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THE

BIRMINGHAM MEDICAL REVIEW,

JULY, 1880.

REVIEWS.

THE DIAGNOSIS OF GRANULAR KIDNEY.

All pathologists are aware of the frequency with which granular kidneys are found in the bodies of persons who have died without any symptom of sufficient importance having been manifested to direct attention to these organs. On the other hand, cases of recognised Bright's disease may present symptoms combining the clinical character of the granular and the fatty kidney so as to make a diagnosis between the two not quite a simple matter. Dr. Max Litten,* of Berlin, has published three cases of large white kidney in which during life there were excentric hypertrophy of the left ventricle, retinitis albuminurica, and polyuria; in one an apoplexy, in the other two repeated uræmic attacks; in all there were copious albuminuria, œdema, and numerous casts in the urine.

But in addition to this, there is now a considerable accumulation of testimony to show that albuminuria, together with many of the symptoms found in typical cases of granular kidney, may occur in young men presenting no appearance of grave departures from

*Charité Annalen, vol. iv., 1877, s. 150-188.

health, but in whom there is reason to fear that sooner or later structural disease will supervene, and it becomes of great importance for us to determine what are the signs or symptoms which may enable us to distinguish between this early, and we believe curable stage of the affection, and the organic disease, with the intractable nature of which we are too familiar.

In order that we may not be supposed to be making these statements upon our own unsupported authority, we will quote the following passage from Dr. Johnson's recent paper on Latent Albuminuria.* He says "the occasional appearance of even a small amount of albumen after food and exercise or exposure to cold, if not traced to its exciting cause, and if the cause be not such as can be avoided or counteracted, will almost certainly, at no distant period, become a persistent albuminuria; and persistent albuminuria leads on, sooner or later, to fatal degeneration of the kidney."

There seems to be no limit to the variety of the clinical aspects of granular kidney; it is not unknown in the young, though relatively rare before 30, the deaths from it being greatest between the ages of 45 and 55 (Dickinson, Mahomed), yet it is not incompatible with quite advanced life, several of our autopsies having been in patients over 70 years of age. It affects both sexes, although males appear to suffer to twice the extent of females (Dickinson). It is common in all classes of society, and in both divisions of this island, though in the sister kingdom it appears to be less frequent. The symptoms complained of refer in many cases to the Respiratory system—cough, dyspnœa, asthma; in many to the Circulatory system—pain at the præcordia, palpitation, epistaxis; in a much larger number to the

* Brit. Med. Journal, Dec. 13, 1879.

Digestive system—vomiting, pain after food, loss of appetite, diarrhœa, hæmatemesis, hæmorrhoids; in others again the Nervous system is affected—vertigo, headache, dimness of sight, hemiplegia, convulsions, coma, numbness of the extremities, neuralgic pains, especially sciatica; affections of the organs of Special Sense—blindness, amaurosis, &c. The Locomotory system is often the seat of the prominent complaint, articular gout, lumbago, rheumatic pains, cramps; or the Urinary system may be deranged—hæmaturia, symptoms of gravel or calculus; the Integumentary system often suffers—skin eruptions, erysipelas, eczema, purpura, dropsy, &c. Lastly, the complaints may be vague, as of general weakness, inability to attend to work, failing physical and mental power.

Under these circumstances we find a corresponding diversity in the pathological conditions, whether revealed by examination, *intra vitam* or *post-mortem*. Bronchitis, pleurisy, hydrothorax, cardiac hypertrophy, dilatation, valvular disease, pericarditis, fatty heart, aneurism, atheroma of the aorta and other vessels, chronic gastric catarrh, cirrhosis of the liver, fatty liver, cerebral hæmorrhage, degeneration of the cerebral arterioles with granular atrophy of the brain cells, optic neuritis, renal and vesical calculi, &c. In the kidneys themselves the structural changes also vary, the organs being of normal, or less than normal size, or reduced to mere vestiges of their former structure; their capsules are thickened, more or less adherent, the surface rough or granular, sometimes exhibiting cysts; on section they are tough, the relative width of the cortical substance is diminished to a varying degree, there may be cysts; the pelvis may be dilated, may contain calculi or masses of amorphous urates; the renal artery is absolutely smaller, but its

branches are dilated and thickened (Thoma), the thickening being due to a hyperplasia of the elements of all the coats which results in different degrees of typical or atypical hypertrophy of each coat, or sometimes in atrophy. A considerable part of the organ has undergone transformation into connective tissue. This change is the result of chronic inflammation which brings about a qualitative retrogression accompanied by a quantitative increase of tissue, the renal epithelium proliferating and giving rise to small cells which become converted into spindle cells and form connective tissue; the malpighian bodies undergo mucous degeneration and become absorbed or form cysts; other cysts are formed from the mucous transformation of granulation tissue growing inside the tubes. The kidney stroma is swollen by increased plasma, and its cells stimulated to increased secretion of inter-cellular substance. The changes in the vessels are similar in character. The endothelium of the intima proliferates and forms a delicate fibrous tissue, ultimately becoming hyaline; the adventitia becomes swollen, and grows like the kidney stroma, with which it is continuous. The muscular coat becomes broadened out, its individual muscular fibres become distinct and separated by an increase in the inter-cellular substance; in many cases there is a very great increase in the concentric rows of spindle cells forming the muscular coat.

Dr. Johnson* commences his lecture on "The local and general symptoms of Contracted Granular Kidney" by saying—"There are few diseases equally serious whose progress is so insidious as that of the disease we are now considering; yet there are few maladies whose presence is indicated by more unequivocal signs if only they be diligently and intelligently sought for."

* Lectures on Bright's Disease. Brit. Med. Journal, 1873, vol. i., p. 191.

Our remarks at the commencement of this paper shew that we do not think the signs so unequivocal as Dr. Johnson asserts; for besides the very varied clinical aspects under which this disease comes before us, those signs which are most relied upon are found, when critically examined, to be of doubtful or at least debatable value, and concerning which there is considerable want of agreement amongst the best authorities. These signs are the characters of the urine, the state of the heart and circulation, and the changes in the fundus oculi. These we propose to discuss fully.

The Urine.—Dr. Johnson* says that the urine of gouty patients often indicates an early stage of renal degeneration, by containing "granular" casts, without albumen; at a later stage albumen is more constantly present, though both albumen and casts may be absent, even in the most advanced cases of this disease. The quantity of the urine is usually increased, the specific gravity is generally as low as 1010 or 1012, sometimes even 1005, this low specific gravity being due to decrease of the normal solid constituents. The albumen is most abundant in the middle stage of the malady.

Dr. Grainger Stewart† speaks of the urine being increased in amount, albumen being present fitfully and in variable quantity, casts generally few in number, hyaline or finely granular, but sometimes fatty. The specific gravity is low and the colour pale. The quantity of urea is little if at all below the natural standard. Uric acid is also lessened or quite absent in advanced cases. Phosphates, sulphates, and chlorides are also much diminished.

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* Loc. cit., p. 161.
† Bright's Disease of the Kidneys, p. 229.

Dr. Dickinson* says the urine is increased in the early and middle stages even to double or treble the normal amount; it is bright, clear, and paler than its dilution accounts for. Early in the disease it is free from albumen and casts. Then a few hyaline or coarsely granular casts are to be found. Later on a trace of albumen appears; but even this is not constant; the specific gravity is generally below the normal, from 1007 to 1015; as a rule the acidity is lessened; blood is sometimes present. The urea is always reduced, but this reduction may be very slight till near the end. Uric, phosphoric, and sulphuric acids and chlorine reduced, especially towards the end. The alkalies and earths are generally reduced.

Bartels† says the urine may be occasionally and temporarily normal, but its quantity is always increased until the heart's action begins to fail; it is pale yellow, clear in most cases, without sediment, rarely deposits urates, more often uric acid crystals; the specific gravity is low, from 1004 to 1012, but this may not occur in the earlier stages of the malady; the acidity is as a rule feeble; albuminuria is not constant, may occasionally be absent throughout the course of the disease, and is always slight. The quantity of urea secreted may not be diminished; the dependence of the secretion of the solid constituents of the urine upon their ingestion in food renders the result of investigations in this direction of no great value, and their diminution coincides with the progressive weakening of the patient. If we test the total performances of these diseased kidneys we shall find that the small percentage of urea and salts in the urine is made up for by the large amount of urine passed, and to such an extent that in some cases more urea is excreted than healthy organs are in the habit of doing.

* Albuminuria, 2nd Edition, p. 190.
† Ziemssen's Cyclopædia, vol. xiv., p. 431.

Dr. Roberts* says the urine is copious, three or four pints a day, of low specific gravity; the quantity of albumen is comparatively small, may be temporarily absent. Towards the end the urine becomes scanty, or may be suppressed. The deposit is slight, composed of hyaline and granular casts, with very slight admixture of epithelium, not often fatty. As a rule blood is absent.

These descriptions of the changes in the urine agree in the main particulars, that the quantity is increased; that albumen is, as a rule, present in small quantity only, and may be absent often temporarily, rarely during a long period; the specific gravity is low, but the relative absence of urinary solids is compensated for by the total increase in the secretion; hyaline and granular casts are frequently present, but are not constant. As this subject is of much importance, and in fact is the key to the whole diagnosis, we shall take leave to consider each of these points in detail.

The Quantity of the Urine.—Christison† says "no single symptom has appeared to be so invariable, or of so much service for indicating the commencement of the disease as the fact of the patient being awakened once or oftener in the night time by the necessity of passing urine. I have scarcely ever known it wanting when any other local symptom existed; frequently has it been present without any other for a great length of time, and it is so remarkable a deviation from the ordinary rule of health, that, although it may have been neglected, no individual can fail to recall it when his memory is tasked on the subject by his physician."

Dr. Johnson‡ says "one of the earliest symptoms, in the majority of cases, is *increased frequency of micturition*,

* Urinary and Renal Disease, Third Edition, p. 395.

† Granular Degeneration of the Kidneys, 1839, p. 30.

‡ Lectures on Bright's Disease. Brit. Med. Journal, 1873, vol. 1, p. 191.

and especially during the night. This symptom is sometimes absent, and it may occur from other causes than renal disease."

Dr. Grainger Stewart* speaks of patients being in some cases obliged to rise several times at night to micturate, and in another place he says the quantity of urine is frequently greatly increased.

Dr. Dickinson† says—"One of the earliest symptoms which may lead to a suspicion of the disease is an increase in the quantity of urine, which is pale and of low specific gravity. It is passed more often than natural, especially at night, apparently in consequence of its increased quantity, not because it has acquired any irritating quality."

Bartels‡ observes that "the symptoms in its earlier stages are not calculated to direct the patient's own attention to his kidneys as the part at fault. The only thing which distracts these patients is the frequent desire to pass water, which is principally apparent at night."

These quotations show that this symptom is a very common one, and attracts the notice of both physician and patient. In our own cases we found it present as a *constant and persistent habit* in 70 per cent; in others it was occasional. It is true, as Dr. Johnson says, that this symptom is not peculiar to this disease, as many dyspeptic persons *when suffering from dyspepsia* are disturbed in this manner, but the symptom is in their case only temporary and not habitual. It is not peculiar to the typical granular kidney, being found in the mixed cases of Bright's disease. But so far as we know it is never present as a persistent symptom in the functional cases to which we have alluded, and we should look very gravely

* Bright's Disease, 1871, p. 189.
† Path. and Treatment of Albuminuria, 1877, p. 174.
‡ Ziemssen's Cyclopædia, vol. xv., p. 418.

on any case of slight albuminuria in which rising at night to make water was a constant habit, whatever the patient's age might be. But as we have elsewhere shown polyuria* depends primarily upon the diuretic influence of urates and other salts, with which the blood is loaded, and not upon the cardiac hypertrophy, so that *a priori* the amount of urine may be increased before structural disease exists. At the same time we must admit that the cardiac hypertrophy aids the secretion of urine from kidneys which have lost little of their filtering properties; indeed, the glomeruli are known to be abnormally permeable, and the blood pressure in the glomeruli is increased by the destruction of the efferent vessels and capillary plexuses beyond. There is, therefore, ground for believing that this increase in urine does depend in a great measure upon the structural changes, and there is no general symptom to which we think greater importance can be attached for the purpose of distinguishing structural from functional disease.

If the heart fails, as the case advances, the quantity of urine becomes diminished, and may be less than normal, dropsy probably supervening. The specific gravity may then be high; but it is not uncommon even during the early and middle stages of structural disease, to meet with one specimen of urine of quite normal specific gravity and depositing urates, although the remainder of the urine for the 24 hours may be clear and pale.

Albuminuria.—The absence of albumen from the urine as a temporary condition has been alluded to by many authors; we believe much may be done to diminish the number of these cases by more careful testing, but our own statistics give albumen absent in 9 per cent. of the

* Birmingham Medical Review, April 1878. The Polyuria of Granular Kidney.

cases. This matter is of sufficient importance to induce us to repeat our cautions as to the mode of testing for albumen. The urine should be that passed *after breakfast*, it must be clear; boil the upper stratum of a column of fluid, filling two-thirds of a test tube, and add a few drops of dilute acetic acid, when any phosphates will be dissolved, and the faintest cloud of albumen may be perceived by holding the tube against a shaded background with the light falling from above. We have elsewhere* discussed the whole question of albuminuria, and we have made numerous experiments upon the dialysing properties, coagulation points, &c., of urine albumen, the result being that we have come to the conclusion that the albumen met with is, with few exceptions, ordinary serum albumen, and that there is no means of distinguishing the albumen passed in functional derangements from that of Bright's disease.†

Casts.—Although a ready assent might be given to the proposition that the presence of hyaline tube casts in the urine indicates renal disease, their discovery in the urine of jaundice and diabetes,‡ in the urine of Weston the pedestrian, during his walk, and in cases of bronchitis and heart disease has thrown a doubt upon the correctness of this view. English writers usually follow Traube in describing them as *fibrine* casts, that is fibrinous coagula of an exudation from the blood vessels, so that *a priori* they would indicate only such an alteration of the renal circulation as would permit a transudation from the vessels; and Klebs, supporting this view, supposes that the epithelium of the tubules plays the part of fibrinoplastin upon the fibrinogen of the blood serum.

