. The annual death-rate during last week was equal to 18·8 in Dublin, 15·5 in Belfast, 14·4 in Cork, 18 0 in Londonderry, 9 6 in Limerick, and 19·5 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was 18·9 per 1000. The 375 deaths from all causes in the 22 town districts last week were 41 in excess of the number in the previous week, and included 61 which were referred to the principal epidemic diseases, against 74, 47, and 43 in the three preceding weeks; these 61 deaths were equal to an annual rate of 2·8 per 1000, the rate from the same diseases being 2·0 in the 77 English towns, and 2·2 in the eight Scotch towns. The 61 deaths from these epidemic diseases in the Irish towns last week included 48 from diarrhœa, 4 from diphtheria, 3 from whooping-cough, 2 from scarlet fever, 2 from enteric fever, 1 from measles, and 1 from typhus fever, but not any from small-pox. The deaths attributed to diarrhœa, which had been 54, 39, and 33 in the three preceding weeks, rose again to 48 in the week under notice, and included 21 in Dublin, 15 in Belfast, 3 in Cork, 2 in Waterford, and 2 in Tralee. Two deaths from scarlet fever, 2 from whooping-cough, and 2 from diphtheria were registered in Dublin. The deaths in the 22 towns last week included 47 which were referred to pneumonia and other diseases of the respiratory system, against 50, 40, and 38 in the three preceding weeks. The causes of 13, or 3·5 per cent., of the deaths registered last week in the Irish towns were not certified; in the 77 English towns the proportion of uncertified deaths last week did not exceed 0·8 per cent., while it was equal to 2·5 per cent. in the eight Scotch towns.

VITAL STATISTICS OF LONDON DURING AUGUST, 1910.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 3·9 per 1000 of the population, estimated at 4,872,702 persons in the middle of the year. In the three preceding months the rates were 3·9, 4·0, and 4·1 per 1000 respectively. The lowest rates last month were recorded in Kensington, Chelsea, the City of Westminster, Hampstead, and Camberwell; and the highest rates in the City of London, Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, Bermondsey, and Woolwich. No case of small-pox was notified during the month. Scarlet fever was less prevalent in August than in any previous month of the current year; among the several boroughs the greatest proportional prevalence of this disease was recorded in Hammersmith, Bethnal Green, Poplar, Bermondsey, Lambeth, and Woolwich. The Metropolitan Asylums Hospitals contained 1439 scarlet fever patients at the end of the month, against 1358 and 1530 at the end of the two preceding months; the weekly admissions averaged 160, against 180 and 190 in the two preceding months. The prevalence of diphtheria showed a decline from that recorded in the previous month; this disease was proportionally most prevalent in Fulham, Finsbury, the City of London, Bethnal Green, Southwark, Bermondsey, and Greenwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 673 and 613 at the end of the two preceding months, had further declined to 580 at the end of last month; the weekly admissions averaged 76, against 80 and 85 in the two preceding months. Enteric fever was much more prevalent than in any other recent month; the greatest proportional prevalence of this disease was recorded in Paddington, Kensington, the City of Westminster, St. Pancras, Holborn, Finsbury, Shoreditch, Bethnal Green, and Southwark. There were 58 enteric fever patients in the Metropolitan Asylums Hospitals at the end of last month, against 46 and 45 in the two preceding months; the weekly admissions averaged 11, against 8 and 6 in the two preceding months. Erysipelas was proportionally most prevalent in St Marylebone, Finsbury, the City of London, Shoreditch, Bethnal Green, Stepney, Poplar, and Southwark. The 25 cases of puerperal fever notified during the month included 4 in Stepney, 3 each in Fulham, Battersea, and Wandsworth, and 2 each in Shoreditch and Southwark. Of the 8 cases notified as cerebro-spinal meningitis 2 belonged to Finsbury.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates are further corrected for variations in the sex and age constitution of the populations. During the five weeks ending Sept. 3rd the deaths of 4593 London residents were registered, equal to a corrected annual death-rate of 10·3 per 1000; in the three preceding months the rates were 12·4, 10 6, and 10·4 per 1000. The death-rates last month ranged from 6·3 in Hampstead, 7·5 in Stoke Newington, 7·7 in Lewisham, 7·9 in Woolwich, and 8·0 in Wandsworth, in Camberwell, and in Greenwich,

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1910.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1910.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.												
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.†
LONDON	4,872,702	—	869	438	1	114	4	25	385	8	1844	3·9	—	141	18	35	67	—	11	—	239	511	1·1	4593	10·3
West Districts.																									
Paddington	153,004	—	21	12	—	5	—	—	10	1	49	3·3	—	—	1	1	—	—	—	—	7	9	0·6	119	8·6
Kensington	184,635	—	13	18	—	6	1	—	11	—	49	2·8	—	2	—	1	5	—	1	—	4	13	0·7	160	9·7
Hammersmith	127,413	—	30	7	—	2	1	1	5	1	47	3·8	—	—	—	2	4	—	—	—	6	12	1·0	103	8·7
Fulham	181,282	—	21	21	—	1	—	3	16	—	62	3·6	—	2	1	1	5	—	—	—	12	21	1·2	150	9·0
Chelsea	75,457	—	8	7	—	1	—	—	1	—	17	2·3	—	2	—	1	—	—	—	—	1	4	0·6	81	11·6
City of Westminster	167,233	—	21	15	—	5	—	—	3	—	44	2·7	—	1	—	1	1	—	—	—	1	4	0·2	125	8·7
North Districts.																									
St. Marylebone	125,195	—	15	7	—	1	—	1	13	—	37	3·1	—	—	1	1	2	—	1	—	2	7	0·6	93	8·2
Hampstead	95,729	—	7	4	—	2	—	—	2	—	15	1·6	—	1	—	—	—	—	—	—	—	1	0·1	51	6·3
St. Pancras	237,792	—	50	25	—	9	—	—	16	—	100	4·4	—	24	—	—	8	—	1	—	5	38	1·7	246	11·3
Islington	353,356	—	54	37	1	7	—	1	21	—	121	3·6	—	6	—	1	7	—	—	—	12	26	0·8	338	10·4
Stoke Newington	54,838	—	9	6	—	—	—	—	3	—	18	3·4	—	4	—	—	1	—	—	—	—	5	1·0	38	7·5
Hackney	239,979	—	31	13	—	5	—	1	18	—	68	3·0	—	1	—	1	4	—	—	—	4	10	0·4	197	9·0
Central Districts.																									
Holborn	53,142	—	5	6	—	3	—	—	2	—	16	3·1	—	1	—	—	3	—	—	—	—	4	0·8	58	12·3
Finsbury	94,578	—	17	15	—	3	—	1	16	2	54	6·0	—	1	—	2	3	—	—	—	7	13	1·4	129	14·7
City of London	17,132	—	1	3	—	—	—	—	5	—	9	5·5	—	—	—	—	—	—	1	—	—	1	0·6	20	13·4
East Districts.																									
Shoreditch	114,387	—	18	8	—	10	—	2	15	1	54	4·9	—	6	—	1	2	—	1	—	10	20	1·8	153	14·6
Bethnal Green	131,579	—	32	20	—	8	—	1	19	1	81	6·4	—	6	3	5	2	—	1	—	10	27	2·1	171	13·7
Stepney	314,379	—	63	22	—	8	—	4	46	—	143	4·7	—	15	—	2	2	—	—	—	29	48	1·6	359	12·4
Poplar	172,432	—	42	18	—	3	—	—	29	—	92	5·6	—	1	2	2	4	—	1	—	22	32	1·9	216	13·5
South Districts.																									
Southwark	211,832	—	43	26	—	7	—	2	29	—	107	5·3	—	23	—	3	1	—	1	—	17	45	2·2	239	12·3
Bermondsey	127,238	—	46	24	—	2	—	—	11	—	83	6·8	—	23	3	1	2	—	—	—	18	47	3·9	194	16·3
Lambeth	327,074	—	77	26	—	7	—	1	20	1	132	4·2	—	8	2	3	1	—	—	—	17	31	1·0	325	10·7
Battersea	188,222	—	37	21	—	1	1	3	9	—	72	4·0	—	—	—	1	2	—	—	—	18	21	1·2	157	9·3
Wandsworth	305,838	—	51	22	—	5	—	3	14	—	95	3·2	—	3	1	4	2	—	1	—	6	17	0·6	222	8·0
Camberwell	286,058	—	35	12	—	6	—	1	25	—	79	2·9	—	9	—	—	2	—	—	—	8	19	0·7	210	8·0
Deptford	119,642	—	21	5	—	2	1	—	9	—	38	3·3	—	1	—	1	2	—	—	—	15	19	1·7	142	13·0
Greenwich	112,935	—	14	19	—	1	—	—	5	—	39	3·6	—	1	—	—	2	—	1	—	6	10	0·9	84	8·0
Lewisham	164,899	—	36	14	—	3	—	—	2	1	56	3·5	—	—	2	—	—	—	—	—	1	3	0·2	117	7·7
Woolwich	135,422	—	51	5	—	1	—	—	10	—	67	5·2	—	—	2	—	—	—	1	—	1	4	0·3	96	7·9
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

† The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

to 13·0 in Deptford, 13·4 in the City of London, 13·5 in Poplar, 13·7 in Bethnal Green, 14·6 in Shoreditch, 14·7 in Finsbury, and 16·3 in Bermondsey. The 4593 deaths from all causes included 511 which were referred to the principal infectious diseases; of these, 141 resulted from measles, 18 from scarlet fever, 35 from diphtheria, 67 from whooping-cough, 11 from enteric fever, and 239 from diarrhœa, but not any from small-pox, from typhus, or from ill-defined pyrexia. The lowest death-rates from these infectious diseases last month were recorded in the City of Westminster, Hampstead, Hackney, Lewisham, and Woolwich; and the highest rates in St. Pancras, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, Bermondsey, and Deptford. The 141 fatal cases of measles were 21 in excess of the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in St. Pancras, Stoke Newington, Shoreditch, Bethnal Green, Stepney, Southwark, and Bermondsey. The 18 deaths from scarlet fever showed a decline of 29 from the corrected average number; these 18 deaths included 3 in Bethnal Green, 3 in Bermondsey, and 2 each in Poplar, Lambeth, Lewisham, and Woolwich. The 35 deaths from diphtheria were 18 fewer than the corrected average number; of these 35 deaths, 5 were recorded in Bethnal Green, 4 in Wandsworth, 3 in Southwark, 3 in Lambeth, and 2 each in Hammersmith, Finsbury, Stepney, and Poplar. The 67 fatal cases of whooping-cough were 29 below the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in Kensington, Hammersmith, Fulham, St. Pancras, Holborn, Finsbury, and Poplar. The 239 deaths from diarrhœa were less than one-fourth of the corrected average; the greatest proportional mortality from this disease was recorded in Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, Southwark, Bermondsey, Battersea, and Deptford. The 11 fatal cases of enteric fever were considerably below the average; not more than 1 death from this disease was recorded in any of the metropolitan boroughs. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was nearly 62 per cent. below the average.

ASYLUM REPORTS.

Middlesbrough County Borough Asylum (*Report for the Year 1909*).—The average daily number resident during the year was 424. Admissions numbered 112, this being an increase of 25 compared with last year. Discharges numbered 55, of whom 33 had recovered, the recovery rate being 32·35 per cent. Deaths numbered 55, the rate being 13 per cent. on the daily average number resident. Post-mortem examinations were made in 43 cases, this being 78 per cent. of the cases. The asylum accommodates patients from Essex and Chester, and the Commissioners in Lunacy report that these complain much of being taken so far from their homes. It appears that one elderly female patient, whose husband is in the Chester workhouse, has been visited five times by him, the journey having in each instance been made on foot and having taken him, as the Commissioners were informed, a month to accomplish.

The Retreat, York (*Report for the Year 1909*).—The average number of patients in residence at this hospital was 176, exclusive of boarders, this being the highest on record. The number of patients admitted was 44, exclusive of voluntary boarders. Twenty persons were discharged recovered, the proportion of recoveries to admissions being 45 per cent., while 7 persons were discharged relieved, and 10 were discharged not improved. Five persons died during the year. The average daily number of voluntary boarders was 7·58. The medical superintendent, Dr. Bedford Pierce, points out as to the early treatment of the insane that it would be very helpful if the law permitted detention without certificates for a limited period. Dr. Pierce mentions how this provision exists in Scotland in respect to patients placed under private care, though it does not appear to him to meet the requirements of persons with limited means.

Wilts County Asylum (*Annual Report for the Year 1909*).—At this asylum the average number of patients resident was 972·4, of whom 438 3 were males and 534·1 were females. Admissions numbered 179. The most noticeable feature about the admissions was the extreme age of many of those admitted. No less than 28 were over 70, 6 of whom were from 80 to 85, and 3 from 85 to 90. The medical superintendent, Mr. J. I. Bowes, regards many of these as requiring a minimum of care and certainly not asylum treatment, though, in the absence of proper provision elsewhere, there was no alternative but to admit them. The admission of such senile persons, of course, tends to lower the recovery and to raise the death-rate. Sixty-two patients were discharged, and of these 44 were recovered, 8 relieved, and 10 not improved. The percentage of recoveries has been lower of recent years, and this "undoubtedly arises from the insanity of the day being of a less curable form, particularly in the men, and from the increasing number of congenitally defective and senile dements sent to the asylum." Ninety-eight patients died, this giving a death-rate of 10.

Down District Asylum (*Annual Report for the Year 1909*).—The daily average number resident during the year was 754. Admissions numbered 147, being four in excess of the number admitted in the previous year. It is interesting to note that, as Mr. M. J. Nolan, the resident medical superintendent, points out, the physical condition of these 147 persons was unsatisfactory in almost every instance. The fact is surely confirmatory of that method which insists that the early treatment of insanity shall consist of careful nursing. Discharges numbered 90, and of this number 81 were recovered, 7 were relieved, and 2 were not improved. The recovery-rate was 55·1, and is a high one, upon which we think Mr. Nolan is to be congratulated. Deaths numbered 7·6 per cent. of the daily average number resident.

Monmouthshire Asylum at Abergavenny (*Report for the Year 1909*).—The average number daily resident at this asylum was 922. 162 patients were admitted, of whom 91 were males and 71 were females. The proportion of patients admitted over 65 years of age was considerably less than the average of the previous five years. Seventy-eight patients were discharged during the year, and of these 54 were recovered and 15 relieved. The recovery rate for the year, calculated on the total number of admissions, was 33·3 per cent. Thirty-five of the recoveries were of patients who suffered from a first attack of insanity, while the total duration of the attack in 44 of the recoveries was of less than 12 months. There were 86 deaths during the year, and in 80 per cent. post-mortem examinations were made. The average age at death was for males 56 years and for females 58 years.

Asylum for the Counties of Salop and Montgomery and for the Borough of Wenlock (*Report for the Year 1909*).—At this asylum the average number daily resident for the year reported on was 771. Admissions numbered 230, and of these 69 were readmissions. The discharges numbered 151, and of these 85 were discharged recovered and 21 relieved. The proportions per cent. of recoveries to admissions were 37 for males and 36 for females. Of the patients recovered 87·05 per cent. had been resident for less than 12 months. There were 89 deaths, the percentage on the average number resident being 11·18. Of the deaths, 19·1 were caused by tubercular disease, this being a decrease of 8·9 per cent. on the year 1908. Post-mortem examinations were made in 49 per cent. of the deaths. It appears that many patients belonging to the two counties are, owing to lack of accommodation, boarded out in the institutions of other counties. The Commissioners in Lunacy point out that an alteration of this state of affairs is most desirable, and they understand that a dissolution between the two counties for asylum purposes is under consideration; but even if this should take place the number of available beds will be so few in number as to necessitate the provision at no distant date of further asylum accommodation for the county of Salop.

Worcestershire Asylum at Bromsgrove (*Report for the Year 1909*).—The average daily number on the registers was 467. There were admitted 222 patients. More than half of the direct admissions were suffering from forms of insanity which are incurable. Dr. Percy T. Hughes, the medical superintendent, directs attention to the number of senile cases which are sent to the asylum, and suggests that many of these old people would be economically and efficiently cared for in the union infirmaries without any undue administrative or structural alterations. Dr. Hughes also points out how large a proportion of cases are admitted suffering

from physical disorders which have a direct influence upon the mental state, and how necessary it is that the fullest possible clinical investigation should be made in every case. He expresses a hope that more drastic legislation will, in the near future, be undertaken with a view to the prevention of insanity. "Under present conditions patients have to be discharged as recovered who are altogether unfitted to be the parents of children, and with every asylum authority urging the grave influence of heredity as a causal factor of insanity it is surely very necessary that some alteration of the present improvident methods should be adopted." Fifty-two persons were discharged and of these 28 were recovered and 15 relieved. During the year 71 deaths occurred and in the large proportion of 95 per cent. post-mortem examinations were made.

Hertfordshire County Asylum at Hill End, St. Albans (Report for the Year 1909).—At this asylum the average daily number on the register was 765. There were 306 admissions, of which 154 were direct. Recoveries numbered 39, being a percentage of 25 3 on the direct admissions. Deaths numbered 47—a percentage of 6·14 of the average daily number on the register.

Lincolnshire County Asylum, Kesteven (Report for the Year 1909).—The average number in residence during the year was 399. The total number of cases admitted was 100. In only 18 cases was the outlook regarded as favourable. The general health of the patients on admission was unsatisfactory, over 50 per cent. being classified as bad or indifferent, and many of them suffering from some recognisable physical disorder. Thirty-one patients were discharged, with a recovery rate, calculated on the direct admissions, of 33 per cent. Of those who recovered 43 per cent. had been less than six months under treatment, and 70 per cent. less than a year. In 78 per cent. mania in one of its forms was present as the prominent feature of the disease, emphasising the fact that this condition is more curable than is melancholia. Twenty-six persons died, giving a death-rate of 6·5 per cent. Post-mortem examinations were made in 77 per cent. of the deaths.

Nottingham City Asylum (Report for the Year 1909).—The average number resident at this asylum for the year 1909 was 815. The number of admissions was 169, general paralysis being present in 24 cases. Eighty-one persons were discharged, the recovery rate being 44 per cent. of the admissions. Deaths numbered 77 and post-mortem examinations were held in 90 per cent. of these.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

Lieutenant Walter C. Rivers, Half-pay List, resigns his commission (dated August 27th, 1910).

Colonel A. Peterkin has been appointed Administrative Medical Officer for the Second (Aldershot) Division, army manœuvres. Colonel S. C. B. Robinson, Principal Medical Officer of the Jubbulpore and Jhansi Brigades, has arrived home on leave from India. Lieutenant-Colonel W. L. Reade, at present in charge of the Royal Infirmary at Dublin, has been placed under orders for service in Mauritius, and will embark about the middle of October. Lieutenant-Colonel W. C. Beevor, C.M.G., in command of the Station Hospital at Bangalore, has been selected for the higher rate of pay under Article 317 of the Royal Warrant, vice Lieutenant-Colonel R. H. S. Sawyer, promoted. Lieutenant-Colonel H. W. Austin, in medical charge at Deepcut, having notified his intention to retire from the service, has had his name removed from the roster for duty abroad. Lieutenant-Colonel S. Powell has arrived home on leave from Rangoon. Lieutenant-Colonel C. R. Tyrrell, administrative medical officer at Bordon, has been selected to act as Deputy Director of Medical Services on the staff of the Red Force during army manœuvres. An exchange of positions on the roster of foreign service has been approved by the War Office between Major S. M. Fairrie, Shorncliffe, and Major C. M. Fleury, serving at Tidworth. Appointments to the higher rate of pay under Article 317 of the Royal Warrant have been sanctioned for Major G. S. McLoughlin, D.S.O., Major W. W. O. Beveridge, D.S.O., and Major R. J. W. Mawhinny. Captain R. Rutherford, on completion of his course for promotion at the Royal Army Medical College, has been appointed to the Scottish Command and posted to Edinburgh for duty. Captain P. J. Hanafin, from Reading, has joined at Parkhurst. Captain W. McConaghy, on return from a tour of service in South Africa, has been posted to Wedgnock Camp. Captain J. Fairburn has been transferred from Buddon Camp to the Military Hospital at Glasgow. An exchange on the roster for foreign service has been approved by the War Office between Captain W. R. P. Goodwin and Captain R. N. Woodley. Captain F. M. M. Ommanney has been selected to succeed Captain B. S. Bartlett as company officer at Colchester. Lieutenant R. G. S. Gregg has been transferred from the Station Hospital, Calcutta, for duty at Lucknow. Lieutenant H. V. Stanley, from Cork, has taken up duty at Kinsale. Lieutenant F. W. M. Cunningham has been appointed to Donard Camp from the Curragh. Lieutenant J. F. Grant, on completion of a course of instruction in X rays and electrical science at Dehra Dun, has joined at Benares.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel F. R. Ozzard has reverted to military employment. Lieutenant-Colonel J. A. Burton has been granted five months' leave home from India. Lieutenant-Colonel H. E. Drake-Brockman has been appointed to officiate as Residency Surgeon and Administrative Medical Officer of Indore, Central India, during the absence on leave of Lieutenant-Colonel J. R. Roberts. Major B. C. Oldham, in medical charge of the 24th Parganas, has been appointed to officiate as a Civil Surgeon of the First Class. Major J. A. Hamilton has been appointed to the medical charge of the Followers' Hospital at Neemuch. Major E. L. Perry has been confirmed by the Government of India in the appointment of Deputy Sanitary Commissioner of the Punjab. Major P. K. Chitale has been granted three months' privilege leave. Major J. A. Black, Bombay, has embarked for India. Captain J. Owens has been appointed to officiate as Chemical Examiner of Bengal, vice Major J. S. Black. The services of Captain J. B. Christian have been placed permanently at the disposal of the Government of Eastern Bengal and Assam. Captain N. S. Sodhi has been detailed as an Assistant Medical Officer in charge of plague prevention in the Punjab. Captain D. P. Goil has been appointed to officiate as Civil Surgeon of Rampore Boalia during the absence of Major J. Leventon on deputation. Captain W. S. Patton has been confirmed in his appointment as a member of the Government Bacteriological Department. Captain H. B. Scott, special plague officer of the Meiktila Division, Burma, has been posted temporarily for plague duty in the Pegu Division in place of Captain W. F. Brayne, proceeding on leave. Captain W. H. F. Cowan has taken over the civil medical charge of Multan. H.E. the Governor of Bombay has appointed Captain A. F. Hamilton Assistant Civil Surgeon of Poona, vice Captain W. M. Houston. Captain P. S. Mills has been appointed a Specialist in Ophthalmology to the Fifth (Mhow) Division. The services of Captain S. B. Mehta have been placed temporarily at the disposal of the Government of the Punjab for employment on plague duty. Captain E. C. Hodgson has been appointed to officiate as medical officer of health at Simla during the absence on deputation of Captain H. M. Mackenzie. Captain A. Chalmers (Madras) has embarked for India on completion of his leave. Captain J. M. Skinner has been selected as fourth physician to the Medical College Hospital, Madras. On return from leave Captain J. J. Robb has been posted to act as superintendent of the Central Jail at Vellore. Captain W. J. Collinson has been granted four months' extension of his leave by the Secretary of State for India. Captain J. Good has been appointed medical officer in charge of the Rangoon Volunteer Rifles. Lieutenant J. F. James has been transferred to Jalpaiguri as Civil Surgeon.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Clarence Edward Greeson to be Lieutenant (on probation) (dated August 17th, 1910).

TERRITORIAL FORCE.

Royal Army Medical Corps.

The promotion of Major James Wilson is antedated to July 10th, 1910.

TERRITORIAL NURSING AND RED CROSS NOTES.

On Sept. 16th the Speaker of the House of Commons delivered an address at Penrith before a crowded audience on the formation of Voluntary Aid Detachments under the British Red Cross Society. Mr. Lowther reminded those who asked why it was necessary to make themselves ready now in times of piping peace for an invasion which was not likely to occur, that it was the unexpected which always happened. It was true we had a magnificent navy, and as long as that navy was supreme upon the seas there was no possibility of a foreign foe landing on our shores. But he would be indeed a bold man who would say that the Navy would always be in the position to prevent an invasion. Our shores had been invaded in the past; they might possibly be invaded in the future. By the establishment of branches throughout the country the Red Cross movement provided a vast and immediate extension of the resources of the Royal Army Medical Corps in case necessity should arise. It was a mistake, in his judgment, to rely entirely upon the State for everything which was required, and voluntary services were more readily given than those obtained by compulsion. Ladies by learning home nursing could help in the work and thus become useful members of the State.

A public meeting was held at Pitlochry on Sept. 12th for the purpose of forming a district detachment of the British Red Cross Society in connexion with the Scottish Territorial Medical Service. Lady Tullibardine, who presided, said that while the Territorial nursing scheme included men, it conferred an especial privilege upon women by enabling them to take their share in the great and necessary work of national defence. Every woman, whether trained or not, whatever her age, who had a little spare time could enrol as a member of the society. She pointed out that under the existing Territorial arrangements there was a very serious gap in regard to conveying the sick and wounded from the field ambulance to the base hospitals, which could be filled by the voluntary service of men and women.

THE JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

The September issue of this journal has a further instalment of Lieutenant-Colonel R J. Simpson's medical history of the South African War. In the same number Captain L. Bousfield continues his account of a tour of investigation as to the prevalence of kala-azar in Kassala and the Blue Nile districts of the Soudan, and Captain P. J. Marett publishes an interesting preliminary report on the breeding-places of the sand fly in Malta. This is a sequel to the work on sand fly fever carried out by Lieutenant-Colonel C. Birt in 1909. "Notes on the Conveyance of Sick and Wounded by Rail, with Special Reference to Improvised Methods," by Lieutenant-Colonel H. E. R. James and Major C. G. Pollock, contain exactly the kind of information which will prove useful not only to medical officers of our Regular forces, but also to those of the Territorial forces and to the auxiliary organisations concerned with national defence. It will be remembered that Lieutenant-Colonel James dealt with the subject of the adaptation of a motor omnibus and Scotch hay cart for the carriage of wounded men in the July issue of the *R.A.M.C. Journal*.

PLAGUE IN MONGOLIA.—Correspondence from Kiachta says that in consequence of three deaths from cerebro-spinal meningitis in the town of Troitskav the local inhabitants are alarmed, thinking they are in the presence of tabargan ("jumping hare") plague. A Russian correspondent writes: "The 'jumping hare' is common in Transbaikalia and Mongolia, and is exported in large quantities into Russia, where it is used for the purpose of imitating sable and other furs. The tabargan is said to be—like the rat—very susceptible to the plague, and one of the most active propagators of it. Dr. Borodin of Akschinsk, who was in the village of Stary Tzuruchaitai this summer, learned from a Buriat who had been a few versts over the Mongolian frontier, that on the river Tap some 'dreadful sickness,' probably the tabargan plague, was prevalent amongst the inhabitants, and that there were villages where not a single recovery could be recorded amongst those who fell sick."

Correspondence.

"Audi alteram partem."

ANTISEPSIS IN MIDWIFERY PRACTICE.

To the Editor of THE LANCET.

SIR,—With reference to the recent correspondence about sterilising midwifery instruments, possibly the following account of my own experience may be useful, though one has naturally some diffidence in offering any remarks in such illustrious company. I began by causing a local tinsmith to make a small, light steriliser of thinnest tin. It was just large enough to hold my forceps. I carried it easily in my bag and used it frequently with satisfaction. It then occurred to me to try a plan which would enable me to use a smaller spirit lamp, carry less spirit, and at the same time save some of the 15 or 20 minutes necessary for my steriliser to reach boiling point. I accordingly tilted the steriliser so that one end was several inches lower than the other, poured two or three ounces of hot water into it, and placed a single small spirit lamp under the lower end. The water quickly boiled and filled the closed steriliser with boiling-hot steam. Afterwards, I gave up the steriliser and used a thin tin douche can of the same dimensions as the steriliser, and having a lid but no spout. It was used in the same way—i.e., by having a few ounces of water boiled in the bottom of the tin. Wire supports to hold the can erect, or sharply inclined, can be easily made and attached.

This device, besides rapidly sterilising forceps and gloves, supplied the great desideratum of a sterile douche can in place of the septic household jug. Of course, the instruments have to be well cleansed from organic or greasy contamination before trusting them to steam disinfection. I have been told, but do not know if it is true, that the addition of a little formalin to the water increases the antiseptic power of the steam. I have also tried the expedient of connecting the spout of a douche can, by means of a few inches of rubber tube, to the spout of a small kettle on a spirit-lamp. In a glass douche reservoir a thermometer (well wrapped in lint) registered 210° F. in a few minutes after the kettle began to boil. The reservoir was kept closed by a folded handkerchief. This plan might prove useful to those who prefer to sterilise the forceps before going to their case. For the instrument, wrapped in cloth, can be sterilised without being wetted. Any dampness that may hang about the cloth can be dried off in front of the fire without unwrapping the forceps. The forceps themselves become so hot that steam cannot condense upon them.

I am, Sir, yours faithfully,

V. T. CARRUTHERS,
Captain, Royal Army Medical Corps.

Kandy, Ceylon, August 9th, 1910.

COLD-BATH TREATMENT OF INFANTILE CONVULSIONS.

To the Editor of THE LANCET.

SIR,—I wish to support the opinions of Mr. M. G. Pearson as set forth in THE LANCET of July 16th, p. 180, also Captain W. E. McKechnie, I.M.S., as set forth in THE LANCET of Sept. 17th, p. 912. I agree with Mr. Pearson that the lists usually copied from one text-book to another play a very small part in the cause of convulsions. We usually find, on being called to see a patient in convulsions, that it has been having, known or unknown to the nurse or mother, some very undesirable substance, such as potatoes and meat, some very strong soup, or some fruit of the most indigestible kind, which, whether from fear or some other cause, is not spoken about till the child is well, or, it may be, vomits the substance.