* Birmingham Med. Review, July, 1879.
† Brit. Med. Journal, Aug. 23, 1879.
‡ Finlayson. Brit. and For. Med. Chir. Rev., January, 1876.
Pavy. Brit. Med. Journal, 1876, vol i., p 272.

It is therefore of some moment to enquire whether this view is correct. Cornil and Ranvier state that "their homogeneity, the absence of fibrillation, and their resistance to acetic acid, separate them from the true fibrine cylinders which do occur in intense renal congestion and hæmorrhages into the tubules."* Rindfleisch asserts that the epithelial cells in the straight tubes exude a substance which may give rise to their formation.† Wagner describes them as the consequence of the transformation of the cellular contents of the tubules into a substance externally resembling fibrine.‡ Aufrecht has studied their formation in the kidney of the rabbit after ligature of the ureter. "If the animals were killed within the first three days the affected kidney was found noticeably swollen, and its pelvis and ureter above the ligature were much distended. On microscopical examination the interstitial tissue of the organ was quite normal throughout, as was also the medullary parenchyma, but the tubules of the cortical substance, especially the convoluted ones, showed dilatation of their lumina with granular and fatty degeneration of their epithelium. In a majority of these tubules there were the finest fibrine-cylinders; these were seen best when the organs were examined fresh, or after being in bichromate of potash for only a few days. The cylinders then project from the tubules. When they are inside of these they are only very rarely seen on account of their being covered by the clouded epithelium. After longer hardening only a much smaller number can be found; apparently because it is only in fresh specimens that they are squeezed out of the tubules by the shrinking or contraction of the tissues. It is therefore necessary to tease

* Manuel d'Histologie Pathologique, p. 1020.
† Traité d'Histologie Pathologique, French Transl., p. 501.
‡ Manual of General Pathology, p. 335.

out the preparation in order to demonstrate them after hardening. The following facts concerning their origin are noteworthy. The epithelium in these kidneys was complete throughout. The cells were much clouded, could not be distinguished separately, and their nuclei required fuchsin to make them visible; a defect was nowhere visible. Within this completely unchanged epithelial layer lay the clear, pale cylinders. It is plain that the epithelium as such, that is, its substance *in toto*, could not have been employed in forming these cylinders.

"Again, there is the possibility that they owe their origin to an exudation from the blood vessels. The interstitial tissue and the blood vessels did not show the slightest change within the first three days. Besides, the increased intra-tubular pressure, due to the ligature on the ureter, makes the entrance of fluid into the tubules out of the blood-vessels scarcely conceivable; and thirdly, in those kidneys in which interstitial inflammation had commenced, the fibrine cylinders had disappeared. If the animals were killed after six days, the interstitial tissue was found distended by numerous cells, the epithelial cells of the tubules were less cloudy, well defined from each other, and with very visible nuclei, no sign of epithelial destruction, and no cylinders in the tubules. The author has verified this observation, in kidneys the ureters of which had been tied six, twelve, and up to twenty-three days. In addition he gives the following facts. He once saw a cylinder made of single irregular pieces, which were separated by fine bright lines. Twice he saw epithelial cells, with bright round structures protruding, which in appearance completely agreed with the pale cylinders. He, therefore, concludes that the fibrine cylinders are formed in consequence of the irritated state of the epithelium from the urinary stasis,

and that they are a secretion of inflamed epithelium, which exudes in the form of large clear drops, and subsequently runs together into cylinders, taking the form of the tubules." *

V. Cornil has confirmed Aufrecht's observations, and states that these appearances can be very well seen by using osmic acid.†

Dr. Voorhoeve‡ has lately opposed Aufrecht's conclusions, but his negative results cannot be allowed to weigh against the above positive statements confirmed by Cornil.

These observations warrant our accepting the view that hyaline casts result from changes in the renal epithelium. There is no difficulty in reconciling with this view their appearance in the cases already referred to. In the case of Weston great strain must have occurred upon all his organs, and there is no reason for wonder that the renal epithelium showed indications of that strain; their appearance was transient as the cause was temporary, and it is impossible to speculate as to what might have been the result had the same cause remained longer in operation. On the other hand it is not uncommon to find marked structural disease of the renal parenchyma in diabetes, and Dr. Mobius has recently proved by experiment that prolonged excretion of bile by the kidney leads to destruction of the renal epithelium.‖

The practical importance of these considerations is manifested when we consider the number and variety of conditions under which albumen has been discovered in the urine, and the consequent difficulties as to diagnosis and prognosis. We have described, under the name of the

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* Centralblatt fur d. Med. Wissenschaften, May 11th, 1878. Lond. Med. Record, 1878, p. 333.

† Archives Générales de Médécine, 1879.

‡ Virchow's Archiv., Bd. 80, Hft. 2.

‖ Beitrage die Niere beim Icterus. Arch. d. Heilkunde, xviii., p. 83.

"functional stage of granular kidney,"* cases of young men with albuminuria, headache, furred tongue, constipation, hard and slow pulse, reduplication of the first sound, accentuation of the aortic second sound, and retinal specks or hæmorrhages, or, more rarely, diffuse retinitis. Such cases do not differ in their general aspect from ordinary cases of dyspepsia, except when the eye symptoms are urgent, and cannot be regarded as cases of organic renal disease. They differ in one important respect, in the almost complete absence of tube-casts. It cannot be stated too forcibly that the diagnosis and prognosis in cases of latent albuminuria depend upon the microscopical examination of the urine, and when there is any doubt this should be repeated. On the other hand, Dr. Johnson has stated that, in the earlier stages of granular kidney, casts may be found before any albumen appears, and here again we have the earliest evidence of structural change. Casts are the best evidence we can obtain as to the state of the renal epithelium. Hyaline casts indicate a process of minimum intensity, which, when due to a transient cause, may leave no traces behind it, and which are significant in proportion to their number and persistence in relation to the extent and chronicity of the morbid process.

This attempt to restore to tube-casts the diagnostic importance which they were universally assigned a few years ago is the more necessary, as the writings of a very able clinical observer—Dr. Mahomed—are calculated, by emphasizing the diagnostic value of the pulse and heart signs, to withdraw attention from the urine.

Finally, it is by the casts that we can discriminate between the two types of chronic Bright's disease. Undoubtedly, these shade into one another so as to make

* Bir. Med. Rev., Oct. 1879.

very hard and fast lines impossible; but we may learn from the casts what is the nature of the intra-tubular changes at present going on. No doubt desquamative inflammation frequently attacks the tubules of granular kidneys, while kidneys which have been the subjects of desquamative inflammation settle down and shew by and by only a few hyaline casts. These facts must be borne in mind when a differential diagnosis is in question.

Cardiac Hypertrophy.—Most authorities have laid great stress on the frequency of cardiac hypertrophy in association with granular kidneys, but Bartels* has asserted that he had "never failed to obtain the objective signs of hypertrophy of the left ventricle in any of his cases of genuine contracting kidney, or to confirm the fact in every *post mortem* made upon their bodies, and therefore he can never hold that a diagnosis of this renal disease is made certain when no enlargement of the left ventricle is recognised." This statement would be of the utmost value if true, for we should then have a most important confirmatory sign.

Dr. Dickinson† says that an analysis of 250 cases of granular degeneration, drawn from St. George's books, gave 48 per cent. as the proportion of cardiac enlargement, and that since his attention had been directed to the subject he had scarcely seen an instance in which, if the renal disease was distinctly recognised, whether after death or in life, some degree of cardiac hypertrophy was not also present. He regards simple cardiac hypertrophy as one of the most important diagnostic signs of this form of renal disease.

Dr. C. A. Ewald‡ found hypertrophy of the heart in 20 out of 21 cases of granular kidney. On the other

* Ziemssen's Cyclopædia, vol. xiv., p. 419.
† Op. cit., p. 178.
‡ Virchow's Archiv., Bd. lxxi., s. 453.

hand, Dr. Grainger Stewart* speaks of nearly one half of a series of cases he examined *post mortem* having had enlarged heart simply from renal disease, while many others had enlargement connected with valvular or vascular lesions.

Gull and Sutton† state that they have particulars of nine cases in which the kidneys were very contracted and the heart was free from hypertrophy.

Senator‡ and Hanot‖ have drawn attention to the frequency with which the hypertrophy of the left ventricle in granular kidney is unattended by dilatation, and therefore fails to give the objective signs of cardiac enlargement.

Grawitz and Israel§ found that the cardiac hypertrophy which followed artificial unilateral nephritis in rabbits was usually unaccompanied by dilatation.

Out of 37 typical cases examined *post mortem* we found 17 had simple cardiac hypertrophy, and 5 hypertrophy with valvular disease, the proportion being very nearly 60 per cent. of hypertrophy with and without valvular disease. In addition, out of 87 carefully selected cases in which the state of the heart was noted, and in which the coincidence of symptoms fully justified the diagnosis of granular kidney, we found evidence of cardiac hypertrophy, with or without valvular disease, in 52, also as nearly as possible 60 per cent of the cases.

These facts and references shew that Bartels' statement is too sweeping: cardiac hypertrophy is a common but by no means a constant accompaniment of granular kidney, so that its absence does not contradict the view that renal disease is present. On the other hand, cardiac

* Op. cit., p. 233.
† Med. Chir. Trans., vol. lv., p. 288.
‡ Virchow's Archiv., Bd cxxiii., s. 313.
‖ Arch. Gen. de Médecine, 1878, p. 172.
§ Virchow's Archiv., Bd. lxxvii., s. 315.

hypertrophy when present is very suggestive of the existence of renal disease, even when accompanied by valvular mischief, unless such valvular mischief can be traced to an attack of acute rheumatism. Cardiac hypertrophy is not peculiar to granular kidney, but may be met with quite commonly in association with fatty kidney. Prof. Senator,* in the paper already quoted, has endeavoured to show that in granular kidney the heart undergoes concentric hypertrophy, and in fatty kidney only the hypertrophy is accompanied by dilatation, excentric hypertrophy. Hanot† has supported these views. While every pathologist will admit the frequency with which hypertrophy with very little dilatation accompanies granular kidney, all pathological records disprove such an arbitrary division. Grawitz and Israel‡ found in their experimental researches, already referred to, that while the small red or large white kidney resulted indifferently, concentric and excentric cardiac hypertrophy occurred also without any relation to the accompanying change in the kidney. Finally, it is plain that as cardiac hypertrophy is only recognised with certainty when the organ is enlarged, Senator's view, if correct, would be opposed to the numerous statements of cardiac hypertrophy in granular kidney recognised during life. Therefore the state of the heart does not aid us to distinguish between the two forms of chronic Bright's disease.

It remains to be seen whether it may be taken to indicate the presence of actual renal disease. Gull and Sutton‖ deny this, and their statement that simple cardiac hypertrophy is met with apart from *decided* renal changes

* Op. cit.
† Op. cit.
‡ Op. cit.
‖ Op. cit.

is probably correct. Israel and Grawitz have shown that the cardiac hypertrophy bears a perfect relation and proportion to the structural renal defect, as it is absent in young animals in which the other kidney hypertrophies to perform the function of its fellow, and appears to be regulated in amount by the quantity of healthy renal secreting substance. But the pathological conditions of granular kidney differ from those of the rabbits in these experiments, inasmuch as the toxæmia, which in them is the consequence of the renal disease, in man is the result of chylopoietic derangements, and affects heart and kidneys, as well as other organs, simultaneously; and in some instances the cardiac changes are more pronounced than those in the kidney. For a review of the pathological relations of this subject we must refer to our former paper on the Relations of Cardiac Hypertrophy to Renal Disease.*

Increased Arterial Tension.—Traube† has the merit of being the first to draw attention to the hard radial pulse so frequently present in granular kidney, and this fact, together with the accentuation of the second sound of the heart, has been particularly insisted on by Dr. Johnson. The late Dr. Sibson drew attention to the doubling of the first sound often accompanying these two phenomena, and explained all three as evidences of increased blood pressure in the aortic system. Other British observers, Dickinson, Stewart, and Roberts, have ignored the state of the pulse. Bartels‡ says the radial pulse is remarkably tense and bounding, and he agrees with Traube that we can recognise the disease by the pulse.

Dr. Galabin has shown that the high tension pulse

* Birmingham Med. Review, Jan. 1880.
† Ueber die Zusammenhang zwischen Herz und Nierenkrankheiten.
‡ Op. cit., p. 418.
The Sphygmograph in Clinical Medicine.

occurs in all forms of renal disease, but is most marked in cases of granular kidney.

Dr. Mahomed* says the "symptoms of chronic Bright's disease consist essentially in the signs of high arterial tension taken together with the absence of albuminuria." The same author† has drawn attention to the occurrence of high arterial tension with or without transient albuminuria in young persons, so that either the first statement is incorrect, or these young patients were really the subjects of chronic Bright's disease, an opinion which Dr. Mahomed at any rate does not express. Therefore we cannot look upon these signs of increased vascular tension as capable of distinguishing one form of kidney disease from the other, or the functional from the structural stage of granular kidney.

Finally their absence does not disprove the existence of granular kidney. The state of the radial pulse depends on so many possible conditions that satisfactory evidence on its side is frequently wanting, in our cases we found it absent in 38 per cent. Accentuation of the aortic second sound on the other hand was very constant, being present in 80 out of 100 cases, in 15 only being unaccompanied by reduplication of the first sound; the latter occurred alone in three cases, and in 15 the sounds were "feeble," "muffled" or "unaltered;" in two the sounds were replaced by murmurs.

Changes in the eyes.—Most authors speak of defects of vision originating from two causes—1, uræmic attacks, 2, neuro-retinitis. The uræmic attacks cause sudden blindness without ophthalmoscopic changes in the fundus oculi. The second division, roughly called neuro-retinitis,

* On Chronic Bright's Disease and its Essential Symptoms. Lancet, 1879, i. p 47.