I have formed the opinion that the indigestible substance lying in the stomach is the cause of the convulsions; that hyperpyrexia is a symptom, just as movements of the limbs and eyes; that hyperpyrexia is the most dangerous symptom, and it is by controlling the fever that recovery may be expected. After taking the temperature and pulse-rate I give an enema with a piece of soap about the size of the little

finger inserted into the rectum and worked backwards and forwards till there is a good evacuation, after which I plunge the patient into a cold bath.

My reason for giving the enema is to clear the lower bowel and assist the peristaltic motions of the bowels and so help to get the indigestible substance out of the stomach as quickly as possible. I have never tried to give an emetic, being rather afraid of choking the patient, as there is always difficulty in swallowing. I have always found that the enema suited well. My reason for the cold plunge is to get the hyperpyrexia under control. The case that I tried the cold water with first was a little fellow, on New Year's night, 1906, whose father had been feeding him on short-bread and cake, as supplied during the New Year's festivities. I was called in a hurry to see the little fellow. Unfortunately, I was not at home when the messenger reached my house. The parents decided to await my return. When I arrived I found the temperature 106½° F., the pulse very rapid, and the child unconscious, with all the usual convulsive movements. The child had had quite a number of hot baths with mustard, with no result. I plunged him into cold water on a cold frosty night, with the result that the convulsions ceased within three minutes; consciousness returned within seven minutes. The temperature subsided to normal within ten minutes. There was no appreciable shock to the little fellow. When I called on the following morning he was quite well. He never had another convulsion until about 18 months afterwards when an attack of pneumonia was heralded by a slight convulsion. So far he has not since had any illness that I am aware of.

Since 1906 I have used cold baths frequently, always with good results. Cold bath treatment of convulsions with the enema of soap has proved very successful in my hands. I strongly recommend this treatment to the attention of the profession.—I am, Sir, yours faithfully,

P. CARRUTHERS WATT, L.R.C.S. Edin., &c.

Gatehouse of Fleet, Galloway, N.B., Sept. 17th, 1910.

POOR-LAW REFORM.

To the Editor of THE LANCET.

SIR,—In view of the fact that consideration of this great question must be a matter for decision during the winter months by the members of the medical profession, the time appears to be ripe for the inquiry whether the profession as a body desires that its affairs should be regulated by itself or by the State. Some consolation may be derived by the members of the British Medical Association for the loss of its Charter from the fact that the executive of the Association has apparently been captured by the Fabian Society.

If this is denied, at all events the views of the medical gentlemen who act as organisers are tolerably well known, and such views appear to approximate to those of the Fabians. A warning, therefore, may not be out of place. Those of the profession who do not wish to accept legislation based upon the views of that society must vote against and use their utmost endeavours to combat any legislation based upon such views. In fact, there is nothing before us except a straight fight with the Fabians.

I am, Sir, yours faithfully,

Hatfield, Sept. 8th, 1910. LOVELL DRAGE.

PS.—The views of the Fabian Society to which I direct attention are those in favour of State interference and State control.

TEAR OF THE INFERIOR VENA CAVA, WITH SURVIVAL FOR NINE HOURS.

To the Editor of THE LANCET.

SIR,—I beg to bring to your notice the following unusual abdominal injury which may be of interest to your readers.

A girl, aged 7 years, was admitted to the Royal Hospital, Portsmouth, at 10 A.M. on Sept. 12th. She had been run over by a milk-cart one and a half hours previously, the wheel passing over the epigastric zone. On admission the child was very pale, restless, and wore an anxious expression. The temperature was 96° F., the pulse 150, and the respirations 32 per minute. The skin was cold and clammy, and vomiting was most troublesome. All the symptoms pointed to severe abdominal hæmorrhage, and a rupture of the spleen was suspected. No operation was performed, and the child died at 5.30 P.M. on the same day, nine hours after the accident.

At the post-mortem examination I found the abdominal cavity full of dark clotted blood. The only injury present was a transverse tear in the inferior vena cava at the point where it pierces the diaphragm. The tear was large enough to admit the index finger with ease. No other injury could be found.

It is somewhat remarkable that this child should have lived for nine hours with such a serious abdominal lesion.

I am, Sir, yours faithfully,

H. M. ANDERSON,

House Surgeon, Royal Portsmouth, Portsea, and Gosport Hospital, Portsmouth.

Sept. 16th, 1910.

A CORRECTION.

To the Editor of THE LANCET.

SIR,—In your review of my work on "Difficult Labour" there is a typographical error which I ask leave to correct. Your reviewer accuses me of saying that "to expect to stop bleeding from the uterus by applying a *plug* to the vagina is absurd." I will not quote his comment, which would have been deserved if I had said this. What I called absurd is "applying a *drug* to the vagina" (p. 346)—i.e., to try and stop bleeding from one place by applying a styptic to another. I think plugging the vagina is bad practice, but I did not say it was "absurd." I am, Sir, yours faithfully,

Harley-street, W., Sept. 17th, 1910. G. E. HERMAN.

TREATMENT OF A CASE OF DYSMENORRHŒA.

To the Editor of THE LANCET.

SIR,—The following case may be of some interest. The patient was a woman, aged 26 years, a governess, and complained of painful menstruation. In girlhood she lived on Thornton Moor, later at Shipley. Her history was vague, but she thought menstruation had always been painful. This point was quite clear, that when living a year in Birmingham, and later for four years in London as governess, she had no pain. When she went home pain returned. The description of the pain was also uncertain. It usually began soon after the flow, and lasted about four hours; it was very severe, and was accompanied by passage of clots. The clots and pain ceased after passage of membrane. (This was doubtful, and she could not tell me whether she had had clots in London.) The recent menstruations, of which I obtained an exact residential history, were as follows:—

Month.	Locality.	Preceding month's residence.	Pain.
1908.			
May.	Shipley.	London, to preceding day.	None.
June.	Belgium.	12 days preceding in Belgium.	,,
,,	Burnsall.	25 Shipley, 2 Burnsall.	Some.
July.	Shipley.	25 preceding Shipley.	Great.
August.	Cornwall.	21 preceding Cornwall.	Slight.
September.	Shipley.	25 preceding Shipley.	Some.
October.	,,	5 Shipley, 7 London, 14 Shipley.	Considerable.
November.	Seaton, Devon.	27 Shipley, 3 Seaton.	Great.
December.	London.	23 Seaton, 4 London.	Slight.
1909.			
January.	Shipley.	3 London, 25 Shipley.	Great.
February.*	Shipley.	Shipley.	,,
May.	Shipley.	24 Shipley.	Considerable.

* After this she was dilated, and also spent a holiday in Cornwall.

From which it will be seen that the pain was roughly proportional to the length of time spent at Shipley before the day; conversely, immunity depended on the time elapsing since leaving Shipley.

Family history.—Her sister had menorrhagia and eczema, and was said by a gynæcologist to be gouty. The patient herself had been treated by many drug treatments, and the eminent gynæcologist who performed dilation had ascribed her trouble to gout, and given her dieting treatment without avail. Hearing that drugs and diet had been of no use I bethought me of the drinking water, and sent for a specimen to be drawn first thing in the morning from hot and cold taps

half from each. I found that the family drank early morning tea, made from the first hot-tap water, and that this was also used to make breakfast tea, coffee, and porridge. The sample I examined early in June contained over 1-9th grain of lead per gallon. I immediately ordered her to avoid that water and drink milk instead. (A milk and vegetarian diet had been tried before without prohibition of drinking tea, with no success.) The whole of the next two months were spent in Shipley, till within two days of the next period, when she went to London. The June menstruation was practically, the July one quite, painless. August was spent away from home, but in September she went home for a week, eight days before menstruation, and thought for so short a time she might neglect precautions; the subsequent menstruation was painful.

Besides the examination made early in June the Health Office reported a "trace of lead" in a sample taken from the cold tap during the day a week later. Three and a half weeks later I again examined a morning sample, half hot, half cold, and found 1-12th grain per gallon. Knowing the frequency of abortion in plumbism and of lead as a factor in causing gout, and considering that hens near lead mines lay soft-shelled eggs, and that calcium is a great determinant of menstruation, and that certain worms with calcium-excreting glands are immune to lead poisoning, does it not seem possible that lead poisoning, acting by disturbing the calcium metabolism, may be the cause of a good many cases of dysmenorrhœa, especially when they are said to be gouty and vary with the residence? And may not this also account for the marked improvement that is reported after constant current treatment?

Two other points emerge of some interest. 1. When first consulted, in September, 1908, I imagined it to be congestive dysmenorrhœa, from the description. She also told me that it almost invariably began between 10 A.M. and 1 P.M. The interval between periods varied from 26 to 31 days. I ordered a large concentrated dose of salts on rising and no fluid at all till teatime, with the idea of reducing the congestion, and found that the result each time was to delay onset till after late dinner, 9 to 10 P.M. Although the pain recurred, not quite so severely, next morning, it was a great convenience, as it obviated the perpetual fear of being taken by surprise in the middle of some engagement. With evening onset the first severest pain occurred at a time when she could apply hot bottles, &c., without attracting attention if staying away, and next day she stayed indoors till it was over. Moreover, she could always guarantee herself to be free from pain on any particular day by allowing it to come on on the morning of the preceding day if it would, and if not then she took salts and deferred onset until the special engagement was over. 2. Examination of the variation of period intervals apparently reveals a curious relation to change of residence during the days of menstruation, including the day or two before and the 10 or 12 days following—in fact, the period of uterine activity. Change of residence during the first four days of that period apparently caused the next menstruation to appear a day too soon; change of residence during the later days of that period delayed it two, three, or four days—the later the change the longer the delay. Curiously enough, the rule seemed to apply also to the termination of pregnancy. The circumstances were complex, as she paid many visits; but I decided beforehand that by the rule laid down labour should begin on one of two days, the 273rd or 283rd days of pregnancy. The latter proved correct. I wonder if other observations support these?

I am, Sir, yours faithfully,

A. H.

POOR-LAW MEDICAL REFORM AND THE MAJORITY AND MINORITY REPORTS OF THE ROYAL COMMISSION.

To the Editor of THE LANCET.

SIR,—The discussion which took place at one of the meetings of the Section of State Medicine of the British Medical Association upon the relation of Poor-law reform to public health and the medical profession appeared to show that if the choice had been given to the speakers between the medical schemes of the Majority and of the Minority of the Poor-law Commission, to the exclusion of all other proposals for reform, the latter would have been selected. That is to say, the scheme for the amalgamation of clinical and sanitary services found advocates who regarded it with favour, whereas the proposal for an enlarged system of provident dispensaries under lay control, dealing with Poor-law patients as well as with others, did not secure support. Mrs. Sidney Webb spoke as the uncompromising advocate of the Minority report, and it is to be regretted that no champion of the Majority report should have followed her, in order that their scheme might have been put in a more comprehensible and favourable light before being criticised. We should then have learnt at first hand whether its proposals were intended to convey all that Mrs. Webb represented, as to which I have my doubts.

The medical scheme of the Majority report does not appear to form an integral part of it in the sense in which the handing over of the Poor-law medical service to the sanitary authority forms an integral part of the dividing-up process recommended by the Minority. The impression produced is that the combination of Poor-law and sanitary service essential to the carrying out of the Minority scheme might be feasible under Poor-law authorities not wholly dissimilar from those now in existence, or might be introduced under the Public Assistance authorities devised by the Majority. It is true that those who signed the Majority report considered and rejected the proposal to transfer the medical service to the sanitary authorities, but that is another matter. The reasons for their preference, as stated in Part V., Ch. 3, of the report, cannot appear as very conclusive, for they appear to assume that the authority responsible for the efficiency of the medical service would necessarily be charged with the duty of inquiry as to means and with the recovery of charges. The paragraphs dealing with the matter may be read by those who question the accuracy of Mrs. Webb's statement of the case against the Majority report, which in the absence of any representative of the other point of view she was able to make without comment or criticism. Par. 207 commences thus: "An adequate inquiry as to the means of a patient is the only foundation upon which we can build up a system of public medical assistance in which each patient, other than the very poor, contributes according to his ability towards the cost of his treatment at the public expense." Mrs. Webb[1] spoke as if the principle of free medical treatment, to be *followed* by inquiry as to means and recovery of charges, was an objectionable feature of the Majority scheme, which has no advantage in this respect over that of the Minority. Under the Majority scheme, according to her, "The sick pauper is no longer to be required to go to the parish doctor. He is to be given a free choice of doctors and to be put, in fact, in the same position as if he came bringing a half-crown fee in his hand. ..... The Majority report makes on this point, specifically and definitely, the same proposition as the Minority." And again: "In actual fact, the Majority report lays it down, over the signature of all the Commissioners, that treatment is to be immediately and freely granted to every applicant who is sick, and that inquiry with a view to the exaction of payment where means allow is to follow, not precede, the treatment."

The Majority of the Royal Commission contemplated the supervision of medical relief by an authority exercising powers of discrimination through an appointed officer, and the making of it conditional, for example, on the maintenance of a healthy domicile and good habits; surely it spoke of the dispensing with the services of the district medical officer only as a result to be ultimately achieved when his duties would be shared among other medical men of the district. I am aware that it recommended that a medical man joining a dispensary should be prepared to attend for a suitable fee any case of sudden and urgent necessity, but this seemed to point to inquiry and the raising of conditions before anything like repeated medical attendance took place. That there should be prompt attendance in urgent cases without the delay necessitated by a relieving officer's inquiry must be regarded as a reform desired by others besides the members of the Majority of the Commission. "It is clear that in the public interest neither the promptitude nor the efficiency of medical treatment must be in any way limited by any consideration of whether the patient can or should repay the cost," is a sentence occurring

[1] Brit. Med. Jour., August 13th, 1910.

in the report of the Minority, which may not imply an extension of State medical aid wider than that which would take place under the dispensary system of the Majority, but which certainly does not foreshadow its curtailment. Whether the combination of the work of the sanitary authority with that of the treatment of the sick who cannot pay for their treatment may be desirable is a point arguable on its merits, apart from the question of what is to be the destitution or Public Assistance authority. The discussion which followed the speech of Mrs. Webb seemed to treat the question of medical service as one apart from the general one of Poor-law administration.

I am, Sir, yours faithfully.

Sepemtber, 1910. INTERESTED.

THE BRUSSELS UNIVERSAL EXHIBITION.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(*Concluded from p. 851.*)

Health Exhibits in the Belgian Section.

THE largest building of the Exhibition contained the principal portion of the Belgian exhibits, and this was completely burnt down. One end of this structure stood in front of the British section and was devoted to lace and clothing. It was in this angle, made by the British and Belgian sections, that the fire began, and the first things to be destroyed have already been described, however incompletely. The fire spread from Belgian clothing materials and models to jewellery, furniture, glass, decorative arts, paper, and leather, and struck Class XVI., which was devoted to medicine and surgery. Here there were some very fine wax models of skin and other diseases, notably anthrax of the face and head, cancer, and epithelioma. In this class also was placed a model room for dental operations, containing numerous electric appliances. This was done by the National Belgian Dental Federation. Near at hand were statistics and pictures relating to the Institut de Mécanothérapie of Dr. Balteaux of Brussels and also to the Zander Institute, the latter illustrating the various exercises employed in the treatment of articular ankylosis. This latter institute is connected with the service established for accidents at Liège. The surgical instruments and furniture for operating-rooms from the Belgian manufactory of Gembloux were not numerous, nor was it claimed that they presented any new features.