† Some of the Clinical Aspects of Bright's Disease. Guy's Hospital Reports, vol. xxiv., 1878.

is divided by Dr. Gowers* into—1, diffuse slight opacity and swelling of the retina; 2, white spots and patches of various sizes and distribution, both these being due for the most part to degenerative processes; 3, hæmorrhages; 4, inflammation of the intra-ocular end of the optic nerves; 5, atrophy of the retina and nerve after the subsidence of the inflammatory disturbance. Besides these changes we occasionally meet with detached retina, embolism, choroidal hæmorrhage, and atrophy, opacity of the vitreous, degeneration of the retinal arteries, contraction of the retinal arteries probably secondary to atrophy of the retina. Striæ in the lens are common, perhaps more so than the age of the patients alone accounts for. Of the changes described, the most common are white spots and patches.

Dr. Dickinson† says "the albuminuric retina is most commonly associated with granular kidney, but may occur in any type of renal disease. He inclines to the view that the retinal change is not necessarily associated with renal fibrosis."

Mr. Brudenell Carter‡ has stated that the retinal changes may be present without albuminuria, that in many cases of Bright's disease the retina escaped for a long period, or altogether; that in others, on the contrary, it was the cause of the patient's seeking advice; that the changes differed greatly, the white patches sometimes preceding, sometimes following the characteristic hæmorrhages. On the whole the weight of evidence was opposed to the supposition that the retinal was an effect of the renal disorder, and was in favour of the supposition that both are effects of some more general cause.

* Medical Ophthalmoscopy.
† Op. cit., p. 332.
‡ Lancet, June, 1872, p. 797.

Voelckers* says rètinitis albuminurica occurs in any form of renal inflammation as well as in amyloid degeneration and pregnancy.

Out of 100 cases examined by Mr. Eales,† there were 12 in which retinal changes were found in both eyes, and 16 in which they were limited to one eye. There was diffuse retinitis in 5 cases only, the remainder having white or black specks or hæmorrhages. Mr. Eales believes these spots are usually due to hæmorrhages. Besides these 28 cases of retinal disease, the discs were abnormally pink or abnormally pale in three cases; the choroid was atrophied in patches in two cases; the vitreous was opaque in two cases; the veins were full and tortuous in seven cases; the retinal arteries were doubtfully contracted in two cases; in six the pupil did not fully dilate under atropine, or was irregular in outline; in fourteen there were opaque lenses.

The results of this examination agree pretty closely with those of Galezowski (33 per cent.), and show that the condition is by no means frequent even in typical cases. It rarely reveals itself by causing any defect of vision; in many cases the specks were so few and minute that they would have escaped the notice of a less practised observer. The changes are not peculiar to any form of Bright's disease, nor to that disease at all, having been met with in diabetes, pernicious anæmia, and leucocythæmia. Diffuse neuro-retinitis, simulating retinitis albuminurica, occurs in cases of cerebral tumour (Dr. Hughlings Jackson, Dr. Gowers, Mr. Eales); on the other hand, the neuritis of Bright's disease occasionally suggests the presence of intra-cranial growth, especially when accompanied by vertigo, sickness, and headache.

* Ziemssen's Cyclopædia, vol. xiv.

† Birmingham Med. Review, Jan. 1880.

Finally, these spots may be met with in the functional stage, as Mr. Eales noticed them in five out of fourteen cases of young men with latent albuminuria.

This review of the cardinal signs of granular kidney shews that not one of them is constantly present, and therefore none by itself can be relied upon either as positive or negative evidence. Basing our conclusions on our own statistics, we maintain with Christison and others that habitual polyuria is the most invariable of all the symptoms of granular kidney, and the question as to rising at night to make water should never be omitted. The presence of albumen indicates renal stress but *per se* does not imply structural alteration. The number and character of the casts are of chief importance in enabling us to state definitely that structural disease of the kidney exists, and to distinguish between the two types of chronic Bright's disease. The signs of cardiac hypertrophy when present are of importance, rendering it more probable that renal defect exists, but the signs of high tension are found in the functional stages, and if differing at all, do so only in degree in the later stages. The ophthalmoscopic examination of the eye may occasionally lead to a diagnosis of granular kidney when no other symptom has occurred to attract notice, but such cases are rare and are necessarily seen first by ophthalmic surgeons. The diagnostic value of these appearances is not so great as has been stated, and they frequently need considerable ophthalmoscopic practice for their recognition and correct appreciation. Without wishing to discourage thorough examination of all sources of information, we think a diagnosis of granular kidney may generally be made without the aid of the ophthalmoscope, and we are led to make this remark because we wish to direct the attention of busy practitioners to those points which they may

find of most value. This review of the diagnosis of granular kidney would be wanting in practical value if we did not allude shortly to the general conditions under which these cases present themselves. In the first place *post mortem* examinations and clinical observation shew us that granular kidney is usually a disease of the latter half of life, and we should hesitate before committing ourselves to a diagnosis of its presence in a patient under 40 years of age; the doubt being the greater in proportion as the age recedes from that period, and the diagnosis becoming more probable as life advances. In the next place, men suffer far more commonly than women, Dickinson's statistics say as two to one, but clinical observations as well as *post mortem* statistics make us regard this estimate as under the mark, the latter giving only 8 females out of 39 or nearly one in five. The conditions of out-patient practice render the difficulties of recognising the disease greater in females than in males, so that clinical statistics are of doubtful value. Regarding occupation we have nothing to add to what is already known; house painters and other workers in lead have been fairly numerous among our patients. But the complaints made by the patients are of some practical value; of these the most prominent are those referring to the respiratory and digestive organs. Dr. Mahomed somewhere remarks that it is a well-known saying at Guy's that cases of chronic bronchitis are usually cases of chronic Bright's disease, and we can confirm this view. But not less common are cases presenting symptoms of chronic gastric catarrh; we very frequently get a ready assent when we ask such patients, "Do you vomit when you get out of bed in the morning?" The third great group of cases comprises those who complain of headache or vertigo; the headache is usually occipital,

but very often frontal. The catalogue of symptoms in the early part of this paper is so long that we cannot pretend to go over *seriatim* all the conditions behind which granular kidney may be lurking; these groups suffice to indicate the common classes of cases which should never be passed over without enquiry and examination into the state of the urine and circulatory organs. Latent renal disease is often accompanied by latent valvular disease of the heart, and the latter, when present, becomes a very important element in the prognosis; for, as Dr. Mahomed has shown, a considerable proportion of these cases die from cardiac failure.

ROBERT SAUNDBY.

CLINICAL LECTURES ON DISEASES OF WOMEN.*

THESE lectures are reprints of lectures to students which have already been published in various medical journals, and while, doubtless, they served their purpose well enough for bedside instruction, or to fill the columns of weekly journals, we must express a regret, on behalf of their author's deservedly great reputation, that they have appeared in the form of a book with a pretentious title.

In a bedside conversation with students, disconnected and ill digested observations may be well enough; but it hardly can be considered respectful to a reading public to put forward in a book material so imperfect, as that, what is stated in the preface being evidently true, they are chiefly due to notes taken by one of Dr. Duncan's assistants.

* "Clinical Lectures on Diseases of Women." By J. Mathews Duncan, M.D. London: J. and A. Churchill

Dr. Duncan has made himself known as an eminent obstetrician, and when his lectures are upon subjects in this department they are worth perusal, incomplete as they are. Specialism has now so far advanced that the most eminent gynecologists are not obstetricians; and it is very clear from Dr. Duncan's lectures that there is a broad line of distinction between the two departments, and that it is well that it should be recognised and maintained.

Thus the first two lectures, on "Missed Abortion" and "Abnormal Pelvis," are within Dr. Duncan's lines, and are therefore the result of wide experience and great powers of observation. The second lecture, misnamed "On Abnormal Pelvis," is really a masterly description of the various measurements of the pelvis, and how to make them; and if it had been properly named it would have been a nearly perfect lecture. In its first paragraph, however, there are three very curious sentences worthy of passing comment: "Within my days the introduction of anæsthetics into midwifery was a very great improvement. A still greater improvement, because saving of life is of more importance than saving of pain, has been the applications made of the antiseptic theory, not chiefly in the treatment, but in the prevention of diseases. That is undoubtedly the greatest improvement in obstetrics in modern times, and it is an improvement that is still going on and increasing."

As to the value of anæsthetics in midwifery, there is no practitioner now who is not able to speak of them; and chloroform is now fully and universally established as an anæsthetic, from which there has never been a death when used for legitimate obstetric purposes. It is absolutely safe, and the benefits of its use are simply incalculable.

As to the value of antiseptics and the soundness of the theory on which they are based, they are both on their trial, and it is as yet far too soon to speak as Dr. Duncan has done. Indeed, in another chapter, evidence of his inconsistency and practical disbelief in the doctrines of the germ theory may be found. The antisepticists have jumped too soon to their conclusions. Bacteria germs give rise to putrescence in dead infusions; septic fevers are putrescence, therefore they are due to bacteria germs. Carbolic acid kills bacteria germs, and, therefore, its efficient use should prevent all septic fever. Such are their simple syllogisms, and it were well for humanity if there had been no other factors. But, unfortunately, there are. Living tissue in the body does not behave as dead infusions in the laboratory flask; and it is perfectly certain that septic fevers are due to something not so much within control as are bacteria germs. Within the same afternoon the writer had occasion to see, in consultation, two cases well illustrating this. The first was a woman who had been confined a fortnight before, and from whose vagina was pouring forth a copious and extremely fœtid discharge, shewn on microscopic examination to be positively alive with vibrios. The woman had no fever, and the removal of a piece of membrane from within the still widely open cervix cured the discharge completely. The question of course is, why did not this woman die of child-bed fever? It cannot be answered but to the confusion of the germ theory. The second case was one of a woman with a slight and perfectly inoffensive discharge, in fact the normal lochia, yet with a temperature of 106°, a pulse of 160°, and death written on her face. Her labour had been natural; her attendant could think of nothing from which he could have brought contagion; and she died on

the sixth day after her labour. Now the curious thing in this latter case is that the attendant of this latter patient is a rigid antisepticist. He never goes to a labour without his bottle of carbolic oil, and in this case he had used it freely.

The moment he recognised the nature of her ailment he more than doubled his precautious—took a carbolic bath night and morning; got entirely new raiments; never touched a woman in labour without rubbing both hands and arms up to the elbow in carbolic oil (1 in 7); and yet he had three more cases of puerperal fever, with two deaths.

To continue this interesting subject in connection with Dr. Duncan's lecture on "Missed Abortion," a lecture singularly incomplete, we find that speaking of cases where the ovum is retained for months in the uterus after its death, he says, "It is only when germs are admitted, and generally after rupture of the bag of membranes, that putrefaction and maceration take place, and the more or less complete dissolution of the ovum;" whilst, on the next page, he says, "Dead children, dead abortions, in various stages of decomposition are quite common; but putrid fœtus, or putrid abortion, is quite a rarity." The facts given here are quite correct; but the conclusions to be drawn from them are quite antagonistic to Dr. Duncan's pet germ theory. The writer has removed a large number of dead ova at various periods of pregnancy, and many of which had been retained for months in the uterus, and had undergone a variety of changes, some becoming macerated and absolutely putrid, even to the discharge of fœtal bones. In most of these cases there was no hindrance to the access of germs; for vaginal discharges of every kind swarm with all kinds of low forms of life, animal and vegetable. In a retained

placenta, removed within the last few hours, the writer found abundance of vibrios and spores. Yet he cannot call to mind a single instance of one of these cases dying from what is known as septic fever. Death from hæmorrhage he has seen frequently, but from septicæmic symptoms never. Now why should a septic mass lie in the uterus for months in so large a number of cases without producing septicæmia, if it were not that this septicæmia is due to something more than the germ theorists have yet hit upon? The fact is, that this attempt to put the practice of medicine and surgery upon a physical basis has no more succeeded than any of its very numerous predecessors. Living tissue will not behave like the contents of a chemist's retort, and our surgical practice on it cannot yet be subjected to mathematical laws.

We have little room left to speak of Dr. Duncan's other lectures, other than to say that they are incomplete, unsatisfactory, and far from being up to date. As an illustration of this we may refer to the lecture on "Parovarian Dropsy." Thus he speaks of "the well known fibro-cystic uterine disease," whilst many competent authorities doubt its existence, and at least one writer positively denies it.

Again, he speaks of "simple ovarian cyst and the different kinds of multilocular dropsy of the ovary," apparently in ignorance that a unilocular ovarian tumour is a thing yet to be exhibited. He tells us that parovarian cysts are often cured by tapping. This is due, of course, to his losing sight of the patients. Such cysts are often two or three years before they refill, but that they always do refill and require removal is the uniform experience of the writer. "Complicated cysts may even require an operation like ovariotomy. I have seen several such

operations, where there was extreme difficulty from adhesions and from the thinness and lacerability of the sac. The proper treatment of complicated cases is not yet decided." These sentences show the result of an obstetrician attempting to write on gynecology. Dr. Duncan has properly never attempted to combine surgery with obstetrics; and he has not paid much attention to the literature of gynecology during the last ten years, or he would know that probably more than a third of the so-called ovariotomies are really removals of par-ovarian cysts; that what he calls adhesions are simply the development of the cyst without a pedicle, that is, the folds of the broad ligament are raised up on the upper part of the tumour, and the lower part of the cyst is left embedded in the tissue of what, otherwise, would be Douglas's pouch. Finally, Dr. Duncan ought to have known that the method of dealing with such cysts was completely decided by Dr. G. F. Miner some nine or ten years ago.

THE DIAGNOSIS OF DISEASES OF THE SPINAL CORD.*

THIS present volume is a revised reprint of an address delivered to the members of the Medical Society of Wolverhampton, and published at the time in the Medical Times and Gazette. It is reprinted at the request of the Society, a result which is a matter for congratulation to the profession at large, as this little book supplies just the kind of modern information which is wanting in the text books, or only to be found in large

* The Diagnosis of Diseases of the Spinal Cord, by W. R. Gowers, M.D., F.R.C.P. London: J. & A. Churchill.

and expensive publications like Ziemssen. There are numerous woodcuts illustrating the text, which add greatly to the ease with which its teachings can be understood. The first section deals with the medical anatomy of the spinal cord, its relation to the spinal column, its structure, and secondary degenerations; the second describes in detail the physiology of the spinal cord in relation to the symptoms of its diseases, its motor conduction, sensory conduction, reflex action, co-ordinating and controlling functions, its trophic influence on muscles, bones, skin, and joints. The use of electricity in diagnosis obviously depends upon the alterations in the muscles, consequent on central diseases, and the various methods of employing it are described here. The spinal influences controlling micturition and defæcation, the sexual functions, the vaso-motor centres, the value of pain and spasm in the diagnosis of spinal disease are appropriately treated and explained. The third section discusses the indications of the position of disease, the anatomical diagnosis, whether affecting the antero-lateral columns, the posterior, or the anterior columns, whether the lesion is unilateral or totally transverse. The fourth section complements this by describing the indications of the nature of the disease, the pathological diagnosis arrived at by taking into account the mode of onset, the position and distribution of the lesion, and the causal and associated conditions. The functional diseases of the cord, and those disturbances due to alterations in the vascular supply, anæmia and hyperæmia, and spinal meningitis, are specially referred to. In the fifth section, the foregoing statements are illustrated by suitable cases, and the volume is completed by a coloured lithographic plate, showing the distribution of the disease in the more typical and important lesions of the spinal cord.

We heartily recommend this little book to every one who wishes to bring his knowledge of spinal diseases up to the level of modern scientific medicine.

DISEASES OF WOMEN.*

THIS is one of Messrs. William Wood & Co.'s American reprints of standard authors, and is the first work of an English provincial surgeon as yet included in that series.

Mr. Tait commences by describing the affections of the external organs of generation and their treatment, passing on to the internal, and noting separately, eruptions, inflammations, ulcerations, tumours, malformations, and various affections. The chapter on diseases of the ovary is an enlargement of the Hastings Prize Essay for 1873.

Of vaginal inflammation the author says—"There can be no doubt that the genital mucous surface of women, like other mucous surfaces, suffers from a simple catarrhal inflammation, and though in ninety-nine cases out of a hundred the practitioner may set down acute vulvitis as of infective origin, in the hundredth he may commit a grave error by referring it to the usual source. It may often be noticed that women with chronic discharges have them increased when suffering from general catarrh, and I have seen catarrhal vaginitis so severe that were it not for the improbabilities thrown in the way by surrounding circumstances, I should have regarded the disease as gonorrhœal. There is one condition, however, which I have never found in cases where the disease was probably of catarrhal origin, that being œdema of the vulva. I do not mean to say that vaginitis from infection may not be seen without œdema, but I regard its presence as almost pathognomonic of infection."

* "Diseases of Women." By Lawson Tait, F.R.C.S. 2nd Edition.

The treatment advised for the catarrhal form is the use of weak solutions of zinc or alum. For the infectious, the insertion of pessaries containing at first acetate of lead and opium, afterwards tannin and acetate of lead. Injections are *never* to be used during the acute stage, as there is great risk of carrying by them the infection to the uterine canal. This is a much needed warning. For the chronic stage, prolonged use of injections of a 4 per cent. solution of permanganate of lime.

Referring to the great disproportion which exists between the detection of primary syphilitic sores in women and the general frequency of the disease in women and men, the author shows that the explanation lies in the possibility of mucous tubercles becoming sources of infection. Mr. Tait, in discussing the treatment of syphilis, advances a theory which would reconcile the differences between the mercurialist and the non-mercurialist, and is a very probable one. "Were this the appropriate place I might adduce at length evidence which has been some time accumulating in my experience, that syphilis presents very different clinical features, and that we have in it very different therapeutical results in different localities. Thus in a large number of cases of syphilis, probably amounting now to some hundreds, which I have seen in Birmingham, I have only twice seen rupiform eruptions, and in both of these cases the disease was contracted elsewhere in seaports. With us the immediate or secondary symptoms are rarely so severe as I have seen them in Edinburgh, whilst the number of syphilomatous indurations in the tongue and vulva is most remarkable. In these latter the only remedy which need be given is mercury. Iodide of potassium is quite useless. Now in my earlier experience in Edinburgh and elsewhere, the secondary symptoms were noticed to

be usually very severe, and bad tertiary or gummatous growths were to me quite unknown by actual experience; and iodide of potassium was the favorite remedy, mercury being regarded with disfavour. This subject is one of great importance and worthy of being most carefully investigated."

An improved operation for ruptured perinæum, described on page 33, will be found a very useful one. Instead of paring away a horse-shoe shaped portion of mucous membrane and bringing together its edge with quilled sutures, two parallel incisions are made along the edges of the torn perinæum and their upper ends are joined by curved transverse scissor cuts. The tongue of mucous membrane below this is dissected up, leaving it attached at its base, and it forms a flap which is turned down into the rectum, entirely preventing the occurrence of a recto-vaginal fistula above the angle of union. The denuded surfaces are brought together by three very carefully applied wire sutures running from the skin to median line, where they are brought out to be re-entered, the second half of the stitch finishing in the skin on the opposite side of the wound to the point of entry of the first half, and all being in front of the flap.

In speaking of the consequences of atresia of the vaginal or uterine orifice (an urgent warning is given against causing the latter by the indiscriminate use of caustics) with continued menstruation, the author uses indifferently the term hæmato-kolpos as applied to both conditions, but would it not save confusion to restrict that term to menstrual retention from vaginal atresia, denoting the uterine as hæmato-metra? The chapters on the uterus and ovaries are so good throughout that we reluctantly remember the limited space at our disposal. Referring our readers especially to the pages

on ovarian dysmenorrhœa and chronic ovaritis, we quote in full the following—

"Percussion will generally show in an ovarian tumour the characteristic distribution of dulness, though the accidental adhesion of a coil of intestines in front of the tumour may vitiate this indication. There is a very simple and neat way of confirming the value of the sign of percussion which will almost always decide between ascites and ovarian dropsy. It consists in mapping out the area of clear percussion note by a pen and ink line, and then ascertaining whether a clear note obtained by percussing on a finger laid gently on the skin immediately outside that line *can be altered to a dull note by increasing the pressure.* If this alteration takes place generally round this line or throughout its greater part, it may be taken for certain that an ovarian tumour is present. On the other hand, if there be a clear note somewhere over the area of the swelling, which is not removed by firm pressure, but is rather extended or intensified, still more if pressure bring out a clear note where dulness existed without it, then it will be evident that ascites is present and not an ovarian cyst."

Mr. Tait has lately modified his views as to the value of the information given by "the temperature curve" after ovariotomy, and he now puts most trust in the "pulse line." His description of the details of the operation is excellent.

We have quoted sufficient to show the value of Mr. Tait's book as a text book for students, and as a manual of reference for the busy practitioner.

GENERAL PARALYSIS OF THE INSANE.*

THE author of this book is a well-known contributor to the study of mental diseases.

The present volume consists of a description of this remarkable and classical type of insanity, followed by the notes of many interesting and valuable cases. Dr. Mickle takes the view adopted by most authorities, although still unaccepted by Dr. Hack Tuke, that general paralysis of the insane is a distinct clinical and pathological entity, separable by broadly defined characteristics from other diseases.

While fully agreeing with this view, as to the main correctness of which there can be no doubt, there are varieties included by Dr. Mickle, such as that in which dementia predominates throughout, which have not been satisfactorily proved to possess the same pathological basis as the classical type.

The symptoms of the disorder are described very fully and clearly. It seems to us a mistaken arrangement to place the physical before the mental symptoms, as the main point to be impressed on the minds of students is that general paralysis of the insane differs from general paralysis of syphilis or chronic cerebral softening, by the mental disturbance preceding the motor affections; whereas in the other two cases the motor changes are the primary manifestations of disease, and the psychical disturbances are secondary and accidental.

A point of interest in connection with the etiology of general paralysis is the frequency with which it is associated with renal disease. As the morbid anatomy of this malady shews it to be undoubtedly a process of

* General Paralysis of the Insane, by Wm. Julius Mickle, M.D., M.R.C.P. London: H. K. Lewis.

chronic encephalitis, leading to overgrowth of connective tissue, and atrophy of nerve elements, it comes within the range of those fibrotic changes which have been shown to be distinctly correlated with granular kidney.

In discussing the pathology of the disease, we understand Dr. Mickle to maintain that the motor symptoms are due to the lesions of the cortex only. This view we cannot regard as supported by pathological observation or reasoning by analogy. The signs of cell degeneration in the corpora striata are as marked as in the cortex, while, moreover, lesions of the cortex while interfering with all the more complex adjustments would not abrogate the automatic movements of walking and the like; so that we must assume that as the disease advances the ganglionic centres become involved, and simultaneously the automatic movements are enfeebled: a view which harmonises entirely with clinical and pathological facts.

Dr. Mickle's remarks on prognosis and treatment are judicious, but in the case of such a fatal and intractable disease add little to our knowledge.

This work illustrates a vice in medical book making which is becoming too common—we refer to the practice of overloading the text with references to anybody and everybody who has written on the subject, many of the papers are quoted in one line only to be contradicted in the next by another authority (?). The extent to which this is carried, to eke out the scanty stock of fresh ideas, and to transform the original communication to a medical society, or contribution to a medical journal, into a book of two hundred or more pages, or, as in a notable recent instance, into an enormous volume, as large as the biggest type and the thickest paper can make it, is a monument to the dulness and industry of our times.

The literary style of this book suggests a final remark. No style can be too simple, too pure for medical composition, and, perhaps, nowhere is ornamental writing more out of place. We quote a passage as an illustration, which we trust will not be imitated :—"As if, forsooth, the life, both marital and non-marital, of men was but as an orgy (*sic*) of satyrs, either consumed with secret lust, or fitly partnered in salacious revelry by bacchantes lascivious of eye and wanton of limb!"

THE McDOWELL ORATION.*

THIS oration was delivered by Dr. Gross, to the gentlemen of the Kentucky State Medical Society, on 14th May, 1879, on the occasion of dedicating the monument to the memory of Dr. Ephraim McDowell. These few pages before us will always be treasured by practical ovariotomists as a pleasing and interesting memoir of one to whom the world is deeply indebted, and by following whose example, so boldly and skilfully set before us, surgeons have now raised the operation of ovariotomy to "rank as one of the four greatest discoveries in the progress of medical and surgical science, along with the circulation of the blood, vaccination, and anæsthetics."

McDowell's first operation was performed in 1809, and he had altogether 13 cases, with a result of eight cures, four deaths, and one incomplete through the presence of extensive adhesions—a success which, until quite recently, was looked upon as a good average. What would McDowell in his time have thought, if he could have known that, in seventy years time, seventy or eighty cases could

* Memorial Oration, in honour of Ephraim McDowell, The Father of Ovariotomy, by Samuel D. Gross, M.D., LL.D., D.C.L., Oxon."

be operated upon by one surgeon in succession without a death, and that it would be a very common occurrence for a number of operators to have twenty-five or more consecutive successful cases?

Dr. Gross gives a most charming account of the details of the life of McDowell, so far as they are known, shewing him to be a shrewd, honest practitioner, possessing intense surgical enthusiasm, which had probably been excited, when a student, by the genius and skill of his old master, John Bell, of Edinburgh. "He had a warm and loving heart, in full sympathy with the world around him. To the sick he was particularly kind. He was a loyal and devoted husband, a tender and loving father, an honest, high-toned citizen; in all the relations of life he was a model. Naturally of a lively social disposition, he enjoyed a good joke or a spicy anecdote, and was the delight of every social entertainment which he honoured with his presence."

A short insight is also given of the lives of the late Washington Attlee, and Randolph Peaslee, who, though dead, yet live in the work they have done. We are pleased to note that Dr. Gross, whilst full of his hero in his oration, is not unmindful of the work of Wells and Keith; and he attributes much of the success of the present day "to superior skill in operators, and to increased care and experience, and not to the selection of cases, although this will doubtless have its influence."

An admirable portrait is given of McDowell, and also a view of the memorial, which consists of a granite column on a pedestal, with the inscription:—"A grateful profession reveres his memory, and treasures his example."

THE STUDENTS' GUIDE TO DISEASES OF THE EYE.*

THIS little work is divided into three parts. The first part deals with the "Means of Diagnosis;" the second, with "Clinical Ophthalmology;" while part three treats of the "Diseases of the Eye in Relation to General Diseases."

The first chapter gives a brief account of the importance and significance of the more prominent symptoms for which patients seek advice, and is very properly followed by a more elaborate description of the best ways of examining the eye with a view to determine the state of its various parts and appendages. Chapter 3 is devoted to the "Examination of the Eye by Artificial Light," and after a few remarks on the use of "oblique illumination," is taken up almost entirely with the ophthalmoscope, its use, &c. The theory of "direct" and "indirect" methods being first clearly explained by the aid of very simple, and easily performed, optical experiments, is followed by a short description of the appearances of the fundus oculi in health, and of the way of ascertaining the existence of errors in refraction, as well as the means of measuring the amounts of such defects by the ophthalmoscope alone.

Part II. deals with "Clinical Ophthalmology," of which it is an excellent epitome; for while frequently shewing traces of Mr. Nettleship's original work, it gives a good, though succinct, account of all the best received facts and opinions up to the present date.

We are very glad to see the somewhat obscure, though

* "The Students' Guide to Diseases of the Eye." By Edward Nettleship, F.R.C.S., Ophthalmic Surgeon to St. Thomas's Hospital. London: J. and A. Churchill. 1879.

grave diseases of the ciliary region, dealt with rather fully; and would draw especial attention to the part devoted to sympathetic irritation, and sympathetic ophthalmia, because we fear that this almost intractable malady is too little understood by the student, and because it is remarkably well dealt with in this little book.

An exceedingly good account of the diseases of the retina, disc and choroid, together with an unusually lengthy account of glaucoma, are followed by a lucid and brief account of myopia, hypermetropia, presbyopia, and astigmatism, in which we think sufficient information for the student or practitioner is conveyed.