In the Belgian educational department there was a collective and international astronomical exhibit. The observatories of Greenwich, Heidelberg, Juvisy, and Yerkes all contributed photographs of comets, nebulæ, earthquakes, and numerous other physical phenomena. Seismology had also a show here, and then there were very extensive exhibits relating to radium. In the form of little dolls' houses there was a complete model of the works for obtaining radium as planned by Madame Curie. Then there was a laboratory all fitted up for experiments with radium, and many photographs and specimens of medicaments that had been exposed to radium or its emanations. Among various drugs thus treated there were radio-quinine, radio-septol, radio-digestin, radio-santal. A sample of flax sown in two flower-pots was likewise very interesting. One pot was watered with ordinary water, the other with water containing radium, and the growth of the latter was far more luxuriant. Close by a gold fish was swimming in a glass bowl containing water with radium, and the fish seemed as happy as fish can be under such limitations of space. A considerable number of photographs of cancer and other diseases treated by radium by Dr. Wickham and Dr. Degrais (of Paris) were suspended from the walls. Close at hand various temperance societies covered a large wall-space with diagrams and pictures to establish their activity in the cause of sobriety. And near them were fine models of improved and cheap dwellings, which undoubtedly have a good claim to credit for helping to maintain temperance. Some of these artisan dwellings are so pretentious that they call themselves "workmen's palaces"; and the cottages, in suburban or rural districts, are entitled the "Workmen's Eden." A panorama of the sanatorium of Borgoumont was close by these, and so admirably done that the impression was life-like. This opinion I am the better able to express as I assisted at the inauguration of this building, together with other members of the International Congress of Hygiene, when it met in Brussels in 1903.

The Maison du Peuple: Refreshments during the Conflagration.

After these and many other exhibits came the telephone and food sections, and here the large building ends and the Avenue of Nations commences. This consists of a number of small structures, pavilions, and restaurants, beginning with a Bovril cottage and ending with a Bodega wine cellar. Here also the great labour coöperative organisation, which has established a Maison du Peuple in all the industrial and mining centres of Belgium, has its exhibit and café. When the fire broke out the idlers and spectators were sent away, the tills were closed, and business ceased. Then the doors were opened and the Maison du Peuple was converted into a place of help for those who were struggling against the flames. Exhausted firemen, policemen, soldiers were all hospitably received and given some food or drink, according to their requirements. The great demand, however, was for drink. The intense heat of the fire caused great suffering. But, as the first Maison du Peuple was founded on a coöperative bakery and the making of bread still remains the principal output of these institutions, the operatives were well accustomed to deal with the thirst caused by working near the heat of the baking ovens. Therefore they distributed among the police and firemen what they give to their journeymen bakers—namely, gallons and gallons of *coco*, an infusion of liquorice and aniseed which is very refreshing and can be drunk in reasonable quantities without fear of evil consequences. The readiness with which a generous supply of this popular beverage was forthcoming contributed to mitigate the sufferings of those who were endeavouring to check the spread of the flames.

The Belgian Section of Hygiene.

On the other side of the Avenue des Nations there are smaller, less pretentious buildings for Belgian exhibits, which were far enough away to escape destruction. Among these is one of special interest. At the entrance there is a large statue intended to represent "The Law Protecting the Worker." On one side are courts devoted to hygiene and on the other side to poor relief, while in the centre there are the exhibits of the Minister of Industry and Labour. These latter consist, among other things, of a map indicating for all parts of Belgium how many workmen work in mills and factories or are home workers. Then there are statistics on the diseases of occupation, the effect of various kinds of dust on the lungs, blood, or liver, and details relating to lead poisoning. A series of photographs indicate the methods adopted to prevent accidents to dockers, and, indeed, there are a good many exhibits relating to work in and about ships.

In the Hygiene Section there are naturally many demographical charts and diagrams of all sorts. There is one rather sinister diagram giving the results of analyses of milk. A large map of Belgium sets forth the effect of the law of August 4th, 1890, on the examination of meat. According to this law each commune or local authority must organise a system of inspection, and if this is neglected then the Government does it for them. To judge from the map the intervention of the Government was necessary in a great number of districts. Another map indicates exactly where medical practitioners, midwives, and dispensing chemists are to be found, and other maps illustrate in a similar way the various sanitary services. Thus, there are spotted maps for notified cases of transmissible diseases, for isolation hospitals, and for the disinfecting stations throughout Belgium. Another map gives all the water-supplies, and fine coloured maps compare the general mortality with the infantile mortality. Though there is a general similitude between the two, it is not absolute. In some districts the general death-rate is very high, while the infantile rate is not so exceptionally bad.

There is one very large map of the world, and from Brussels lines radiate in all directions to reach the capitals of the various States or nations with whom Belgium has concluded sanitary conventions. This very appropriately leads up to the exhibit just beyond of the International Office of Public Hygiene. Here, of course, is the whole collection of the *Bulletin*

issued by this institution, which, it will be remembered, was created by the official international sanitary conferences that have been held from time to time.[1] The International Office likewise exhibits maps which are appropriately of international interest. These maps show the distribution of plague, cholera, yellow fever, and sleeping sickness in the different parts of the world. Then there are a number of charts that have been sent from all parts of the world, including, for instance, Chili, Japan, Servia, Brazil, and, of course, all the leading European nations, giving the history of infectious diseases. Leaving this court the Belgian State Railways in the next division show what they have attempted so as to provide pure, filtered, sterilised, and cool water for the use of their railway servants. Then come details of contrivances in workshops to draw away injurious dust. Following upon what, so far, may be considered as national exhibits comes a series of exhibits from the Provincial Institutes of Hygiene or Pasteur Institutes. Among these the province of Liège indicates that the presence of excessive quantities of iron in the local water-supplies occasions much trouble. Both in the Hainault and Liège provinces the struggle to prevent the spread of ankylostomiasis has been the subject of much study and many endeavours. Among the exhibits of these provinces there are some remarkable magnified sections of human skin showing how the larvæ of the miners' worm penetrate the follicles.

Thus though so much has been destroyed there still remains much to be seen. The German and greater part of the French sections are intact. Italy and other nationalities have their exhibits uninjured. The machinery galleries were far from the fire, and the vast gardens with their multitude of small buildings containing a great variety of exhibits and side-shows are intact and will repay a visit. The fire was a terrible, but not a fatal, blow. The exhibition has suffered an unprecedented disaster, but it will survive till the proper and appointed time for its closure, while we are promised a reopening of a new British section.

The British Section was, as everyone knows, reopened by the King of the Belgians on Monday last, Sept. 19th. The good temper with which misfortune has been faced by the exhibitors, no less than the energy displayed by those in charge of the reconstitution of the section, has received universal approbation. The disaster has positively added to the *éclat* of the exhibition.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Royal Infirmary: New Out-patient Department.

THE construction of the new out-patient department of the Royal Infirmary is approaching completion. The exterior of the building is now completed, and the internal equipment, which will be of the most modern character throughout, is progressing expeditiously. When the new department is brought into use the pressure on the central institution will be immensely relieved, and more room will be afforded for other departments which are in need of extended accommodation. One of those which will chiefly benefit will be the X ray department which at present conducts its work in quarters by no means adequate to its importance.

The Workhouse Committee and Defective Eyesight of Children.

The medical treatment of children afflicted with defective eyesight through disease was under discussion at the meeting of the workhouse committee on Sept. 15th. Several of the members of the committee emphasised the undesirability of associating such children with workhouse surroundings. The feeling prevailed that the city council should have the juvenile patients dealt with in the corporation hospitals, where a special ward for eye cases might be opened, and this course was considered to be all the more practicable, inasmuch as the city council had power to insist upon parents of the children refunding the cost both of the medical treatment and of the provision, where necessary, of spectacles. Having regard to all these circumstances the committee decided to press upon the city council the desirability of terminating the existing arrangement. It would appear, from the report of the proceedings of the committee, that that body has overlooked the public outcry that would be raised were it in contemplation to treat children suffering from defective vision within the precincts of a corporation infectious hospital; and it is highly improbable that Dr. E. W. Hope (the medical officer of health) would recommend the health committee to sanction such an undesirable undertaking.

Generous Gift to Runcorn Hospital.

Mr. Frederick J. Norman of Runcorn has offered to complete Runcorn Victoria Hospital, by building the necessary wing, in memory of his late wife and his father, the late Mr. Thomas Norman. The wing will provide eight more beds. The hospital committee has gratefully accepted the generous offer.

Health of Liverpool.

The continued good health of the city is a matter of general congratulation. The past week shows a further diminution in the death-rate. It works out at an annual mortality of 14·9 per 1000, as against 17·1 per 1000 in the corresponding week of last year.

Sept. 20th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Scottish Sanitary Congress.

THE Thirty-sixth Annual Congress of the Incorporated Sanitary Association of Scotland was held in Elgin recently under the presidency of Mr. Robert Lindsay, chief sanitary inspector, Midlothian. Interesting papers were read on Infantile Mortality, Human Carriers of Disease, and the Control of Tuberculosis. In dealing with the question of smoke pollution in Glasgow, the chief sanitary inspector of the city pointed out that to the casual observer the manufacturers were the chief offenders in polluting the atmosphere, but the casual observer did not appreciate the fact that about 40 household chimneys send into the air as many cubic feet of waste gases as one average factory chimney. After discussing the laws against factory smoke and the attempts made to amend them, he added that it was now inadmissible for the ordinary manufacturer raising steam in any class of boiler to plead that he must occasionally be allowed to darken the sky and fill the air with soot and dust. The modern appliances for preventing smoke were now so many and so effective that it was useless to plead the impossibility of preventing it. As an example of what can be done he quoted the change effected in the boilers belonging to the Glasgow sewage department at Dalmarnock by fitting to three of them a well-known smoke-preventing plant. It was found that not only had they completely prevented all the smoke, but that in doing so they had managed to raise all the steam required in three boilers instead of four, and made an actual saving of money amounting to £220 in the seven months of working. Over and above this they had pumped about 240,000,000 gallons of sewage more with the steam raised in the three improved boilers than they had done in the previous seven months with the four hand-fired boilers. The question of domestic smoke was more difficult to manage, and until gas could be got at 1*s.* 4*d.* per 1000 cubic feet the solution was not likely to be reached in that direction.

Appointments to the Western Infirmary, Glasgow.

Dr. Robert Barclay Ness has been appointed visiting physician, and Dr. Robert Kennedy visiting surgeon.

Presentation.

The presentation of the portraits of Emeritus Professor A. Ogston to himself and to the University of Aberdeen will be made in the Portrait Gallery of Marischal College on Friday, Oct. 14th, at 3 30 P.M., by the Right Hon. Robert Farquharson, M.D., of Finzean, when all subscribers are invited to be present.

Sept. 20th.

[1] See THE LANCET, July 10th, 1909, p. 100.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Insanity in Ireland.

THE annual report of the Inspectors of Lunatics (Ireland) for 1909 shows that the total number of lunatics under care on Jan. 1st, 1910, was 24,144, being an increase of 213 during the year. This was the same increase as in the previous year, but was 150 less than the average increase for the preceding ten years. In 1880 the number of insane under care was 250 per 100,000 of the population; in 1909 it was 552 per 100,000. The increase has been continuous, though of late years its rate has lessened. The classification of causes of insanity in the report is admitted to be of little value. Indeed, in more than one-fifth of the cases which came under treatment in 1909 no cause was discoverable. There is a slight preponderance of males, 54 per cent. of the total. Among agricultural populations this preponderance is most marked, whereas in industrial populations, such as those served by the Belfast Asylum, female lunatics are slightly in excess. The general death-rate during the year was 7·6 per cent. Of the 1542 deaths, 350, or 22·7 per cent., were from phthisis, and 29 per cent. from dysentery or colitis and diarrhœa. Outside the large cities, general paralysis seems to be very rare. In fact, there has never been a case of general paralysis in the Killarney Asylum during the tenure of office of the present resident medical superintendent. During the year there were slight outbreaks of enteric fever in several of the district asylums throughout the country. The Inspectors deplore that little attention is paid to pathological investigation by the medical staffs of the different asylums. Indeed, in only about one-seventh of the cases of death was the cause of death verified by post-mortem examination. In most respects, however, the Inspectors have high praise for the manner in which the asylums are administered by the medical superintendents and their assistants.

Fever in the West of Ireland.

In addition to the serious outbreak of typhus fever in Connemara, which has recently shown signs of recrudescence, several minor outbreaks of typhus and typhoid fever are reported from different parts of the West. In the Tobercurry district of County Sligo, the Manorhamilton district of County Leitrim, and the popular seaside resort of Bundoran in County Donegal, a few cases have occurred. The sanitary condition of urban and rural districts alike in the West of Ireland is sadly neglected, and the frequent occurrence of such outbreaks of zymotic disease as have occurred this year is a strong argument in favour of the establishment of a national medical service, with the guarantee of independence for medical officers of health.

Belfast Memorial to King Edward VII.

At a largely attended meeting of the citizens of Belfast, convened by the Lord Mayor, and held in the City Hall on Sept. 13th, to consider what steps should be taken to establish a memorial of His late Majesty King Edward VII., the Right Hon. Thomas Sinclair moved, and Mr. Robert Thompson seconded, a proposal to erect and equip an additional building, to be used for special medical and surgical as well as for administrative purposes at the Royal Victoria Hospital. Sir John Byers explained fully the needs of the hospital. He pointed out that they wanted an enlargement of the department of radiology and medical electricity, with a thorough modern equipment, and a new department for hæmatology and vaccine therapy. He showed the enormous advantages of such new developments both for diagnosis and treatment. They could be accommodated in part of the proposed additional memorial wing, the remainder of which would be set aside for administrative purposes, and he urged that this new building should be made sufficiently large for any requirements needed when all the beds in the hospital would be occupied. A subscription list was opened with the Lord Mayor as treasurer, and a strong committee with power to add to its number was appointed to carry out the scheme. It was announced at the meeting that a sum of £7,975 had been already promised, which was regarded as a most satisfactory beginning.

The County Antrim Infirmary.

At a meeting of the Ballymena board of guardians on Sept. 10th the following resolution, which was received from the board of guardians of Ballymoney, was passed, the guardian proposing it stating that their dispensary medical officers were against sending patients to the Lisburn Infirmary as they preferred to have them go to a specialist when they required special treatment:—

That this board desire to put on record their protest against any further payments being made from any funds of this union, or the rural district council, in aid of the County Infirmary, Lisburn; and that copies of this resolution and of the reports of our medical officers on the subject be sent to each board of guardians in the county.