A very concise account of strabismus, and the various paralyses of the external and the internal muscles of the eyeball, and of the various surgical operations practised by ophthalmic surgeons, closes this part of the book. Perhaps the details of these surgical procedures might with advantage have been more fully described, and some, which are conspicuous by their absence, might have been profitably introduced. For instance, we are surprised to find no account of the surgical treatment of ectropion, which, though a very disfiguring, and not very uncommon affection, is nowhere alluded to in this work.

More illustrative plates might with advantage have been employed, especially in describing the operations, though, of course, the student can learn ophthalmic details better by resorting to the *clinique* of some ophthalmic surgeon for illustrations of diseases, and operative procedures, and this little work is obviously only intended to supplement, and not replace this most valuable means of gaining knowledge.

Part III. is devoted to a short account of "Diseases of the Eye in Relation to General Diseases," which is divided

into two parts. The first is confined to diseases of the eye, which are the result of, or part of, general diseases, such as syphilis, &c.; the second deals with eye affections which are caused by, or are symptomatic of, local diseases at a distance from the organs of vision, such as intra-cranial tumour, &c. This, though the last, is by no means the least valuable part of the work, which would be sadly deficient without it; indeed, it is to the practitioner, perhaps, the most important part of the work.

Several formulæ for local applications to the eye in common use, with a few remarks as to their application, close this valuable little book, which is a true "multum in parvo;" we can most strongly recommend it, not only to the student, but to the practitioner, as the best work of the kind in our language, displaying in all parts evidence of being the production, not only of a lucid and powerful writer, but of an experienced and accomplished ophthalmic surgeon.

ORIGINAL COMMUNICATIONS.

INGLEBY LECTURES.

BY FURNEAUX JORDAN, F.R.C.S., PROFESSOR OF SURGERY IN QUEEN'S COLLEGE, BIRMINGHAM.

Questions on the Surgery of the Intestinal System in Women.

The following are the principal topics on which Mr. Jordan spoke in his first lecture; he said: "I take it for granted that the title given to these lectures makes it clear that I do not propose to give even the briefest view of the general surgery of the intestinal system. I can speak with profit on a few points only—they are points on which I have myself attempted to throw some little light. Those points will be almost entirely confined to the surgery of hernia, and the surgery of the rectum. There are some varieties and conditions of hernia which are very much more frequent in women than in men, and there are some serious diseases which are almost exclusively found in the female rectum. There are some operations which can only be performed on the rectum of a woman.

Umbilical hernia is rare, except in women, and it is usually found in very fat women, and in fat women who have been pregnant several times. It has exceedingly thin coverings, which readily take an inflammatory action. As a rule it is irreducible. In cases where strangulation sets in, the ordinary operation of a free opening into the sac is alarmingly fatal. Yet unfortunately these are cases

where the extra-peritoneal operation cannot be performed. The aperture, it is true, is at the upper part of the sac, and therefore, not very inaccessible, but the coverings, and the sac, are so thin and so tightly stretched over the margin of the tendinous opening that neither finger, nail, nor knife, can be insinuated between them and the linea alba. A few years ago, it occurred to me and to two or three Edinburgh surgeons at the same time, that the extra-peritoneal operation being impracticable, the nearest or some near approach to it, would be preferable to the usual operation. We made a very small opening into the sac, just permitting the finger to pass into it, so that it might be carried to the opening into the abdomen, and the upper margins be felt, and slightly notched upwards. The return by taxis, if possible, of the lately descended bowel, which indirectly caused the strangulation, completes the operation. With this operation my proportion of success has been three out of four."

The lecturer then spoke of the need of diagnosing strangulated umbilical hernia from inflammation of the sac, in irreducible umbilical hernia—a condition more frequent than strangulation, and having suspiciously similar symptoms.

Mr. Jordan then continued: "The hernia of women, a frequent hernia, and a frequently strangulated hernia is femoral hernia, just as inguinal hernia is the special hernia of men. Of all the herniæ, femoral hernia is the one in which an extra-peritoneal operation is most suitable and most successful. The reason is clear. Femoral hernia passes through a ring; inguinal hernia passes through a tube. The ring, too, through which a femoral hernia passes is fairly accessible. For many years now, I have performed an operation of an extremely simple character. If the fore-finger be put under the integu-

ments, through an incision just large enough to admit it, it can with no further dissection be carried to the inner margin of the constricted ring, as a guide to the herniatome which follows. The taxis will then, in the great majority of cases, effect reduction. With a finger knowing the anatomy of hernia by touch, the skin is the only real impediment to relief.

"The principle which guides us in the selection of an operation in femoral hernia, is a clear one. If the case before us is suitable for taxis (every case is not suitable) then an operation which aids the taxis is the one to be chosen.

"While I am considering the subject of hernia, let me draw your attention to a curious characteristic, sometimes met with in the hernia of women, and in women almost solely in my experience. The peculiarity is this: an apparently irreducible (femoral) hernia of many years standing, is, in reality, a reducible hernia. A femoral hernia may remain "down" for years in a feeble, timid, shrinking woman, which might at any moment, be reduced by a competent hand. A few years ago I operated on an apparently irreducible hernia of seven years' standing, in a gentlewoman whose actions and habits were mild and inactive, and which had become strangulated by fresh protrusion of bowel. I performed the single operation I have already described, and applied the taxis for a moment, intending to return if possible, the newly descended coil. To my surprise, and to my alarm, the whole contents of the sac immediately disappeared into the abdomen. I say to my alarm, because I feared the return of bowel, which had been many years outside the abdominal cavity, might set up some irritation. Happily everything went well."

The lecturer then made some observations on the pos-

sibility of enlarging the capacity of the abdominal cavity, as a means of securing the radical cure of hernia, and subsequently adverted to the liability of very fat women (more than men) to fatty degeneration and consequent functional failure of the muscular fibres of the bowel. Curiously, fat women are not liable to one of the ailments which occasionally attack very fat men—namely, gangrenous cellulitis, beginning near the intestinal outlet.

In the second lecture, Mr. Furneaux Jordan, commenting on diseases of the rectum in women, said—

"Why simple annular stricture of the rectum is almost always, if not invariably found in women, is a subject I do not intend to discuss. I speak now of its treatment only. A goodly number of years ago, in a case of very tight and distressing constriction, associated with ulceration of the rectum and fistula, I divided the sphincter, the stricture, and the rectum between the two, by a longitudinal incision. I published a report of the case in the Lancet for 1871. Soon after that M. Verneuil performed a somewhat similar operation, but he used the écraseur, and passed it through an old sinus. In the cases in which I have performed vertical division of the rectum a fairly good result has followed. Stricture of the rectum is a formidable ailment; in itself, and with the complications which frequently accompany it, it is often fatal. When operative interference becomes a necessity the operation I have described seems to have advantages which other operations do not possess. Incisions into the stricture itself are certainly not so free from danger; the irritation they set up is prone to extend to the peritoneum so long as a powerful and continually acting muscle like the anal sphincter is left undivided.

"But I am disposed to believe that another and an extremely simple measure which I am about to commend

to your notice will enable us to keep a very large proportion of cases of even tight stricture in a comfortable condition. The ordinary method of passing rectal bougies of graduated sizes is not very satisfactory, and is not always safe. The method I advise is this: take an English gum-elastic catheter—small enough to be easily introduced, and small enough to lie in the stricture without tightness; keep it in the rectum continuously for twenty-four or forty-eight hours, or longer, to begin with. When the condition of the patient is improved, let continuous dilatation with a small instrument be occasionally adopted for suitable periods. The horizontal posture is perhaps the best during the retention of the instrument. In some cases the first few hours of its presence in the rectum is attended by impatience and weariness; hot fomentations across the hips, and time, will allay these feelings. A woman was admitted into hospital for the purpose of relief by colotomy, so tight was the rectal stricture, and so severe were the symptoms. The tip of a small finger could not pass through the constriction. A twelve elastic catheter was kept in the rectum for twenty-four hours at a stretch with a surprising relief. An incessant diarrhœa ceased, solid motions began to pass, rapid improvement in strength and flesh followed. So struck was the poor woman with her relief that she took forcible possession of the instrument, put it in the stricture herself—put it in with such frequency, and for such periods as her own will dictated. Her judgment did not always accord with ours, but she did well. Twelve months afterwards I caught a glimpse of her in the street, and she seemed to be in fair health."

"In urethral stricture I have long been in the habit of retaining a fine bougie (not a catheter), and directing the urine to be passed by its side. In some cases of rectal

stricture I believe it would be well to retain the small instrument during defæcation. I purpose trying this measure in some cases of rectal cancer. The retained instrument not only preserves a channel—a more direct channel—but it probably acts somewhat as a kind of shoe-horn. A long fine bougie, in some strictures of the pharynx and œsophagus, kept *in situ* many hours successively, and kept in also during the swallowing of fluids, or soft food, is a proposal which I venture to think may be of service."

After some remarks on the frequency of gummatous products in the female rectum, and ischio-rectal fossa, their occasional resemblance to cancer, and the diagnostic marks between the two, the lecturer turned to the question of the excision of cancer of the rectum in women. He contended that in its surgical bearings the female rectum is a wholly different organ from the male rectum. He would not excise cancers from the male rectum, unless they were epithelial, and in the close vicinity of the anus. In women, so long as the urinary tract is left intact, he would excise cancers when they could be removed with a free margin and with no risk of opening the peritoneal cavity. He was strongly opposed to the attempted removal of cancers, in whatever part of the body, if their deep limits and attachments could not be clearly known. To show how women may be very comfortable without a rectum he cited a case where the organ was entirely destroyed, from long pressure of the child's head, and was occluded at the brim of the pelvis by a dense cicatricial mass, but where the woman was still alive and comfortable with an anus in the loin. He concluded by giving his experience of the free excision of cancers of the pelvic outlets in women, and believed that it justified a verdict in favour of surgical proceedings.

ON PROFESSOR SAYRE'S TREATMENT OF SPINAL AFFECTIONS.*

BY JAMES F. WEST, F.R.C.S., SENIOR SURGEON TO THE QUEEN'S HOSPITAL, AND PRESIDENT OF THE BIRMINGHAM CLINICAL BOARD.

It will be within the memory of most of the members of the Birmingham and Midland Counties Branch of the British Medical Association, that Dr. Sayre, of New York, gave, at my invitation, a demonstration of his plan of treating spinal curvature, in the theatre of the Queen's Hospital, in July, 1877, that many of the surgeons of the Birmingham Hospitals, and general practitioners, were present on the occasion, and kindly furnished cases suitable for the application of his plaster jackets; that Dr. Sayre selected two cases of lateral and one of angular curvature, for the purpose of illustration, and while showing us how to apply the plaster bandages, also gave a graphic and lucid description of the principles on which his practice was founded. Most of us were favourably impressed by Dr. Sayre's earnest and persuasive lecture, and many determined to put his plan of treatment into practice, whenever a suitable occasion presented itself.

Unfortunately, spinal caries and spinal curvature are so common in this town and district, that frequent opportunities of employing Dr. Sayre's plan have presented themselves, and it may be well for us now, after the lapse of two years, to compare notes as to our respective experience; to say whether we have found the help and advantage from it that we were led to anticipate, and if the general verdict is in its favour, by our united voices to encourage the more extended adoption of Sayre's

* A paper read at the Birmingham and Midland Counties Branch of the British Medical Association, on December 11th, 1879.

method, and so give to the inventor that moral support which will be his best reward for his zealous labours in this department of the surgical art. For my own part, I may say that the greater my experience of Professor Sayre's plan of treatment, the more satisfied I am that it is of the greatest utility, and that the profession owe him their best thanks for his introduction and strenuous advocacy of this method of practice. I will, with your permission, first read some of the statements in favour of his plan, which Dr. Sayre enumerated.

1. He attested that Pott's disease was nearly always due to a traumatic cause, and that the old idea that it was essentially a disease of a strumous or tubercular character was erroneous.

2. That it was necessary to watch very carefully for the early symptoms of spinal disease, which he described at some length, and to form an accurate diagnosis from them.

3. That the plans of treatment formerly adopted, whether by protracted rest in bed, or by mechanical supports, were useless if not injurious, and that real rest and fixity of the diseased parts could best be obtained with extension by means of his tripod and pulleys, and by the application of a plaster of Paris jacket to the entire trunk, while the patient's body was in a state of extension.

4. That such jackets could be borne with comfort for months; that patients wearing them were able to breathe more freely, and that being able to take exercise in the open air, they soon regained strength.

5. That by their instrumentality the local disease of the spine was relieved, the risk of psoas or lumbar abscess greatly diminished, and the deformity ordinarily resulting from angular curvature reduced considerably.

Now what answer can be given to these propositions after two years' experience of them? My reply is that the views of Dr. Sayre have been fully confirmed.

1. The traumatic causation of Pott's disease is now generally admitted.

2. The importance of the early discovery of symptoms of spinal irritation and their special significance as determining what part of the vertebral column is begining to be affected, will be acknowledged by all.

3. The adoption of Dr. Sayre's plan of treating such cases by extension and the plaster jacket has been very general in this country, and though other methods have been suggested having the same idea of rest and fixation of the spine in view, Dr. Sayre's principles are those which all succeeding surgeons have followed to a greater or less degree.

4. The prolonged wearing of the plaster jacket has been shown not only to be free from risk and inconvenience, but under its use very many patients have either been cured or greatly relieved.

5. Psoas and lumbar abscess have been less frequent since the adoption of Dr. Sayre's plan, and when they have occurred, if treated antiseptically through a window in the plaster jacket, they have given but little trouble and have often ceased to discharge.

The general health of patients has greatly improved under the lengthened wearing of the plaster jacket, and the amount of deformity incident to the falling in of the bodies of the vertebræ, has been sensibly diminished.

Such in my opinion are the advantages of Dr. Sayre's plan of treating spinal disease after a trial of it in upwards of one hundred cases. I will not occupy your time in giving details of them. Most of my cases have been at the Queen's Hospital, and my house surgeons, dressers,

and pupils can testify to the good results obtained. I will, however, call your attention to certain special points to be attended to in the application of the plaster jacket, which occur to me as most noteworthy.