On the part of the County Infirmary at Lisburn a statement has been issued to the effect that it is not mainly a centre for specialising, but a place where surgical and medical cases that are not infectious can have the best treatment, and that it has a great advantage over most county infirmaries in having immediate access to some of the foremost specialists in Belfast. It is also pointed out that while County Down gives £1400, Tyrone £1400, Armagh £1400, as well as Monaghan and County Derry, the County Council of Antrim for its infirmary contributes only £600.

Sept. 20th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Communication of Sporotrichosis by the Bite of an Infected Rat.

AT a recent meeting of the Société Médicale des Hôpitaux M. Jeanselme and M. Chevalier described a case in which a female had been bitten on both thumbs while holding a rat which had been inoculated with sporotrichosis. Some days afterwards indolent circumscribed nodules made their appearance at each of the places bitten. This was soon followed by the superficial formation of pus having the viscidity characteristic of the pus of sporotrichosis. On the removal of the epidermis each of the nodules was seen to be covered by a superficial, greyish, atonic ulcer. There was no appreciable lymphangitis, but on the left side there was enlargement of the glands without inflammation. As soon as the nature of the infection was ascertained by the progress of the case and by cultures, the patient was treated with iodine, and the lesions improved rapidly. From the pus on the ulcers M. Jeanselme and M. Chevalier obtained pure cultures of the sporotrichium Jeanselmi, with which the rat had been infected.

Precautions against Cholera.

As long ago as August 1st the President issued a decree specifying a variety of precautions against the importation of cholera into France. Every person coming from a place infected with cholera and presenting suspicious symptoms on his arrival at the French frontier will be detained at the frontier railway station by the specially appointed commissary, and will be isolated until medically examined. If the medical man considers that he is not infected he will be allowed to continue his journey, but in the contrary case the specially appointed commissary acting in concert with the municipal authority, will forthwith convey the patient to a suitable place where, in the opinion of a medical man, isolation may be carried out under conditions comfortable for the patient and efficacious from the prophylactic point of view. The departmental delegate will be sent by the prefect to the locality in question and will immediately take all measures necessary for isolation and prophylaxis. Every person coming from a district infected with cholera who in the course of the journey shall present suspicious symptoms shall, as soon as possible, be isolated in a compartment of the railway train which all the other travellers must vacate; all the railway servants are required to take immediate action for carrying the above-mentioned regulations into effect. At the first stoppage of the train in a station where there is a specially appointed commissary the patient shall be isolated by this official under the prescribed conditions. Every person who on

arriving in a French railway station from a district infected with cholera shall present suspicious symptoms shall be dealt with in the same manner. The carriages which have been occupied by a patient either suffering or suspected to be suffering from cholera shall be emptied and disinfected. The following articles coming from infected districts must not be brought into France by the land frontier: soiled linen, wearing apparel, soiled clothing or bedding, rags, fruit, and vegetables. In the case of soiled clothing or bedding an exception is made in favour of these articles when conveyed as luggage; rags may also be admitted when compressed in large bales, secured with hoops, and conveyed as merchandise. Every person with whom lodgings have been taken by travellers coming from infected districts is required to declare the fact. Every case of illness suspected to be cholera must be immediately declared at the *mairie*. Every person suffering from an illness which is either known or suspected to be cholera shall be immediately isolated by order of the *maire* acting in concert with a medical man. Disregard of this regulation will be severely punished.

The Depopulation Question.

M. Ambroise Rendu, a municipal councillor, has asked the Assistance Publique to consider a proposal for an alteration in its methods of giving relief. The suggestion is that the relief given to old men, whether in hospital or not, should be reduced to the lowest possible limit and that more liberality should be shown to mothers and children in the curable stage of tuberculosis.

Appointment.

Dr. Marfan, *agrégé*, has been appointed Professor of Therapeutics in the Paris Faculty of Medicine.

The Supply of Medicines at Night.

The pharmaceutical chemists have, at the instance of their assistants, decided to close their places of business at 9 P.M. daily, and have at the same time, through the pharmaceutical associations, made arrangements by which the public will in case of need be able to obtain medicines during the night without difficulty. If a patient's ordinary chemist is for any reason unable to answer a call at night the address of a pharmacy where someone is in attendance may be obtained from the nearest police station.

A Monument to Professor Victor Cornil.

In the little town of Cusset, near Vichy, a monument was unveiled on Sept. 8th to Professor Victor Cornil, the celebrated professor of pathological anatomy in the University of Paris, who died some two years ago. The monument to his memory has been raised by public subscription and a reproduction of the bust will be placed in Paris in the Faculty of Medicine. The Cusset monument is a life-size bronze representing the professor in his official robes, while on the pedestal is a bas-relief showing him in laboratory costume standing among a group of his best-known pupils—Widal, Letulle, Chantemesse, Bezançon, Milian, and Coudray—all of whom are perfectly recognisable. The bust was unveiled by M. Doumergue, Minister of Public Instruction, and M. Widal on the occasion delivered, in the name of the Faculty of Medicine, a eulogy of Professor Cornil's practical work. Others who spoke were M. Letulle for the Academy of Medicine, M. Doumergue, and the Mayor of Cusset. The last two recalled the fact that Cornil had a distinguished political career and was a personal friend of Gambetta.

"606."

Many of the medical profession in France have assumed a critical attitude with regard to this remedy, which they consider has been unduly boomed. Dr. Bouchard has pointed out that already researches have been made in France on similar lines with the aid of an arsenical product extremely similar to "606"—namely, benzo-sulfono-paramino-phenyl-arsenicate of soda—which was discovered at Lyons, and, under the name of hectine, furnished to Dr. Hallopeau material for some important observations, later brought to the notice of the Association of Medicine. Dr. Bouchard also recalled that hectine had been successfully used in Buenos Aires, and appeared to conclude that Ehrlich's method was based upon its employment.

Sept. 20th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

National Institutions for the Care of Children in Hungary.

THE number of children in the special institutions provided by the Hungarian Government for their reception has now risen to 50,000, and in addition to this large number at present under its protection the Government has already had the care of 50,000 other children who have since been either given back to their parents, or, having reached their fifteenth year, have been dismissed from the charge of the State. Taking this fact into consideration, Hungarians can boast that their children's protection system is one of the foremost humanitarian institutions of the civilised world. At the Fourteenth International Hygienic Congress held in Berlin and at the International Congress held in Paris last year various societies expressed their admiration of the manner in which children were protected in Hungary, and experts come here from all parts of the civilised world to study the details of its methods. The homes for children consist of 16 large buildings in different parts of the country. Every child who has no supporter, or whose maintenance and education are not sufficiently ensured, either on account of poverty or bad hygienic conditions or other adverse circumstances, has a legal right to be cared for by the State. He is not obliged to appear at the door of the home praying for admission, but he can present himself and claim admission on the ground of legal right. Nowhere else in the world does a child possess such a privilege. In Germany, for instance, the child has no such right as regards the State, and deserted children are referred to the village charity. In France such cases have to be brought to the notice of the county council. Another prominent feature of the Hungarian system is that no documents are necessary for proving the fact of a child's abandonment. The Hungarian homes, therefore, take in any child who appears not to be under proper guardianship, and only after the State has received him into its care will inquiries be made—through the Society for the Protection of Orphans—as to whether he is really dependent on the State's care or not. Illness among the children in these homes is treated by medical experts, who have at their command a large number of wet-nurses, assistants, incubators, and all necessary surgical appliances, constituting a well-equipped modern hospital. Healthy children are not brought up in the institutions as "hot-house specimens" of humanity, not knowing the trials and troubles of life. Such children are placed by the State in suitable households of the artisan or agricultural class, where they grow up as members of the family, and ultimately become useful Hungarian citizens, irrespective of their former nationality. Even though such families are carefully chosen, the State still reserves to itself the right of control. For this purpose the services of the district medical officer are requisitioned, extra payment being made for this work. He is required to assure himself as regards the health of the children, their bodily and mental development, and their condition with respect to cleanliness and clothing. In the case of infants he must supervise the feeding of the child and take its weight from time to time. The State will shortly appoint a lady supervisor in addition to the already existing district medical officers. Her duties will be the carrying out of the details prescribed by the medical officer and the repeated visiting of the foster families, wherein she will take the part not so much of a Government official as of an aunt to the adopted child and a relation to the family. In the event of the foster-parents proving unsuitable, she will have the child removed to more appropriate surroundings. The intercourse between the child and its blood-relations does not cease when it becomes chargeable to the State—that is to say, when the child is adopted by the State. In other countries, however, this is not the case. In Paris, for instance, as soon as a child is taken into a foundling asylum the mother may only apply for information repecting it four times a year. In the Hungarian institutions a very different system prevails. It often happens that in the case of infants the mother and child are not only not separated, but if the mother requires it, suitable accommodation will be provided for them by the State. In the case of juveniles the mother is requested to visit the child and, as far as

possible, to help in the upbringi g of it. Should she in any case be of opinion that her child's surroundings are unsuitable to its proper physical or mental development, she can, by reporting this to the State authorities, have the child removed elsewhere, even though her complaints should merely be the result of a mother's natural anxiety. Should the mother's, or the relation's, or even the child's circumstances so alter that the child could be brought up at home the mother may at once reclaim the child without being put to the expense of any reimbursements for its past maintenance. The relationship between child and State is controlled by an independent body called the Orphans' Protection Society, which is chosen from among the citizens of the community, and is invested with magisterial authority. The result is expected to be a decrease in infant mortality and also in the number of juvenile criminals, because it has been found that the majority of such criminals were those who had been abandoned to chance in their early years. The Hungarian Government also takes measures to prevent the corruption of children's morals. By order of Count Gyula Andrassy, ex-Minister of the Interior, children are admitted to the care of the State if it is found that they are being brought up in immoral surroundings, and such children, even though the parents may be in a position to provide for all physical wants, are removed from these evil influences. By protecting children in these various ways the State is accomplishing a great work which will have a beneficial effect on the whole Hungarian people. The yearly expenditure by the State for the protection of children amounts to 2,000,000 crowns (nearly £100,000).

Sept. 19th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

The Epidemic of Cholera.

ALL the local papers have been affirming that several cases of cholera have occurred in different districts of Pera, Galata, and Stamboul. I have made inquiries and found that the statements are not correct. The suspected cases were violent gastric manifestations, with one sudden death of an aged woman in Pera, but careful bacteriological examination showed that there was no Asiatic cholera. The sanitary administration of the metropolis now issues authoritative and formal information that the rumours of the appearance of cholera in Constantinople are absolutely false and that up to now not a single case has occurred in any part of the city. An Extraordinary Sanitary Commission has been formed in order to watch the progress of cholera in neighbouring provinces of Russia and to take strict energetic measures of prevention. At one of the last meetings of this commission it was decided to build at Psamatia, on the Sea of Marmora, accommodation for 300 Mecca pilgrims. The expense of the necessary building will be covered by a sum, about £4000, from the Budget granted for sanitary and hygienic purposes. The Extraordinary Sanitary Commission is also occupying itself with other important sanitary matters of the metropolis, and has adopted a number of useful measures. The agents of the municipality are visiting and carefully inspecting every place in the city, and doing their best to see that the injunctions of the commission are strictly carried out, but their work is heavy. Quite a large number of dead dogs, whose corpses emit an unbearable stench, have been noticed floating in some parts of the Bosphorus and the Sea of Marmora. These are the bodies of the street dogs that have been transferred to the uninhabited island of Oxia in the Ismid Gulf, horrible to think, to die from starvation. But the Turkish view, though so inexplicable to us, is quite clear to himself. To kill a dog? Allah forbid! "Yassak, olmaz!" (prohibited) To let the dog die the horrible death of starvation—why, that is just the proper solution of a difficult problem. In the provinces cholera seems to be spreading. It first appeared in the *vilayet* of Erzeroum and then in the *vilayet* of Maamouret-ul-Aziz. Quite a considerable number of persons have succumbed. Statistics, however, are as yet wanting. The Sanitary Council of Constantinople has decided to prohibit the import of cereals and fruit from Russia. From Odessa comes the news that 84 persons have died recently in that city from bubonic plague, but the rumour that a case has occurred in Constantinople is false.

The Water-Supply of Stamboul.

A meeting was held at the city municipality recently, under the presidency of the Director of the Medical Faculty, to consider the question of the water-supply of Stamboul, which is beginning to cause considerable anxiety. Stamboul has two principal sources of water-supply, the Halkali one and the one from Kirk-Tchesmé. The first source reaches the city through the Adrianople Gate and is distributed to a large number of houses, especially in the western part of Stamboul. This water has been found to be quite dangerous for drinking purposes. The conduits leak in very many places and thus the water gets easily contaminated. The water-supply of Kirk-Tchesmé comes from so-called *bends*, and has been shown also to be polluted in the old rotten conduits. During the rainy season the water from this supply is so turbid that it is quite impossible to drink it, and people are very slow to use it even for cooking purposes. Another source of water-supply in Stamboul is the old "cistern" system. Many cisterns date from Byzantine times and are anything but proper and clean receptacles for water. Besides, in summer they frequently become perfectly dry. Typhoid fever and other infectious diseases have often been traced to the drinking of the water from the above-named sources. Well-to-do people usually buy the excellent water from the source of Tash-Delen, a well in Asia Minor a few miles distant from Scutari. This water is sold in sealed bottles and is by far the best to be got in the metropolis. But here unscrupulous vendors cheat the public in a most shameless manner, and sell water from the ordinary sources as that from Tash-Delen. It is believed that they use for that purpose the water from the famous Byzantine cistern of Yeri Batan Seray, which is full of microbes. There are still other secondary sources of water-supply, such as the Kara-Koulak near Beycos and the Ketsh-Souyou at Eyoub. These are in themselves quite good sources, but the vendors who sell the water from them are fraudulent and unreliable fellows. The Turks have a proverb which says: "Min el ma kul e shey" (everything comes from the water). The Moslems begin now to realise that from water may come, as well as the satisfaction of the prime needs of life, many a dangerous infection and disease. It has now been decided to absolutely renew the antiquated water conduits, which will be replaced by strong iron tubes, while the sources of Halkali and Kirk-Tchesmé will receive the necessary attention of the sanitary authorities. A credit of £T200,000 has been granted for the purpose.

An Extraordinary Case of Longevity.

A woman named Baba Vasilika, living in the Bulgarian village of Pavelsko, has reached the venerable age of 126 years, according to the records preserved in the Greek church of her village. These show that she was born in 1784. As there is evidence that her son, who is alive, is nearly 100 years old, the story of extreme longevity is better authenticated than usual, though remaining hard to swallow.

Sept. 13th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Antiplague Inoculation.

Colonel W. B. Bannerman, I.M.S., Director of the Bombay Bacteriological Laboratory, in a report on that institution recently issued, makes some interesting remarks on the efficacy of antiplague inoculation. He says to those who work, as the staff of his laboratory does, in a plague-infected place, it is quite unnecessary to bring forward proofs of the efficacy of inoculation as a plague preventive. Proof that this is so is ever present and needs no demonstration, but that the public require fresh proofs is evident from letters received asking for the latest statistics and proofs of efficacy. To laboratory workers the finest proof of the efficacy of antiplague vaccine is afforded by continued immunity from plague of the staff employed. Experiments are being constantly carried out there, in which hundreds of plague-infected fleas have to be used. These fleas are loose in experimental godowns, and men entering them constantly find fleas crawling on their bare legs or trousers and suffer daily from their bites. Again, in connexion with the examination and destruction of thousands of rats sent there

daily by the health department of the city of Bombay a staff of men are employed. These men have to remove rats from cages, to kill them, and to cut up those that are dead. From these rats it is an easy matter to collect several hundreds of rat fleas, some of which must be plague-infected. Yet the staff, numbering 111, who are all regularly inoculated every year, escape plague infection. This year, it is true, they have had two cases of plague among rat-men, but both fortunately recovered. The first was in the person of Kahnu Baloo, working with the Plague Commission in plague-infected godowns. He was inoculated on Jan. 19th, 1909, and developed a bubo on Feb. 23rd—i.e., one month afterwards. The illness was so mild that he wished to continue at his work, but was sent to the country for a month and returned quite well. The second was in the person of Bhagu Yessu, who developed plague four days after entering the service and before he had been inoculated. The man was seriously ill for several days, but eventually recovered. These two cases serve to demonstrate the presence of infection in the laboratory premises, and one must conclude that but for inoculation many more cases would occur. They also serve to bring out the difference in the severity in cases of plague in those inoculated previously and in those not so protected. An inoculated man refused to consider himself seriously unwell and was in no way alarmed at his illness, while an uninoculated individual was completely prostrated by his illness for the first three days.

The Pasteur Institute for Eastern Bengal and Assam.

With reference to the proposed establishment of a Pasteur Institute in Eastern Bengal and Assam, the local government has written to the Assam Branch of the Indian Tea Association that the scheme would have to be approved by the finance committee, and that it depends upon the amount of public support both in contributions for maintenance and first cost. The Tea Association is therefore asked to report what amounts will be forthcoming from the members of the Tea Association and from commercial bodies and private firms in Calcutta. When this information is forthcoming the Lieutenant-Governor of the province will consider whether it is practicable to proceed further in the matter.

The Home for Consumptive Patients at Dharampur.

The first annual report of the Indian Consumptives' Homes Society (the Seva Sadan, Bombay), which deals with the year ending May 31st, 1910, has been issued. The society took possession of the Kadam pine forest at Dharampur (Simla hills), not far from the Simla-Kalka railway, in June, 1909, and commenced work at once with open-air treatment in tents on a site granted by His Highness the Maharajah of Patiala at a nominal quit-rent of Rs.5 per annum. By the end of the year five "first-stage" cases had been sent to the sanatorium, and all of them were reported as cured. The tents were succeeded by wooden cottages. Since then the number of patients has multiplied, and although no attempt has been made to advertise the sanatorium, sufferers have come there from every province in the country. Mr. A. C. Majundar is the superintendent of the homes, and Dr. Banerji of Allahabad has acted as honorary physician. It is hoped by the authorities that other medical men and nurses may be found to assist in an honorary capacity. Thanks to the trustees of the N. M. Wadia charity, the society has Rs 25,000 available for accommodating 30 patients in six cottages, but money is required for carrying on the treatment in the buildings. Without a paid medical resident the lowest estimate of the expenditure for carrying on the homes is Rs.5000 per year, exclusive of the building expenses and the maintenance charges for poor patients. An appeal is made for further funds and arrangements are being made by which subscribers will be able to nominate free patients.

The Leper Problem in India.

The Bombay Government has decided to apply the Lepers Act to many parts of the Presidency. Existing asylums will be enlarged, and, where necessary, new ones established. In this movement the authorities are coöperating with the Mission to Lepers in India and the East, respecting whose work the Secretary to the Government says that the public are greatly indebted to the society for the many asylums it has already provided. Subsidised to a limited extent it is now segregating and supporting nearly 4000 Indian lepers. A new asylum, built jointly by the Government and the Mission, was opened in Poona last year, with accommodation for 200 inmates, and is under the management of the latter. The experience of several years has convinced the authorities that both efficiency and economy are secured by coöperation with voluntary workers.

The Control of Small-pox in Bombay.

The health officer will have the sympathy of all sanitarians in his efforts to check the spread of small-pox, which, owing to the inaction of the authorities, resemble the labours of the daughters of Danaus. Regularly every year the pilgrims returning from Jeddah introduce small-pox into Bombay. The efforts made by Government in recognition of this fact, to prevent the introduction of the disease by the Hajis, consisted in a letter which they addressed to the President of the Haj Committee, emphasising the desirability of vaccination, and asking its assistance. Dr. J. A. Turner has very rightly urged that persons going to places where small-pox is endemic should be vaccinated, and that those coming from such places should be made to submit to vaccination and revaccination. Until this is done a great part of the sanitary efforts expended in Bombay itself is thrown away. The average yearly deaths from small-pox in Bombay in the decennium 1899–1908 amounted to 949, a figure exceeded only by plague, fevers, and phthisis. Until adequate measures are taken to prevent importation, all the strenuous efforts of the Public Health Department to combat and control the spread of infection are bound to lose much of their value and yield very unequal results. Dr. Turner strongly advises the provision of suitable pilgrim camps outside the city, in the interests of the pilgrims themselves as well as of the inhabitants of Bombay.

August 16th.

Obituary.

JOHN LANGTON, F.R.C.S. ENG.,

CONSULTING SURGEON TO ST. BARTHOLOMEW'S HOSPITAL, ETC.

THE news of the death of this well-known surgeon a few days ago came as a painful shock to a large number of his friends and former pupils who had no reason to believe that he was in failing health.

John Langton was born at Denmark Hill, where his family then lived. He was educated at Brighton and subsequently at Cassel. With a view to adopting a medical career he was articled to Mr. John Henry Hewer of Highbury New Park, a well-known and esteemed practitioner. At the age of 17 he entered as a pupil at St. Bartholomew's Hospital, and matriculated at the University of London. He passed the first M.B. examination, and became M R C.S. in 1861. Sir William Lawrence appointed him one of his house surgeons, and he proceeded to the Fellowship of the College in 1865. His next appointment was to a demonstratorship of anatomy under Mr. Luther Holden, and his teaching was so highly appreciated that he was much in demand by candidates for the Fellowship. At the age of 28 he was elected an assistant surgeon to the hospital, and continued to teach anatomy. In 1881 he succeeded to the full surgeoncy, and held office in that capacity till the age of retirement was reached in 1904. Many other appointments fell to his lot. For nearly 40 years he was surgeon to the City of London Truss Society, working diligently in this capacity and accumulating a vast series of notes on hernia, which he always hoped to embody in a work on this subject, but he never found time to carry out his design. He was consulting surgeon to the City of London Lying-in Hospital, the Tottenham Hospital, the Friedenheim Home for the Dying, and the Mildmay Memorial Hospital. In due time he became an examiner at the College of Surgeons, a member of Council, and a vice-president. For many years he was treasurer of the Medical Society, subsequently president, and later a president of the Clinical Society and a vice president of the Royal Medical and Chirurgical Society. He took a leading part in the formation and welfare of the British Nurses' Association, and, as treasurer, contributed much time and money to its pension fund, warmly supporting Her Royal Highness Princess Christian in her efforts for the benefit and training of nurses. He was a visitor of hospitals for some

years in connexion with the King Edward VII. Hospital Fund for London.

Mr. Langton had a fine presence. He was an admirable operator, always prudent and careful, calm, and full of resource for details of all varieties of surgical work. He adopted full aseptic measures, and followed up his cases with untiring consideration and assiduity. Even-tempered, courteous, and painstaking, he won the esteem and affection of all with whom he had to do. Nothing was a trouble to him. Unsparing of his time, and often throwing over other claims, he was always ready to help and assist, to do a kindness, and to carry out thoroughly whatever he undertook. He retired from his hospital duties with great regret, for he delighted in them, and remarked at the time that "the rest of his days must be chiefly occupied in preparing for the next world." His private practice was considerable, and often took him into the country. His life all through was a very strenuous one. He had no taste for ordinary amusements, and his only pastime in his holidays was golf, which he practised at North Berwick and some other places on the East Coast. There was an element of the Puritan in John Langton's nature, yet he was anything but a sad man. His religion was a strong feature of his life and moulded his character. He was not a copious writer, but he contributed several valuable papers to the Hospital Reports, the Transactions of the Royal Medical and Chirurgical, and the Clinical Societies.

His illness began at Eastbourne on Sunday, Sept. 4th. with slight symptoms of a hemiplegia. His friend and old pupil, Mr. C. O'Brien Harding, accompanied him to London. Sir Thomas Barlow saw him several times, together with Dr. W. S. Colman and Dr. H. P. Hawkins. Two days later he became hemiplegic on the left side, and on Sept. 11th he passed away. He was in his seventy-first year. He leaves a widow and a grown-up family.

A memorial service was held in the Hospital Church of St. Bartholomew-the-Less on Sept. 14th, which was attended by those of his colleagues who were in town, by many old friends and pupils, and the hospital sisters and nurses. The interment took place quietly at East Finchley Cemetery at the same hour. His memory will remain to those who knew him best as the firmest of friends and the most dependable of colleagues. "*Exstinctus amabitur idem.*"

LOMBE ATTHILL, M.D. DUB., F.R.C.P. IREL., L.R.C.S. IREL.,

LATE PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

Dr. Lombe Atthill, senior Fellow and a past President of the Royal College of Physicians of Ireland and a past Master of the Rotunda Hospital, died suddenly at Strood Station, Rochester, on Sept. 14th, at the age of 83 years. Though he had retired from practice many years ago, Dr. Atthill's health was always good, and his death came with merciful swiftness to a man of his energetic habits. He was on a visit to a married daughter in Rochester, and having hurried to catch a train, he fell dead on the railway platform. Though his retirement had necessarily lessened his intimacy with the profession, and to many of the younger generation Atthill was only a name, yet to those a little older, who had been his pupils or his colleagues, who had worked with him in professional life, the news of his death brought a feeling of personal loss, not always felt when one of the elders of the profession is taken.

Lombe Atthill was born in 1827, the son of a distinguished Cambridge mathematician. At the age of 16½ years he was bound apprentice, as the custom then was, to Maurice Colles, a well-known member of the staff of the Meath Hospital, Dublin. Among his teachers, in addition to Colles, was the great physician Stokes, then delivering lectures at the Meath Hospital. Of his early studies and struggles Atthill has himself given a vivid description in a series of reminiscences published only a few months ago in the *British Medical Journal*. Left without resources while still in his apprenticeship by the early death of his father, it was only by the help of friends that he was enabled to finish his medical studies, but he became a qualified surgeon, holding the diploma of the Royal College of Surgeons in Ireland before he was 20. The contrast he has himself drawn between medical education 60 years ago and now is interesting. He thought that in his time as a student a more thorough knowledge of anatomy was required than at present. Moreover, clinical teaching was more extended both in medicine and in surgery under the old conditions. The result is, according to Atthill, that the student of to-day is better educated in such subjects as physics, chemistry, physiology, and bacteriology, but he is greatly inferior in the practical part of his profession.

After a short time as demonstrator of anatomy in the Park-street School of Medicine, long extinct, Atthill was appointed dispensary medical officer to a district in the King's County. He was disappointed, however, with the opportunities offered by country practice, and after 18 months returned to Dublin. Having been an unsuccessful candidate for an appointment in the South Dublin Union, he was offered the assistancy to the Master of the Rotunda Hospital. As he saw no other opening to a livelihood he accepted the offer, though he had hitherto shown a strong distaste for midwifery. The Dublin School of Obstetrics owes much to his chance defeat in the election in the South Dublin Union. At the time Atthill took up his duties in the Rotunda, and, indeed, for long after, it was a very different place from what it is to-day. Though the average death-rate was very low—11 deaths among 2100 patients in his first year—yet from time to time terrible outbreaks of "puerperal fever" occurred. In 1854, Atthill's third year of office, an outbreak occurred, so severe that the hospital had to be closed for a short time, and undoubtedly the impression left upon him by that occurrence led to his drastic action 20 years later when Master of the institution. For many years after leaving the Rotunda Atthill had a hard fight to make ends meet. He had married young and children came, and it was necessary to keep up a good appearance and to live in a good neighbourhood. His professional earnings in his first year of practice amounted to £10. It was ten years before he made £100 a year in fees. To make a living he was obliged to take pupils, a thing uncongenial to him. On more than one occasion he all but accepted offers of work in England, but his wife's encouragement kept up his heart and he stayed. In 1860 he became a Fellow of the King's and Queen's College of Physicians, as it was then called, and immediately afterwards was elected registrar, a post which he held for eight years. During this long struggle he had been making his way steadily in the esteem of the medical profession, and in 1868 he was invited to join the staff of the Adelaide Hospital, and to take charge of a ward for the treatment of diseases peculiar to women. This was the first appointment of the kind in a Dublin general hospital. He made the most of his opportunities, developed a large extern clinic, published a volume of clinical lectures, and in 1875 became Master of the Rotunda.

Atthill found the Rotunda in 1875 almost as he had left it in 1854. He set himself to make changes, radical at the time, though to us they seem obvious. His most difficult task was to get rid of the old ward nurses and to institute a modern system of nursing. This, however, he accomplished successfully, and in addition, he brought a water-supply to the wards, and methodically employed antiseptics as soon as the meaning of the Listerian school became clear. In the face of bitter opposition he organised the extern maternity. Up to this the hospital was purely a lying-in institution, but Atthill opened a gynæcological wing and introduced modern gynæcological methods into the hospital. From this time till his retirement from practice in 1898 Atthill occupied a foremost place in the profession in Ireland, and indeed in the kingdom. Many honours were given him. He was elected President of the Royal College of Physicians of Ireland in 1888, and represented the College on the General Medical Council from 1889 to 1893. He was President of the old Obstetrical Society of Dublin, of the Royal Academy of Medicine in Ireland, and of the Obstetric section of the British Medical Association. In addition, he was an honorary member of various obstetric and gynæcological societies. Even after his retirement from practice, Atthill kept up a constant interest in the affairs of the profession. In particular his interest in the Rotunda Hospital and in the College of Physicians was unflagging.

Atthill's death has severed a notable link with the past. The pupil and friend of the great men of the Dublin School of Medicine, he was himself, in his own line of work, a great man. Much of his work, like that at the Rotunda Hospital,

was in organisation, though his published writings had a great vogue in their time. His clinical lectures ran through many editions and were translated into many languages. He took pride in the Dublin school, and liked to recall that among his friends were such men as Stokes and Corrigan, Montgomery and Hudson, Wilde and Marsh. By those who knew him well, Atthill was as much loved as he was respected by all. A kindly man, who had his pleasure in his home and family, his house and garden, his old age was spent in a happy leisure known to few. In his business and professional relations he was eminently straightforward, expressing his thoughts clearly, whatever they might be. He was, indeed, as free in expressing his disapproval as he was generous in praise. The profession has lost a good man and a great man in him, one who served his generation well. To his relatives—his widow, his children, his grandchildren—we offer sincere and respectful sympathy.