1. Never over extend the spine—a crooked spine which has been so fixed by bony anchylosis cannot be made straight, and no attempt should be made to straighten it.

2. The use of the special pulley made by Salt & Son, of Birmingham, after Weston's block, and which I am able to produce before you, enables us to limit accurately the amount of extension, and to release the patient instantaneously should we require to do so.

3. When a patient is being suspended, we should always have some competent person, a surgeon if possible, in front of him, to see that he is not taken completely off his legs, or allowed to swing round, so as to run the risk of strangulation ; this person's duty is also to give warning, in order that the patient may be lowered immediately, if symptoms of syncope appear.

4. To have good fresh plaster of Paris ; an abundance of narrow perforated tin strips, to strengthen the jacket in any direction that may be thought desirable.

5. To let the patient have a good meal immediately before the use of the jacket, and not to be merely satisfied with a dinner pad.

6. To pad well with cotton wool over the iliac spines, and also on either side of the angular projection of the spine, so that no undue pressure on the hump itself shall take place.

7. To open and dress antiseptically any abscess that may form either in the groin or loin. An instance of the good effect of this in a case of my own is quoted by Dr. Sayre, in his work on Spinal Disease and Spinal Curvature, p. 89.

8. To mark the site of the abscess by a carpet pin, the point of which projects through a piece of card board, and also the various layers of superimposed bandage.

9. Lastly, it should be a rule never to cut open the case when the disease is in the dorsal region ; our object being that the breathing be kept entirely diaphragmatic and abdominal, rather than thoracic ; and further to insist on a jury mast apparatus being employed, when there is a caries of the cervical, or of the upper two or three dorsal vertebræ.

The alternative in the treatment of the latter class of cases is confinement to bed in the recumbent posture, with the extension apparatus as used in hip disease, fixed at the head of the bed, the weight of the patient's body constituting the counter extending force.

During the two years which have elapsed since Dr. Sayre gave his first demonstration in this country, much has been written on the subject by surgeons whose opinions are worthy of acceptance. It would be unfair in any statement of the present condition of thought upon the subject, to ignore reference to those who have fairly tried Dr. Sayre's plan, and have spoken in favour of it ; or on the other hand, to conceal the opinions of those who think indifferently of it. Mr. Barwell claims to have been the first English surgeon who tried the system, and he speaks highly in favour of it. Mr. Berkeley Hill, in a communication to the Clinical Society, on February 9th, 1879 ; Mr. Golding Bird, in a clinical lecture reported in the British Medical Journal for September 21st, 1878, in which he speaks from an experience of forty cases and Mr. Christopher Heath, also in a clinical lecture in the same Journal for May 25th, 1878, testify to the value of Sayre's treatment. At the Bath Meeting of the Association in 1878, Mr. Wheelhouse, of Leeds, in the address on surgery,

spoke thus of Sayre's plan of treatment: "That it is efficient in cure of many grievous cases will be admitted by all;" and he especially advocates it, in the earlier stages, remarking, as does Dr. Sayre himself, that not much good is to be expected in the later. At the same meeting, Dr. Macnaughton Jones, of Cork, gave an account of fifty cases, which had been most successfully treated by him. These favourable opinions, together with those of Mr. G. C. Cole, who followed Dr. Sayre's practice for six months at New York; of Mr. R. W. Parker, who has had great experience of it at the East London Hospital for Children; Dr. McLeod, of Glasgow, and of the following eminent London surgeons—Mr. Howard Marsh, Mr. Richard Davy, and Mr. Edward Owen—are no slight testimony to its value. But while all these gentlemen are strenuous advocates of Sayre's plan, we must not shut our eyes to the fact that there are some surgeons, whose experience and knowledge of the treatment of spinal diseases entitle them to be heard, either still refuse to admit the advantage of it, or who think that it is attended with risk, and that the cure of spinal curvatures may be effected in other and simpler ways. The principle of suspension is alleged to be dangerous, and although I have never myself seen any serious results follow from its use, I must say that patients, especially young children, are often very much alarmed at the time when they are first elevated, so that the tips of their toes alone rest on the ground, and that I have seen them almost at the point of fainting while the jacket was being applied. I was, a few weeks ago, at the Royal Orthopædic Hospital, in Oxford Street, London, and went round the wards in which were numerous cases of spinal curvature. To my surprise not a single patient was wearing a plaster of Paris jacket, and I was informed by the house surgeon

that neither Sayre's, Walker's, nor Fisher's jackets were employed except in very rare instances, and then only for out-patients who came from a long distance. The old fashioned cumbrous apparatus with leather back splints, with shoulder supports, and cog-wheels to compress the spine in this direction and the other, are still in use, and Dr. Sayre's spirited denunciations of such apparatus as "worthy of the best days of the Inquisition," and as rivals of the thumb screw, the rack, and the scavenger's daughter, might never have been uttered. I could not help thinking that some of the patients who had been a long while under treatment (one girl two, and one four years) by mechanical supports, or by rest in bed, would have had at least as good a chance of recovery, had the treatment by suspension of the plaster jacket been adopted in these cases. I am happy to say it is not so at the Birmingham Orthopædic Hospital, as the accompanying tables of cases treated at that Hospital, compiled for me by Mr. E. L. Freer, will prove.

Dr. Dick narrated at a meeting of the Medical Society of London, on November 25, 1878, a case in which a patient died in 10 minutes under extension, but I am not aware of any other fatal case, and doubtless had there been any such cases, they would have been reported in the Medical Journals.

To obviate this difficulty and danger, Dr. T. I. Walker of Peterborough advocated, in the Lancet for July 7, 1877, the use of a gutta percha case open at the front and laced up by bands, and in another paper read at the Bath meeting of the association, demonstrated a novel method of applying the plaster jacket in the recumbent posture; the advantages which he claimed for it being "avoidance of pain and terror to the patient, and absence of any risk of fainting," while at the same time it secures "the fixing

of the diseased bones in the most favourable position for obtaining a case with a minimum of deformity," and with freedom from the serious dangers and inconveniences of suspension. The gutta percha cases have been in general use for many years, and Mr. W. Adams, whose experience on this subject is probably greater than that of any living English Surgeon, asserts that he has used them for 25 years, but for all that they have ceased to be popular. My own experience tells me that gutta percha is not a good material for this purpose: that it loses its shape with the heat of the body and then ceases to be an efficient support, and that it is altogether inferior to the poro-plastic material invented by Mr. Cocking, and which has recently been extensively used for the making of spinal supports by Mr. Ernst. The chief advocate of the poro-plastic jacket is Mr. F. R. Fisher, surgeon to the National Orthopædic Hospital.

To this part of my subject I will return; but as Dr. Walker has asserted a new principle in the treatment of cases of spinal curvature, viz., that of the plaster case, applied in a special manner and *without* extension, it is only fair to give a brief account of his method of practice, and of the merits which he claims for it.

With regard to the plaster jacket, as applied to patients while in the recumbent posture, Dr. Walker declares "*that the diseased bones are at least as perfectly relieved from pressure, the muscles are as completely relaxed, and the deformity is as much diminished when the patient lies flat on the bed, as when he is suspended.*" He uses a closely fitting under shirt like that recommended by Sayre, but instead of applying long plastic bandages to encircle the trunk, he uses them in strips like a many-tailed bandage, the ends of the bandage being folded across the front of the body, so that there is "a strong wide rib down the

front, which is the point at which it should be strongest to resist the tendency of the spine to curve forward." As plaster of Paris when mixed with water alone sets too quickly, Dr. Walker uses the following proportions, viz., 1 lb. of freshly baked plaster, 1 oz. of mucilage of gum acacia, and 8 oz. water.

Dr. Walker thus summarises the results of his practice in his paper in the British Medical Journal for March 1st, 1879:

1. The main object of the treatment of angular curvature of the spine should be the maintenance of the affected bones and joints in a state of absolute rest, and that in the position most favourable for the cure of the disease without deformity.

2. This position is found when the patient is placed comfortably in a recumbent position.

3. By the application of a plaster of Paris jacket, as recommended by Sayre, the bones may be fixed in this position so as to retain it when the patient rises and moves about.

4. The only way in which such a jacket can be applied, with the patient recumbent, is by the method which I have demonstrated.

5. This method depends for its practical facility on the application of the many-tailed bandage and the use of plaster of Paris mixed as I have directed.

6. The adoption of the recumbent posture dispenses with the inconvenience and serious risks of suspension, while all the advantages of Sayre's method are secured for the patient at a minimum of trouble to the surgeon.

Dr. Walker uses a special trough, made by Matthew's of Carey Street, for moistening his bandages.

Dr. Miller, of Dundee, in the British Medical Journal, of November 8th, 1879, has suggested a modification of

the mode of charging the many-tailed bandage, which Dr. Walker himself regards as an improvement, and which I, also having tried it, find to be very simple and handy. It enables the plaster to be applied without the admixture of gum to delay the setting; it makes a stronger case, and the application of it does not occupy more than five minutes—a much shorter space of time than would be required by Sayre's or Walker's method.

It is thus applied :—"The patient having put on a thin closely fitting woollen shirt is laid on his back in bed, or on a table covered with a folded blanket, a waterproof under him, and his arms extended at right angles to his body. The requisite depth of jacket is marked on the bed by any appropriate means, such as pins inserted in the waterproof or blanket, two on each side, one opposite the axilla, and another opposite a point about an inch below the crest of the ilium. The patient is now made to sit, and after doing so, must be careful not to change his place on the bed, in order that when he again lies down he may resume exactly his former situation. The length of bandage having been ascertained, which is requisite to encircle the body and overlap in front to the extent of four or five inches, pieces of bandage cut to this length are laid down in succession across the bed, each piece overlapping the preceding by two thirds of its breadth, as Dr. Walker directs, until a sufficient number are laid down to give the required depth of jacket. The first and the last piece laid down should, however, be about a third of their breadth beyond the marks, and should be then folded in, as otherwise the jacket at its upper and lower edges would be only two-fold. The ends of the bandages are now fastened together by being fixed on each side between two slips of wood, which are clapsed by three American clothes pins. The

slips of wood should be about fourteen inches long, one inch broad, and three-sixteenths of an inch thick, and the wood should be left in its rough state on one side, in order to grip the bandages.

Everything being now ready, a thin mixture of plaster is prepared by mixing two pounds in forty ounces of water, and this is then poured on a flat tray, broad enough to accommodate the depth of the jacket. One of the layers of bandages is now drawn slowly through the plaster on the tray twice or thrice, care being taken that it is thoroughly saturated by turning first one side and then the other down, which having been properly done, it is laid aside in any convenient place. The other layer of bandages having been treated in the same manner, is laid on the bed behind the patient, being carefully placed on the spot previously marked, and the layer which was first dipped then laid upon it. By placing them in this order, the first dipped, and therefore nearest setting, will be first applied to the patient. The patient is now laid back carefully on the bandages, the arms extended as before, and, the slips of wood having been detached from the upper layer, each bandage in succession is brought round and overlapped in front. The slips of wood holding the ends of the bandages firmly between them, having prevented the saturation of these portions with fluid, an assistant, while they are being crossed in front, pours on with a spoon some of the fluid plaster from the tray. The second layer is put on in the same way, pieces of tin being interposed where thought desirable. As much as may be necessary of the remaining liquid plaster is now smeared over the surface of the jacket, and smoothed with the hand as it sets."

While giving every credit to Dr. Walker for the ingenuity of his plan of treatment, and admitting to

the fullest extent the advantage of his method of applying the plaster case, especially as amended by Dr. Miller in certain cases, as when the disease is in the cervical or even high up in the dorsal region, or when the little patients are very weak, sensitive or nervous, I must say that the omission of suspension is, to my thinking, a great disadvantage. I have had experience of upwards of 100 cases treated after Sayre's plan, and I have been so satisfied with it that I have not thought well in my own practice to give it up for Dr. Walker's plan. I asked my late very competent and industrious house surgeon, Mr. Jordan Lloyd, to apply Walker's cases to some of my patients to see how they would suit, and he informs me that he put on more than a dozen "Walker's" while at the Queen's Hospital; but that he "does not like them so well as Sayre's." "I applied," says Mr. Lloyd, "between 50 and 60 of Sayre's jackets and I do not think I was once dissatisfied or disappointed with the apparatus."

"Comparing Sayre's and Walker's plans, I think that the former possesses most of the advantages claimed for the latter, with that, to my mind indispensable, and, with care, absolutely safe, accessory—suspension. In all my cases I have only once had to credit suspension with either risk, trouble or anxiety, and that one amounted to a mere nothing, as the patient vomited during suspension; with this exception I have never had to blame suspension. I should have no hesitation in suspending any patient by means of head and shoulder straps, wherever the caries may be situated. In cases where the disease is high up, I suspend principally from the shoulders, employing the head gear only to lessen slightly the deformity. Where the disease is low down it is quite safe and proper to trust principally to head suspension. Experience has taught me that with Walker's apparatus you have not the time for

deliberation and manipulation which individual cases require, and that even by following out his precise instructions and using his particular apparatus, you are often unable to complete the apparatus before the plaster has set."

One of the most successful attempts to overcome some of the imaginary, if not real, difficulties of Sayre's treatment, is that introduced by Mr. F. R. Fisher,* whose memoir on the treatment of Potts' disease, or angular deformity of the spine, is worthy of a careful perusal. In a letter to me, Mr. Fisher says, "I have great faith in the use of suspension, and am not one of those who have discarded it from a fear of its ill effects. I believe that many of the accidents that have occurred during suspension and application of the plaster jacket have arisen from the bandages being too tightly applied and thus interfering with respiration. The plaster jacket I never use now, as I much prefer the poro-plastic." Mr. Fisher's reasons for his preference for the poro-plastic jacket over the plaster of Paris are, "greater facility of application, greater strength and durability, lightness, no risk of failure of the material, capability of removal to examine seat of disease, and more convenient arrangement of head piece."