JOHN LISTON PAUL, A.M. KING'S COLL. ABERD., M.D. EDIN.,

DEPUTY SURGEON-GENERAL MADRAS ARMY (RETIRED).

WE regret to announce the death of Deputy Surgeon-General John Liston Paul, which took place at his residence, Conyham Lodge, Torquay, Devon, on August 25th. He was born at Elgin in Scotland in the year 1827, and received his education at the Universities of Aberdeen and Edinburgh and at Paris. In 1845 he graduated in arts at the University of Aberdeen, and after obtaining the Licentiateship of the Royal Colleges of Edinburgh in 1848 he was granted in the same year the M.D. of Edinburgh. In 1851 he entered the medical service of the Madras Army and subsequently held the position of professor of surgery in the Madras Medical College, where he endeared himself to all who sought his advice and aid. He was also surgeon to the Madras General Hospital. He retired at a comparatively early age from the Indian Medical Service with the honorary rank of deputy surgeon-general, but afterwards acted as president of the Medical Board at the India Office during the absence of Sir Joseph Fayrer. After his retirement from the service Surgeon-General Paul purchased an extensive practice in London where his skill and kindness gained for him many new friends. Recently he went to reside in Torquay, where he passed away full of years and much honoured. It is interesting to note that the deceased officer was a brother of Lieutenant Paul of the Bengal Army, who was killed at the relief of Lucknow in 1857 while most gallantly leading his men, and that he was a godson of Liston, the famous surgeon.

HENRY CROCKFORD TURNER, M.R.C.S. ENG., L.S.A.

AN honoured name has been removed from the list of medical men practising in the county of Sussex by the death of Mr. Henry Crockford Turner which occurred at Steyning on Sept. 14th. He was the only surviving son of the late Mr. Richard Turner of Lewes, and was born in 1849. He entered Guy's Hospital and qualified M.R.C.S. Eng. and L.S.A. in 1870. Settling at Steyning he had a large practice there and in the surrounding district, and for a long period was one of the district medical officers under the Steyning board of guardians. He was also for many years medical officer to various friendly societies and was generally interested in local affairs. Unfortunately he had for very many years suffered from failing eyesight, and a few years since his sight became so bad that he was compelled to retire from practice. A local testimonial fund was started and met with a very ready response, showing, as it did, the respect and esteem in which he was held. The deepest sympathy will be accorded the relatives by a large circle both within and outside the profession.

DR. EMILY BLACKWELL.

THE death of Dr. Elizabeth Blackwell, which was recorded in THE LANCET of June 11th in the present year, has been soon followed by that of her younger sister Emily Blackwell. These two ladies were among the earliest medical women in America and were the joint founders of the first hospital for women in that country. Emily Blackwell was born in Bristol in 1826, being a daughter of Mr. Samuel Blackwell, who carried on the business of a sugar refiner in that city. In 1832 Mr. Blackwell emigrated to the United States, where he died in 1838, leaving a family of nine children in very reduced circumstances, but the energy and perseverance of two of his daughters enabled them to become prominent members of the medical profession. Emily Blackwell, who was five years younger than her more distinguished sister, received her professional education in the hospitals of New York, Edinburgh, Paris, and London. She graduated at the American Western Reserve University in 1854 and soon afterwards joined her sister, who had been already for about three years in practice in New York. After the Civil War in America she became dean of the Women's Medical College in that city and coöperated with her sister in founding and carrying on the New York Hospital for Women and Children. Unlike her sister, Dr. Emily Blackwell passed the most of her life in America and died at York Cliffs, Maine, on Sept. 8th.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: Dr. Hermann Gock, director of the Provincial Lunatic Asylum, Landsberg, Prussia, aged 62 years.—Dr. A. Murset, surgeon-colonel in the Swiss army.

Medical News.

THE Charing Cross Hospital students' annual dinner will be held on Monday, Oct. 3rd, at 7.30 P.M., at the Criterion Restaurant, Piccadilly, W. Mr. Peter Daniel will be in the chair. Professor William Osler will be the chief guest.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, LONDON.—The annual dinner of past and present students will be held on Monday, Oct. 3rd, at the Grand Hall, Prince's Restaurant, Piccadilly, W., at 7 P.M., when Mr. Ernest Lane will take the chair.

THE WELSH DINNER.—The annual dinner for 1910 will, as we have already announced, be held on Friday, Sept. 30th, at the Criterion Restaurant, Piccadilly, London, W. Mr. Robert Jones of Liverpool will preside. Tickets for the dinner may be obtained on application to Mr. J. Howell Evans, 25, Berkeley-square, London, W.

THE Dean and Faculty of Medicine of the University of Birmingham have sent out cards of invitation to a conversazione to inaugurate the opening of the session of the Medical Faculty of the University on Monday, Oct. 3rd. The reception will take place from 7.30 to 8 P.M.

THE ROYAL SANITARY INSTITUTE.—The fiftieth course of lectures and demonstrations for sanitary officers will be given during the months of October, November, and December at the Royal Sanitary Institute, Buckingham Palace-road, S.W. The course is divided into two parts: Part I., 25 lectures, embracing elementary physics, the public health statutes, the duties of a sanitary inspector, municipal hygiene, and building construction; and Part II., seven lectures on meat and food inspection. The lectures for Part I. begin on Oct. 3rd and end on the 31st of the same month, and those for Part II., which commence on Nov. 1st, will end on Dec. 2nd. Among the lecturers are Dr. G. F. McCleary, Professor H. R. Kenwood, Dr. E. Petronell Manby, Dr. Charles Porter, Mr. A. Wellesley Harris, and Dr. E. J. Steegmann. Inspections and demonstrations in connexion with the course will be made at the Wimbledon Sewage Works, Southwark and Vauxhall Waterworks, Sewage and Destructor Works at Ealing, Charing Cross Hospital, and Lambeth Disinfecting Station. Demonstrations will also be made in the districts of Islington and Chiswick and at the Aylesbury Dairy Company's premises, John Knight's Soap Works, and at Harrison and Barber's knacker's-yard. The seventeenth course of lectures for the practical training of meat inspectors is similar to the second part of the above course, and will commence on Oct. 7th. To assist students entering for the examinations on hygiene in its bearing on school life and to help women health visitors and school nurses, a course of lectures will begin on Oct. 10th dealing with physiology,

personal hygiene, sanitation of school buildings, the hygiene of child-life, and educational methods. The lecturers include Miss Marion Hunter-Vaughan, Dr. A. B. Kingsford, Dr. G. Eric Pritchard, and Dr. C. J. Thomas. Further particulars and forms of application for the examinations can be obtained at the offices of the Institute, 90, Buckingham Palace-road, London, S.W.

☞ THE number of applications for copies of "Merck's Annual Report" being very large, Mr. E. Merck asks us to mention that some delay will necessarily take place in their delivery, but all applications will receive attention in due course.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, W.C.—At this hospital lectures and demonstrations which are free to all qualified practitioners are given on Thursdays at 4 P.M. The winter session will open on Oct. 6th, when Dr. W. S. Colman will lecture on Scurvy in Children. On Oct. 13th Mr. T. H. Kellock will take Torticollis for his subject. In addition to these lectures special post-graduate courses of three months' duration are held for systematic instruction in the medical and surgical diseases of children. These courses consist of 24 medical and 24 surgical demonstrations, but special arrangements can be made for parts of each course. Further particulars can be obtained from the dean at the hospital.

DONATIONS AND BEQUESTS.—Mr. Adolph Ahrens, a Manchester merchant, has announced his intention of celebrating the seventieth anniversary of his birthday by giving £5000 to Manchester charities. The Royal Infirmary and the Victoria Memorial Jewish Hospital will receive £1000 each.—The late Miss Emily Knowles has by will bequeathed £5000 each to the Charing Cross Hospital, the Middlesex Hospital, the University College Hospital, the Royal Free Hospital, St. George's Hospital, St. Mary's Hospital, the London Hospital, the Cancer Hospital, the Chelsea Hospital for Women, the British Hospital for Incurables, Clapham, Queen Charlotte's Hospital, and £1000 each to Dr. Barnardo's Homes and the Royal Society for the Prevention of Cruelty to Animals.

COMPULSORY NOTIFICATION OF MEASLES.—The following motion was agreed to at a meeting of the Hackney borough council on Sept. 15th:—

That it be referred to the Public Health Committee to consider and report to the council on the advisability or otherwise of taking steps for the compulsory notification of measles as an infectious disease.

Mr. A. S. Dawson of Homerton, in proposing the motion, said that measles was responsible for ten times the number of deaths resulting from scarlet fever or diphtheria. His desire for notification was not based on personal grounds—though one of his children had died in consequence of the absence of notification—but on the question of principle. It was an opprobrium on their health authorities that they were so supine on this matter when measles had been notifiable for years in Paris. The chairman of the Public Health Committee announced that they were quite prepared to accept the motion.

MEDICO-PSYCHOLOGICAL ASSOCIATION.—The autumn meeting of the South-eastern division of this association will be held at the London County Asylum, Bexley, on Wednesday, Oct. 5th. After the members, who may assemble at noon, have inspected the asylum and grounds, Dr. T. E K. Stansfield has invited them to luncheon, which will be served from 1.30 to 2 30, during which time there will be a meeting of the divisional committee. The general meeting will take place at 2 45, when, after fixing the place of the spring meeting, which is to be held on April 25th, 1911, and transacting any other business, communications will be read by Dr. Stansfield on Heredity and Insanity, and by Dr. E. Faulks on Sterilisation of the Insane. The members will dine together after the meeting at the Café Monico, Piccadilly Circus, W, at 6 45 P.M., provided that a sufficient number agree to dine. The price of the dinner is 5*s*., exclusive of wine, and morning dress is permitted Members are begged to inform Dr. Stansfield by Sept 30th if they will attend the meeting and dinner. The nearest station to the asylum is Bexley (*not* Bexley Heath); the asylum is at the border of Dartford Heath. There are trains from London Bridge arriving at Bexley at 11.21 A.M., 12.28 P.M., and 1.8 P.M.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CARRE, HENRY, L.R.C.P. & S. Irel., L.M. Rot. Hosp. Dub., has been appointed Medical Superintendent of the Glasgow District Asylum, Woodilee, Lenzie, Glasgow.

DARLINGTON, WILLIAM, M.B., Ch.B. Edin., has been appointed Senior House Surgeon at the General Infirmary, Macclesfield.

HAMILL, PHILIP, D.Sc. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Pathologist at the City of London Hospital for Diseases of the Chest.

INKSTER, JOHN, M.B., Ch.B. Aberd., has been appointed House Physician at the City of London Hospital for Diseases of the Chest.

JAMESON, WILSON, M.B., Ch.B. Aberd., has been appointed Resident Medical Officer at the City of London Hospital for Diseases of the Chest.

KIDD, ALAN, M.B., B.Ch., B.A.O. R.U.I., has been appointed House Physician at the Worcester General Infirmary.

LEECH, E. B., M.D. Cantab., has been appointed Physician to the Ancoats Hospital, Manchester.

M'INTOSH, G. W., M.B., M.S. Edin., has been appointed Joint Medical Officer of Health of the Burgh of Kirkcaldy.

MCPHERSON, JOHN, M.B., Ch.B. Aberd., has been appointed Senior House Surgeon at the Lincoln County Hospital.

MARLIN, THOMAS, M.B., Ch.B. Glasg., has been re-elected House Physician at the City of London Hospital for Diseases of the Chest.

OWEN, SYDNEY A., M.D Cantab., M.R.C.P. Lond., has been appointed Physician to Out-patients at the City of London Hospital for Diseases of the Chest.

STEPHEN, DAVID F. S., M.B., Ch.B. Aberd., has been appointed Junior House Surgeon at the Lincoln County Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with lodging, board, and washing.

BEDFORD COUNTY HOSPITAL.—House Physician. Salary £60 per annum, with apartments, board, and washing.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80 per annum. Also Honorary Physician.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Two House Surgeons for six months. Salary at rate of £75 per annum, with board and residence.

BRISTOL GENERAL HOSPITAL.—House Physician, House Surgeon, Casualty House Surgeon, and Assistant House Physician, all for six months. Salary £60, with board, residence, &c.

CANCER HOSPITAL, Fulham-road, London, S.W.—Assistant Surgeon.

CARDIFF INFIRMARY.—Honorary Ophthalmic Surgeon.

CHELSEA INFIRMARY, Cale-street, S.W.—Second Assistant Medical Officer. Salary £100 per annum, with board, washing, apartments, &c.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physician. Salary £60 per annum, with board, apartments, and laundry.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with apartments, board, laundry, &c.

DREADNOUGHT HOSPITAL, Greenwich.—Two House Physicians, also Two House Surgeons, for six months. Salary in each case £50 per annum, with board, residence, and washing. Also Assistant Surgeon.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—House Surgeon. Salary at rate of £60 per annum, with board, residence, and washing. Also about Ten Clinical Assistants.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—House Surgeon. Salary £120 per annum, with board, apartments, and washing.

FULHAM INFIRMARY, St. Dunstan's-road, Hammersmith, W.—Junior Assistant Medical Officer for six months. Salary at rate of £100 per annum, with board, apartments, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—Fourth Anæsthetist. Salary £15 15*s* per annum. Also House Surgeon, unmarried, for six months. Salary £30, with board, residence, &c.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 40, Grove End-road, London, N.W.—Resident Medical Officer for six months. Salary at rate of £80 per annum.

HULL ROYAL INFIRMARY.—Senior House Surgeon, unmarried. Salary £150 per annum, with board and apartments.

JERSEY INFIRMARY AND DISPENSARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and attendance.

KENSINGTON WORKHOUSE AND INFIRMARY.—Second Assistant Resident Medical Officer. Salary £100 per annum, with apartments, board, and washing.

LIVERPOOL WORKHOUSE, Brownlow Hill.—Assistant Medical Officer. Salary £100 per annum, with rations, apartments, &c.

LONDON HOSPITAL, Whitechapel, E.—Two Surgical Registrars. Salary £100 per annum each.

LONDON TEMPERANCE HOSPITAL.—Surgical Registrar. Salary at rate of 40 guineas per annum.

LOWESTOFT HOSPITAL.—House Surgeon, unmarried. Salary at rate of £100 per annum, with board, lodging, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 per annum, with board and residence.

MANCHESTER ROYAL INFIRMARY.—Medical Officer for six months. Salary at rate of £100 per annum, with board and residence.

MORPETH, NORTHUMBERLAND COUNTY ASYLUM.—Junior Assistant Medical Officer (female). Salary £120, with board, apartments, laundry, and attendance.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—Clinical Pathologist. Salary £50 per annum.

NEWCASTLE-UPON-TYNE CITY ASYLUM, Gosforth.—Junior Assistant Medical Officer, unmarried. Salary £140 per annum, with apartments, board, and laundry.

PADDINGTON INFIRMARY AND WORKHOUSE.—Second Assistant to the Infirmary and Medical Officer to the Workhouse for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—House Physician and Second House Surgeon, both for six months. Salary £80 and £60 per annum respectively, with board, lodging, and washing.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Examiner in Dental Surgery.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board and residence.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried, for six months. Salary £70 per annum, with residence, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior and Junior House Surgeons. Salary £100 and £90 per annum respectively, with residence, board, and washing.

SUNDERLAND WORKHOUSE, Hylton-road.—Resident Assistant Medical Officer. Salary £120 per annum, with rations, apartments, and washing.

THROAT HOSPITAL, Golden-square, W.—Honorary Anæsthetist.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer, unmarried, for six months. Salary £100 per annum, with board, lodging, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Act at Wimborne, in the county of Dorset; at Kilmacthomas, in the county of Waterford; at Thetford, in the county of Norfolk; at Portumna, in the county of Galway; at Kiltimagh, in the county of Mayo; and at Brora, in the county of Sutherland.

THE Secretary of State for the Home Department gives notice of vacancies for a Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of Stirling, Dumbarton, and Clackmannan, more particularly to the Dumbarton District; and for the Sheriffdom of Inverness, Elgin, and Nairn, more particularly to the Skye District.

Births, Marriages, and Deaths.

BIRTHS.

BEVAN.—On Sept. 20th, at 17, Lancaster Gate-terrace, the wife of Arthur Bevan, M.D., of a son.

DUHIG.—On Sept. 17th, 1910, at Little Langtons, Hornchurch, Essex, to Mr. and Mrs. Duhig, a son.

PASMORE.—On Sept. 15th, at Chelsham House, Upper Warlingham, Surrey, the wife of Dr. E. S. Pasmore, M.R.C.P., Medical Superintendent, Croydon Mental Hospital, Upper Warlingham, of a son.

MARRIAGES.

HAMILTON—MOORE.—On Sept. 15th, at St. Andrew's Church, Wells-street, London, W., Thomas Bogie Hamilton, M.B., Ch.B., M.R.C.P., Ministry of Justice, Cairo, Egypt, to Volta Kathleen, younger daughter of Beaufoi Moore, Barrister-at-Law, Middle Temple.

SMITH—MASON.—On Sept. 14th, at St. Mary Abbots, Kensington, John William Smith, F.R.C.S., of Manchester, to Irène Maud, only daughter of Mr. and Mrs. H. J. Mason, 88, Holland Park, London, W.

DEATHS.

BACOT.—On Sept. 13th, at Carfax, Marlborough-road, Bournemouth, William George Bacot, M.D., F.R.C.S., aged 80 years.

LEWIS.—On Sept. 15th, at "Chasemoor," Hindhead, Charles Mortimer Lewis, M.R.C.S., L.R.C.P., the devoted and dearly loved husband of Jessie May Lewis.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A SANITARY "RISORGIMENTO."

As late as 1884, when Italy had been for 23 years independent and united, her sanitary condition still remained "mediæval," with no better means of antagonising cholera than the "fumigations" and the "sanitary cordons" discredited by civilisation. But by that time there were three men not less distinguished in the hygienic than in the political sphere, and these were Agostino Bertani, the surgeon-in-chief of Garibaldi's campaigns; Luigi Pagliani, the present occupant of the chair of public hygiene in the University of Turin; and Francesco Crispi, a Sicilian barrister, who, after serving in the patriotic ranks, had risen to prominence in Parliament and to administrative distinction as Minister of the Interior. The "situation" confronting them hygienically was about as desperate as that which Cavour and Garibaldi had to face politically in the previous generation, entire provinces being without water which could be drunk with safety; the reclamation of derelict and disease-engendering soil a fond vision; the great as well as the small centres of population still waiting for even the most elementary system of drainage; many communes denied the hurying grounds now seen to be essential not only for public decency but for public safety; "sanitary" (that is, medical) assistance defective enough to be called "haphazard"; the pharmaceutical service "ditto"; vaccination perfunctorily practised even in quarters where it was recognised as a national necessity; the hospital service inefficient (or worse!) from the favouritism with which its *personnel* was recruited; and all this leading up to a yearly mortality (we are quoting official figures) of some 800,000 individuals out of a population of 28,500,000—that is to say, a proportion of 28 deaths per 1000 of the inhabitants, when foreign countries had reduced their mortality in some cases to from 15 to 16 per 1000. But by the close of 1888 the "Codice Igienico" of Bertani, interpreted with equal sagacity and prudence by Pagliani, and enforced with a masterful energy by Crispi, had begun to take effect, and Italy awoke from a lethargy as benumbing and enfeebling to her public health as the effete legitimist *régime* was deteriorating to her political development. The first step taken was to institute in Rome a "Scuola Superiore d'Igiene" to train and send forth, as from centre to circumference, the provincial practitioners, the health officers, the biological chemists, the bacteriologists, and the veterinary surgeons destined for the "vigilanza igienico-sanitaria" of the whole population. No only so; but against small-pox, malaria, pellagra, the Government, medically speaking, "took the field" with special equipment in prevention and cure; at the same time charging the local sanitary authorities and their staff with the surveillance of schools, the health of the children, the inspection of food, of the soil, of the dwelling, and of the whole *ensemble* of "industries." All this imposed a heavy draught on the State purse—at the beginning, indeed, restricted to the extent of parsimony, but inevitably increasing from year to year till from the million (£40,000) doled out in 1890 it has risen to 4 millions In the day now passing, however, it is noted with something like pained surprise that the initiative taken and carried out 20 years ago shows signs of slackening—the funds required proving unequal to the call made upon them. This may be inferred from the returns of mortality, showing in the decennium 1887-1897 a decline from 28 per 1000 to 21 per 1000, while in the subsequent decennium the figures oscillate between 21 and 23 per 1000. Political causes, or rather the interests of party politics, are said to explain this regrettable result, but into these it is beyond our province to enter. Certainly the demeanour of the more superstitious of the population in the recent explosion of cholera proves that the coöperation of the public with the sanitary office is far from complete—education not having kept pace with the development of hygiene. Well says a distinguished representative of the Subalpine School: "When all Italians have learned to read and write, and have, in this way, become sensible of their duties and their privileges, we shall cease to witness those scenes of savagery which only superstition and ignorance can, up to a certain point, explain or justify. A visitation of cholera should leave us perfectly calm, because education would have had its reward in a population well instructed in the laws of health, private and personal as well as public and collective, and the equation 'Peace + Health = Well-being' would have its happy solution in Italy, as elsewhere."

TOWARDS A PURE MILK SUPPLY.

A JOINT committee of the National League for Physical Education and Improvement and of the National Health Society has drawn up a series of leaflets containing instructions which it is hoped, in the continued absence of general legislation on the subject of a pure milk-supply, will be useful to farmers, to retailers, and to the consumers of milk. The committee, which consists of many names eminent in the fields of hygiene and public health, is a sufficient guarantee for

the excellence of the information and instructions given in the leaflets. These are so full that it may seem over-critical to refer to an omission, but in leaflet A, which is addressed to farmers, although instructions are given as to the personal cleanliness of the milker and the proper hygiene of the cow-shed, there is no reference to the necessity of keeping clean the milking stool. However clean the cow's udders may be kept, however careful the milker may be to cleanse his or her hands before milking, if the milking-stool is allowed to remain in the cowshed there is always the danger of carrying infection to the udder of the cow when the milker picks up the stool. Leaflet B for distributors and retailers, as well as leaflet C for housewives, should "find a place in every home"—words used of many things which ought never to enter our doors, but employed here seriously. If the instructions in leaflet C are carefully adhered to there can be little danger of contaminated milk in the home, granting, of course, that the retailer has done his part before; while leaflet B will in some measure enable the housewife or her agent to see whether milk is being kept under proper conditions at the shop where she deals. In some places we believe the public are invited to view business premises where articles of food are stored and sold, and if this were more general in the milk trade it would tend, not only to the confidence of the consumer, but to the possible business advantage of the trader. Application for these leaflets should be made at 4, Tavistock-square, London, W.C. The price is 2*s.* per 100 or 17*s.* 6*d.* per 1000 copies, and local authorities can have the name of the authority printed in a prominent position on the front page, and so gain credit with their constituencies. A summary of the instruction to farmers and others in card form for hanging up in the cowshed is supplied at the rate of 9*d.* a dozen or 5*s.* per 100. A single card costs 1*d.*

HEALTH AND OTHER CONDITIONS IN SOMALILAND.

IN a report on the Somaliland Protectorate for the year ended March 31st, 1910, by Mr. H. A. Byatt, secretary to the Administration, it is stated that the population comprised in the 68,000 square miles under British protection is estimated at about 300,000, all Somalis, with the exception of 87 Europeans and whites, 200 Indians, 300 Arabs, and 100 mixed. As there are no records of births and deaths, the death-rates amongst the different classes are unknown. No census has ever actually been taken. The population appears to be increasing at a slightly improved rate, and the general public health has been satisfactory. The great increase of the number of patients treated has been due to the facilities offered to the natives of obtaining simple remedies, such as sulphur, &c., from the medical officers stationed with the troops inland, where a large number of the natives suffer from scabies. A Sanitary Board has been formed under the orders of His Majesty's Commissioner, Sir William Manning, K.C.M.G., who has also directed a daily routine examination of all matters connected with the jail management. A dental surgeon has visited the Protectorate during the year at Government expense. It is hoped that this may be continued in future years, as attention shown to this matter often considerably affects the health of the officers. The salubrity of the occupied locations depends on the simple avoidance during the summer months of the excessive heat present on the coast belt. The summer heat is such that while a dry condition persists there is little or no disease. The water-supply of Berbera, the principal town, is drawn from springs seven miles away, and is usually ample; the water at its source is from 95° to 105° F. when it issues from the spring. The coast belt of the country is of an unusually dry and arid type. Vegetation for the first 15 miles or so from the coast consists of low scrub bushes only, except for the few made gardens in the European parts of the town. The fine sand which is held in the air during the summer months, precludes flies or mosquitoes; in fact, owing to this condition, during that part of the year no winged insects are probably able to live. There are civil general hospitals at Berbera, Bulhar, and Zeyla. At Berbera there are also an isolation hospital for tuberculous patients and a single ward building for the accommodation of small-pox patients. A disinfecting station, furnished with a Clayton disinfector, and consisting of two rooms and caretaker's hut, is situated conveniently in the harbour. The inland or up-country hospitals are situated at Sheikh and Burao respectively. Both are camp hospitals only, medical aid being given to the political outposts by the medical officer stationed at Sheikh, assisted where there is urgency by the military medical officer from Burao. The percentage of deaths to those admitted to hospital was 5·4.

MOSQUITOES AND MALARIA.

THE Sanitary Board of Hong-Kong is anxious that everyone should take a share in helping to reduce the number of mosquitoes, and has issued a pamphlet to the public of advice and direction in the campaign of extermination. The prevention of the accumulation of water in pools and receptacles of domestic use is the object to be achieved, and the following are the instructions issued. Old tins, jam-pots, flower-pots, broken vases, and crockery which have been thrown on to a rubbish heap should be carefully collected and buried, the water in which cut flowers have been placed should be changed daily, and no plants should be grown in water anywhere in the neighbourhood of dwellings. Choked rain-water gutters should be cleared at once, and roofs kept clear of receptacles for rain-water. The gardener's tank, tub, or *kong* should be emptied and dried daily, or should contain gold-fish, which will eat the larvæ. Drain-trap should be disinfected with liquid carbolic disinfectant. Hollows in trees and broken bamboos, which hold rain-water for several days, should be dealt with by filling the hollows with clay or by sawing through the broken bamboos at the nodes. When once mosquitoes have hatched out they will survive for months, and it is therefore easier to deal with the larvæ. Every householder should use his best endeavours to rid his premises of mosquito larvæ, and complaints concerning the prevalence of mosquitoes in the neighbourhood should be made to the Sanitary Department, who will order an inspection to be made, and require the person responsible to take steps to abate the nuisance.

NURSING IN AUSTRALIA.

A CORRESPONDENT would be glad to know if any readers of THE LANCET could give him information as to the professional prospects in Australia of a highly qualified nurse—staff nurse at a London hospital and for years attached to a large London nursing home.

Milk will feel obliged if any reader will give him personal experience (1) of the use of the sour milk treatment in cases of arterio-sclerosis; and (2) of the use of subcutaneous injections of "fibrolysin" in cases of Dupuytren's contraction of the palmar fascia.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for 1910:—

Sept. 17th–25th (Antwerp).—Fourteenth Flemish Congress of Natural and Medical Sciences and International Scientific Exhibition.
" 18th–24th (Königsberg).—Eighty-second Congress of German Scientists and Medical Men.
" 22nd–27th (Toulouse).—Sixth French Congress of Gynæcology, Obstetrics, and Pædiatrics.
" 22nd–28th (St. Petersburg).—Fifth International Congress of Obstetrics and Gynæcology.
" 27th–30th (Vienna).—Eighth International Physiological Congress.
" 29th and 30th (Glasgow).—First Annual Conference of the British Hospitals Association.
Oct. 1st–5th (Paris).—Second International Conference for the Study of Cancer.
" 3rd–7th (London).—Sixth London Medical Exhibition.
" 3rd–7th (Berlin).—International Congress on the Care of the Insane.
" 4th–8th (Brussels).—Second International Congress of Alimentary Hygiene.
" 5th–8th (Brussels).—Ninth International Tuberculosis Conference.
" 10th–15th (London).—Town Planning Conference.
" 13th–15th (Paris).—Eleventh French Congress of Medicine.
" 16th–22nd (Barcelona).—First International Spanish Congress of Tuberculosis.
Nov. 7th–12th (Cape Town).—Twelfth South African Medical Congress (1910).

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Mr. Willmott Evans: Clinique (Skin).
TUESDAY.—4 P.M., Dr. N. Pitt: Clinique (Medical).
WEDNESDAY.—4 P.M., Mr. M. P. M. Collier: Clinique (Surgical).
THURSDAY.—4 P.M., Dr. F. J. Poynton: Clinique (Medical).
FRIDAY.—4 P.M., Mr. M. S. Mayou: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—2 P.M., Clinical Demonstration: Dr. Wall: Diseases of the Lungs.

TUESDAY.—2 P.M., Clinical Demonstration: Dr. Grünbaum: Diseases of the Kidneys.

WEDNESDAY.—2 P.M., Clinical Demonstration: Dr. Hutchison: Diseases of the Digestive System and Children's Diseases.

THURSDAY.—2 P.M., Clinical Demonstration: Dr. T. Thompson: Diseases of the Nervous System.

FRIDAY.—2 P.M., Clinical Demonstration: Dr. L. Smith: Diseases of the Heart and Vessels.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (28th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (29th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (30th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (1st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 21st, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 15	30·18	N.E.	0·06	68	65	53	56	57	Raining
,, 16	30·35	E.	...	94	63	55	56	57	Raining
,, 17	30·48	E.	...	98	62	54	53	58	Fine
,, 18	30 39	E.	...	117	66	52	56	59	Fine
,, 19	30 05	E.	...	106	65	53	56	58	Overcast
,, 20	30·20	N.E.	...	97	58	47	48	51	Fine
,, 21	30 37	N.	...	108	60	45	46	51	Fine

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