The mode in which the poro-plastic jacket is applied is thus described by him: "A soft vest is put on as in Sayre's method, but no pads are used; the patient is then suspended and wrapped around with cotton wool or wet cloths to protect him from the heated material; in the meantime the jacket is softened by placing it in a chamber of air heated to a temperature of 180° Fahr., or if the necessary apparatus for this process is not available, immersing the jacket in boiling water answers all practical

* "Essays on the Treatment of Deformities of the Body." London: J. & A. Churchill 1879.

purposes. In from two to three minutes it is rendered perfectly soft and pliant, and it is at once wrapped round the patient's body, moulded with the hand where necessary, and fixed by a bandage coiled round it from below upwards; this part of the process must be done as quickly as possible, as the felt becomes rigid in about the same time that it takes to soften. So soon as the jacket has become quite firm the patient is released from suspension, the bandage is then gradually removed, and the jacket fastened by the straps and lace. Should any failure occur in the first application, the jacket may be again heated and re-applied, as the softening process can be repeated any number of times without injury to the material." It should be worn for two years after firm consolidation of the spine has been obtained.

I have no personal experience of Mr. Fisher's poroplastic jackets, but I am disposed to think favourably of them in cases of rotato-lateral curvature. They allow of patients taking exercise more freely, of their developing their muscles by various gymnastic games, and of the use of bathing and ablution. All these points are of the greatest utility in lateral curvature, though they are comparatively of secondary consideration in the more grave disease of the spine, which leads to angular curvature.

In the latter disease complete rest of the diseased bones is the desideratum, and that is to my mind, best effected by the application of one of Sayre's jackets while the patient is in a state of suspension.

Appendix, No. 1.

Mr. E. L. Freer, assistant surgeon to the Birmingham Orthopædic Hospital, has very kindly, and at considerable trouble, prepared for me a tabulated account of the cases treated by Sayre's plaster jacket and extension at that institution during past two years, which I should have been happy to publish in extenso, only it would occupy too much space. I may, however, summarise his results thus: 57 cases in all.

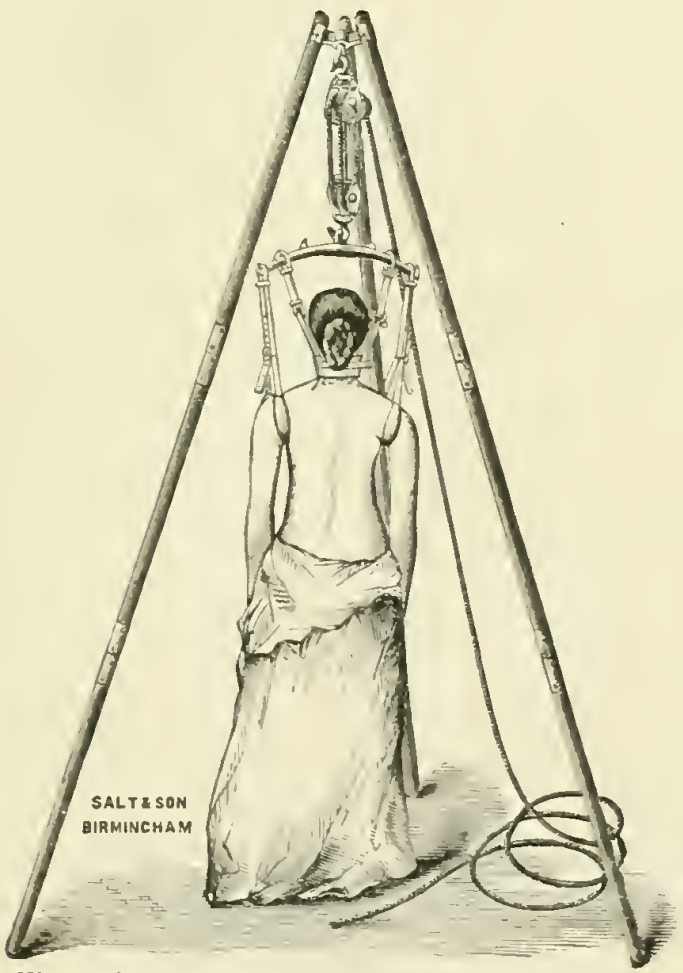
Lateral curvature.—29 cases; 5 males, and 24 females. Four cured, 13 improved, 7 under treatment, 2 discontinued the treatment owing to organic disease, 3 lost sight of.

Angular curvature.—28 cases; 15 males, 13 females. Seven cured, 11 improved, 4 under treatment, 6 lost sight of.

Appendix, No. 2.

Having asked Mr. Ashton Salt, the well-known surgical mechanist of this town, for his opinion of the respective merits of the plaster of Paris and the poro-plastic jacket, he has been good enough to furnish me with the following statement, which seems to me to bear ample testimony to the general superiority of the plaster jacket, while at the same time it points out the circumstances which appear to him to render the poroplastic jacket in some cases preferable. It is also gratifying to hear a surgical instrument maker of Mr. Salt's repute state that he has "almost wholly abandoned" the use of spinal supports. "Having had the good fortune to witness several of Dr. Sayre's demonstrations of his method of applying plaster of Paris jackets for spinal curvatures, I was so much impressed with the advantages of his treatment, that I immediately proceeded to practise it in every suitable case where the patient's medical attendant sanctioned

such procedure, with the result of obtaining greater success than could have been expected to attend the use of even very carefully designed spinal supports, the construction of which, I may say, by way of emphasis to this statement, I have almost wholly abandoned, except in special cases, and under direct surgical instruction. I have never known any evil results to accompany or follow the use of the plaster jacket, but have often experienced considerable difficulty in applying it to a fractious child, who is generally greatly terrified by the indispensable preliminary of suspension.



WESTON'S TRIPOD SELF-SUSTAINING PULLEY BLOCKS FOR APPLYING SUSPENSION.

"The 'Weston's Pulley Blocks' afford a ready means of exactly regulating the amount of suspension as well as of instantly freeing the patient.

"A very convenient and simple mode of adjusting the relative lengths of the head and axilla supports used in suspension has been devised by Mr. Ernst. In this contrivance the length of either support may be reduced by simply drawing on a cord which "binds" automatically wherever placed by the action of the patient's weight, thus saving much trouble and loss of time in the arrangement of the ordinary straps and buckles. The axilla supports are kept well extended so as to avoid pinching, by being suspended from the ends of two short curved bars hanging transversely from the outermost notches of the usual cross bar, instead of being fastened directly to the latter, so as to collapse or exert painful compression.

"Among adults and adolescents many patients are found, especially young ladies in the higher classes of society, who cannot be persuaded to consent to the application of a plaster jacket, chiefly on account of its interference with habits of personal cleanliness; for such the poro-plastic jacket is an admirable alternative, and is especially suitable to cases where a "jury mast" is required, as this admits of being much more easily adapted to the felt than to the plaster corset. All appliances of this kind ought to be made capable of separating from the jacket, by a simple joint behind the neck, so that they may be removed during sleep when they are no longer serviceable; also it is frequently desirable to furnish them with an elongating screw of short traverse, whereby the exact amount of support given to the head may be readily adjusted.

"The poro-plastic jackets should always be softened by dry heat, as water hot enough to render them sufficiently

plastic is painful to the hands. A small dish containing water should, however, be placed on the floor of the heater, whose evaporation will prevent scorching of the material. The temperature required to thoroughly soften the jackets varies from 160° to 180° Fahr., and the time occupied in the process is three or four minutes, which also suffices for them to regain their rigidity, so that the movements of the operator must be rapid.

"The most convenient method of preventing the heated jacket from causing discomfort to the patient is by drawing over the shoulders three of Sayre's knitted vests, one over the other; these adapt themselves more exactly to the figure than ordinary clothing, and should be retained for subsequent wear underneath the jacket."

PELVIC HÆMATOCELE.

BY H. LANGLEY BROWNE,

SURGEON TO THE WEST BROMWICH HOSPITAL.

PELVIC hæmatocele may be defined as an accidental collection of blood in the pelvis, limited by an investing membrane. Although this condition was described and treated by Recamier, in 1831, it was not until 1850 that Nelaton recorded accurately the symptoms and pathology of the lesion, and by him the term "retro-uterine" was given to the tumour, as it is most frequently found occupying Douglas's pouch. It is fully described by Schroeder, in vol. x. of Ziemssen's Encyclopædia; also by Barnes, Emmett, and other authors, most of whom doubt the existence of any other form than the retro-uterine. Schroeder holds that a true hæmatocle must be intra-peritoneal, and that the source of the hæmorrhage must be from one or other of the contents of the true pelvis;

and he enumerates four, viz :—the fallopian tubes, the ovaries, the broad ligaments, other portions of the pelvic peritoneum. He always speaks of the hæmotocele as a tense elastic tumour crowding the uterus forwards, and explains the mode of occurrence in two ways : 1st. By hæmorrhage taking place into a pseudo-membranous cavity shut off from the general peritoneum, this cavity either being formed by the bridging over of Douglas's pouch, by inflammatory adhesion between the posterior wall of the uterus and the anterior one of the rectum, or being a previously existing retro-uterine tumour with fluid contents. 2nd. When effused blood behind the uterus becomes encapsuled. But of the 1st method it may be doubted whether the blood could get into the cul-de-sac of Douglas, if the latter had been closed by adhesions, and the hæmorrhage was from either of the first three given sources ; and of the 2nd method which is certainly the most probable one, yet Schrœder himself remarks further on, "If the blood has coagulated or become enclosed in pseudo-membranes, although it forms a perceptible retro-uterine tumour, it still lacks the characteristic features of a hæmotocele." He also believes (under the heading of hæmorrhage from the tube) in the possibility of the escape of the menstrual blood from the uterus, a view also held by Bernutz, whilst Emmett and others regard this as impossible without uterine or tubal rupture. Emmett in his "Principles of Gynæcology" has gone most thoroughly into the views of the different authors on the subject, and quotes the theory of Nelaton, that the source of the hæmorrhage is the rupture of a Graafian follicle ; of Virchow, that there is a common source of hæmorrhage from the new capillary vessels found in false membranes, or other products of local peritonitis—of Bichat, on the extravasation of blood

from a rupture of a distended ovary, and of both the latter, and Devalz, who agree that, after repeated pregnancies the utero-ovarian viens become varicose, a change takes place in their coats and that they often rupture. The differences of opinion as to the origin are equalled by those as to the frequency of hæmatocele. The following points are agreed upon by most authors. It is a disease (although only a symptom it may be taken as a disease from the after consequences set up by the irritation from pressure) rare in all classes, but mostly so amongst the better ones. It may be either intra or extra-peritoneal, the latter, when small, often being the unknown cause of pelvic cellulitis (parametritis.) It is generally retro-uterine. It occurs as a rule at the most active period of menstrual life, during menstruation, and more in the married than single. It is generally slow of formation, and therefore caused by small and frequent hæmorrhages in most cases, and it has a tendency to get well by absorption, but may soften and perforate. Unless the first hæmorrhage is very severe, or rapidly repeated, when collapse and death may be sudden, the earlier symptoms are those of general discomfort only about the pelvis, until peritonitis or cellulitis is set up by the irritation of the effused blood. This is often sudden, extremely painful, attended with severe vomiting, tenesmus and irritation of the uterus and bladder. There is heat and tenderness in the vagina, the uterus is pushed forwards, and an elastic tumour may be made out by bi-manual examination, generally easily distinguished from the uterus by a finger in the rectum. The case as a rule does well. Peritonitis subsides, no further hæmorrhage takes place, the tumour absorbs slowly, fixing the uterus, and the only treatment necessary is the most absolute rest. Especially to be avoided are sexual

intercourse, and too frequent examinations. Sometimes hectic or rigors and a high temperature denote softening and suppuration in the cyst which may be made evident by introducing the fine needle of an aspirator; and then, although some advise that if the point of threatened perforation is in the rectum it should be allowed to go on, yet recovery then is so tedious and miserable, an incision should be made into the cyst through the vaginal wall, and it should be well washed out daily with disinfectants. Perforation has been known to take place into the bladder and vagina, and rectum, also into the peritoneum, and the latter is nearly always fatal. Ante-uterine hæmatocele is rare and probably occurs only when the hæmorrhage is severe and yet not fatal, and the bladder being empty, the blood has time to get firmly clotted in front of, and round the uterus; the quantity effused being too large to occupy Douglas's pouch, or the latter being already sealed up by previous adhesions. The following cases illustrate these conditions:—M.D., æt. 35, on the morning of the 6th Aug, 1879, was seized with sudden and severe pain in left side, which extended over the abdomen, and was followed by a state of collapse most prolonged and alarming. Acute peritonitis followed with all its usual features and lasted for some days. Previous history shews that the patient had five children. There had been continuous pain and uterine hæmorrhage for ten weeks. Youngest child weaned four months ago. Had morning sickness and general malaise and symptoms of early pregnancy. On vaginal examination after subsidence of the peritonitis a tense hard tumour could be felt pushing the uterus downwards and backwards, and situate in front and to the left of the bladder. By bi-manual examination it was found to be a large tumour distinct from the uterus, the latter being an inch

longer than normal with short cervix, and much enlarged os. The tumour became a source of great pain and irritation, defæcation being very difficult and catheterism continually necessary; and on the 11th September, uterine contractions (without hæmorrhage) set in resembling those of severe labour, and lasting incessantly until the morning of the 13th. The tumour was then bulging into the rectum, so an incision was made through the upper part of vagina, and then through a very tough thick cyst wall, and a lot of offensive clots turned out with the fingers. The relief from all pain and pressure was immediate upon recovery from chloroform. Daily for thirteen days was the cyst washed out with carbolic solution and for *thirteen days did the cyst remain unchanged.* This not being, in this case, the result wanted, the carbolic was stopped, and then free suppuration set in, followed by granulation, puckering of the cyst wall, and gradual obliteration of its cavity. First menstruation on the 19th October profuse and accompanied by shedding of deciduous membrane. All of the latter was not thrown off, but a piece remained attached and formed a mucous polypus, which gave rise to considerable hæmorrhage until it was removed. The patient then did well. Case II.—J. P., æt. 26 (2 children). At night on the 17th August, was seized with severe abdominal pain, followed by collapse and most severe general peritonitis. Had continuous previous uterine hæmorrhage and pain in left side for eight weeks. Uterus and os much enlarged and pushed downwards and backwards. A firm mass in front of uterus above the pubis, reaching abdominal wall. Progress slow and unmarked. Menstruated on the 27th September, flakes of membrane being thrown off with offensive watery discharge. As the tumour appeared to be safely absorbing, the patient was

allowed to move about too soon, consequently it softened down and suppurated, perforating and discharging through the vagina before the mischief was detected. Recovery very slow, but at length established. In both these cases there was evidently a tubal pregnancy, and the rare occurrence took place of a rupture of the tube not followed by death. The blood became encapsuled during the peritonitis, the accompaning suppression of urine in the early stage of which kept the bladder empty during the time necessary for firm clotting. The peritonitis was treated by the continuous application of ice, opium, champagne, iodine counter irritation. Ergot and bromide of potassium have since aided in establishing uterine involution.

CASES OF RETINAL HÆMORRHAGE, ASSOCIATED WITH EPISTAXIS AND CONSTIPATION.

BY HENRY EALES, SURGEON TO THE BIRMINGHAM AND MIDLAND EYE HOSPITAL.

Case I.—G. B., æt. 16, a cock and tap maker, first admitted, January 12th, 1880.

History.—For the last two years has been subject to epistaxis, usually from the left side of the nose. Has been much troubled by constipation of the bowels during same time. Does not get up at night to make water. Has never had scarlet fever or rheumatic fever. No evidence of syphilis, hereditary or acquired. Not subject to sickness, headache, or cold feet. About nine weeks ago noticed "a kind of cloud, and stars, before the left eye."

State on admission.—A fairly healthy looking lad, well nourished, of moderate height.

Heart.—Apex in 5th interspace 3¾ inches to the left of the middle line, just under nipple. First sound at apex replaced by a murmur. Pulmonary 2nd sound accentuated. Heart's action slow and regular. Pulse, 50.

Urine.—Pale, clear, acid, sp. gr. 1012. A trace of albumen ; no sugar, no casts or crystals.

Tongue furred and breath foul.

Ophthalmoscopic Examination. Left Eye.—A large, irregular, roundish, partially decolorised hæmorrhage, near fovea, and several smaller hæmorrhages nearer periphery ; a few striated. Vitreous full of opacities.

Right Eye.—Fundus healthy, except that retinal vessels are very full and tortuous, especially veins.

Vision : Right Eye = $\frac{15}{xv}$ = 1 = normal, *Left Eye* = shadows only.

This case did well for a few weeks when glaucoma set in, which has resulted in blindness, though the hæmorrhage cleared up. I shall not trouble to record an account of his glaucoma, which is almost unique in so young a lad, though not rarely a sequence of retinal hæmorrhage in older persons.

May 28.—I made the following note : all hæmorrhages on retina have disappeared, and vitreous is fairly clear ; the retinal vessels are reduced to threads, and there is a well marked glaucomatous cup. Tension = + 2.

June 17.—The night before last, he awoke about 3 a.m. with great pain in his left eye, and sickness, and in the morning the lids were swollen.

Present state : Vitreous quite red with blood ; fundus cannot anywhere be seen in consequence, not even above. Tension = + 2.

Case II.—L. H. J., æt. 19, merchant's clerk.

History on admission, August 11, 1879.—Always had good health; had measles, chicken pox, whooping cough, but never had scarlet fever. Always "subject to bilious attacks if he ate rich things, such as much pastry or fat especially." He usually first notices these attacks in the morning waking up with sickness, but no headache. Does not get up at night to make water. Subject to epistaxis, especially in the summer, and if he exerts himself, for as long as he can remember, but not so badly during the last two years. No evidence of syphilis, hereditary or acquired. For last three months has been blind in left eye.

State on admission.—A tall (nearly 6 feet) spare lad. *Left Eye*: Vitreous quite black and opaque. Fundus cannot be seen. *Urine*, sp. gr. 1018. No albumen.

Sep. 16.—Fundus cannot be seen, but a red glare can be obtained at the upper part of left eye on ophthalmoscopic examination.

January 24, 1880.—Health is better, no epistaxis since he first came under treatment. Pulse, 55.

Left Eye.—Has large floating black bodies in vitreous. Several roundish, ill defined, large, and somewhat decolorised hæmorrhages, all over fundus, one recent, apparently just above disc, V. $= \frac{1}{60} = \frac{1}{3}$ of normal about. From this time vision much improved, and vitreous cleared up almost completely, vision becoming almost as good as ever (no note of vision kept at this time.) He went to work again about the middle of February, but about the second week in March, he had another attack of hæmorrhage into the left vitreous, a few days after having ceased to take his medicine, and vision was again reduced to mere perception of shadows, and fundus oculi was invisible in consequence of dense opacity of vitreous

April 17.—*Left Eye.*—Fundus cannot be seen; vitreous quite opaque. *Right Eye.*—Vessels full and tortuous, especially veins, but otherwise normal. V. = $\frac{15}{xv}$ = normal. Bowels still costive. "Obliged constantly to take salts in morning; but the bowels are then never moved till the following day, although he takes ½oz. the very first thing in the morning." Pulse 55.

May 8.—Retina can be slightly seen above, and presents several partially decolorised hæmorrhages.

Case III. H. E. P., æt. 20, clerk, first admitted February 26th, 1880.

History.—General health, fair; subject to sick-headache for the last five years (since he has been in office), especially during last six months. Had measles and small-pox when a child. No evidence of syphilis, hereditary or acquired. Subject to epistaxis about once a fortnight two years ago, and for some three years previous to this period, but not since; does not remember if it was more common one side than another.

Left Eye was first noticed to be getting gradually dim on Feb. 23rd; next day he found he was blind; about a week before this noticed both eyes puffed up in the morning; several friends also noticed this, but it went off during the day. Feet never swell.

Present State.—A spare lad, of moderate height, healthy in appearance, but wanting in tone and energy. Pulse 55, slow.

Heart.—Apex in 5th interspace, ½ an inch inside nipple. First sound booming, aortic second sound, distinctly accentuated.

Bowels, regular; no discomfort after food; appetite, good; tongue covered with whitish brown pasty fur; no pain in making water; does not get up at night to micturate.

Urine.—"Pale yellow, clear, neutral, contains phosphates—no albumen."

Left Eye.—Vitreous, full of black opacities. Fundus can only be seen above, where one *large*, diffused, roundish, partially decolorised hæmorrhage is found; rest of retina not seen.

Vision = Shadows only.

April 15th.—A fortnight ago taken with great pain over left eye and side of the head, which lasted about ten days; and during this attack the bowels were so confined that he took four doses of castor oil, three of which he returned, and then the bowels were not properly moved until he had taken ½ oz. of castor oil daily for a week.

Left eye vitreous opaque. Fundus cannot be seen. Fresh hæmorrhage into vitreous.

Case IV.—R. S., æt. 14. First admitted, January 7th, 1880.

History.—Had scarlet fever ten years ago, and rheumatic fever three weeks later. No dropsy after either. Measles five years ago. Severe epistaxis about a year ago, without apparent cause. Frontal headache for past three years, about three times a week, but never sick. Bowels constantly confined for last two or three years, never moved more than two or three times a week. Appetite very large at times. "A cloud passed over the left eye" about three weeks ago, while he was reading, and he has not seen with it since. Does not get up at night to make water.

Present State.—A small spare lad for his age, with ruddy complexion.

Heart.—Apex, behind 6th rib, 2½ inches from middle line and well inside nipple. No thrill; no murmur; both sounds reduplicated, and pulmonary second sound accentuated more loudly than aortic. Pulse 60.

Urine.—January 14.—Pale, clear, acid; sp. gr. 1010. A very faint trace of albumen. Scanty mucous cloud. No casts or crystals. January 17th.—Thick, turbid; trace albumen; turbidity disappears on warming; amorphous urates. Pulse 55.

Eyes.—Left: several large, irregular, somewhat rounded hæmorrhages all over retina, some partially decolorised. Vitreous full of many large black opacities, except above Vision = fingers at six inches. Right: Several similar, but smaller hæmorrhages just behind ciliary region. Vision, $\frac{15}{xv}$ = normal; vessels, full and tortuous, especially veins. Vitreous free from opacities.

April 21st.—Pulse still 55. Bowels regular with aid of medicine. No trace of hæmorrhages in right eye, and hardly a trace in left eye, either in retina or vitreous. Vision (R. = $\frac{15}{xv}$: L. = $\frac{15}{xv}$) = normal each eye.

Case V.—W. W., æt. 29, a brewer (for 14 years.) First admitted, May 6.

History.—Been very subject to epistaxis for the last five years, but not before, so severely last year as to alarm him. Bleeding generally from the right nostril, and occurs nearly every morning. "Very subject to the bile in the morning," and vomiting mucus. Bowels generally loose, moved about three times in two days usually. Never had scarlet fever or rheumatic fever, but has had measles. Had "the gravel" six years ago. Drinks "he ventures to say" six pints daily of ale; never drinks any thing else. Gets up at night to make water, water often thick. Drinks mostly at night when his work is done. Headaches (frontal) very bad till twelve months ago. Hearing good, sometimes a little dull. No pains any where, no twitchings; but used to get cramp two years ago. No cough. Rather short of breath. No gout in family. No evidence of syphilis hereditary or acquired.

Used to break out in face (acne?) Sore throat and hoarse voice during two winters, hardly able to speak. Had "bleeding piles" last summer, bowels loose at the time. *Right eye* went blind suddenly on Sunday, May 2, just before he had dinner at two o'clock, "a cloud passed over it," and by five o'clock he was quite dark with it. Had only drank about a pint of ale during the morning.

Present state.—A well nourished man, of medium height, face puffy, capillaries on face and nose unusually distended, tongue furred. Has all appearances of suffering from chronic alcoholic excess.

Ophthalmoscopic Examination.—Right Eye: Vitreous full of dark opacities; little or nothing can be seen of retina, though a red glare can be obtained of fundus. Vision = shadows only.

Left Eye.—Looks normal, except retinal vessels are full and tortuous, especially the veins.

Heart.—1st sound pure; aortic 2nd sound accentuated, no palpitation. Pulse 72 firm.

Urine.—Faint trace of albumen in urine, no casts.

June 17.—Right eye improved, but retina cannot be clearly seen yet in consequence of opaque vitreous.

I have for a considerable period now taken much interest in the subject of albuminuria, and its associated retinal disease, especially that form of temporary albuminuria, which appears to be most common about the age of puberty, and to be functional and not organic. The following facts have particularly attracted my attention as characterising these cases. 1. That the bowels are confined habitually. 2. That there are symptoms of high arterial tension, and 3. That the retinal vessels are invariably full and tortuous, especially the veins, which are unusually distended. In reporting on the state of the retina in one hundred cases of granular

kidney, (Birm. Med. Rev., January, 1880,) I alluded incidentally to 14 such cases, in five of which I found small white specks in the retina: *i.e.*, in 33 per cent.: presumably caused by previous hæmorrhages. By a singular coincidence, the above five rare cases have all been under my observation at the same time, and so I have been enabled to carefully compare their symptoms; and have been induced to take careful notes of their cases which I have thought of sufficient interest to publish in the above abridged form. My thanks are due to Dr. Saundby for kindly examining and reporting on the state of the heart and urine in these cases. Case V. is introduced for comparison, for though somewhat similar to the rest, it differs in many important particulars, and of which I will speak hereafter.

The following facts have characterised the first four cases. All are lads; all have been troubled more or less with sluggish and even constipated bowels; none having daily movements of the bowels without the aid of medicine. While under treatment, all have had symptoms of high arterial tension, such as slow pulse, accentuation of the sounds of the heart. None have been subject to polyuria. Two have had very slight traces of albumen in the urine, while two have had no albumen in the urine. In the two cases in which albumen was found casts were looked for but not discovered. All have been subject, more or less, to epistaxis. In all there has been profuse hæmorrhage from the left retina, while, in one case only, a few small hæmorrhages were found in the right eye also. In all the cases the hæmorrhages have been roundish and diffused, as though situated in the granular layer of the retina, while, in one case only, a few of the hæmorrhages were striated, *i.e.*, in the nerve fibre layer of the retina. In all the cases the retinal vessels have been full, tortuous, and distended, especially the veins, in both

eyes. In none has there been any other evidence of structural disease in the retina besides the hæmorrhage and distended state of the vessels. In one case only the whole retina was visible, namely, the one that had a few hæmorrhages in the right eye, and in this eye I would especially point out that not only were the hæmorrhages in the granular layer, but were found only at the periphery; that is, at the most distal end of the branches of the retinal artery and veins. In two cases complete recovery occurred, no trace of retinal disease being left; though in one a recurrence of the hæmorrhages took place, which is not uncommon in my experience of these cases. The same thing occurred in the case which terminated in glaucoma, as well as in case iv.

In no case was there any evidence of primary retinitis, or any constitutional disease, such as syphilis, leucocythæmia, anæmia, &c., to account for the hæmorrhage. I think, therefore, we are compelled to look on high arterial tension, with dilated arterioles, and capillaries, and consequent distended venous system (all increasing the tension in the capillaries) as the cause of the hæmorrhages, both in the eyes and from the nose, in both of which places the hæmorrhage probably occurred from the capillaries. The seat of retinal hæmorrhages in the granular layer, and at the periphery, are in accordance with this view. We have ample evidence of high arterial tension in all of these cases, and the retinal appearances and epistaxis fully coincide with a state of venous and capillary distension; but it may be said, if you assume a general state of arterial relaxation, how do you reconcile this with high systemic arterial tension?

We know from physiologists that when the splanchnic nerves are stimulated there is inhibition of the muscular movements of the bowels, with vaso-motor con-

triction of the arterioles of the whole alimentary canal, and also in the kidney, which is only imperfectly compensated for by dilatation of other areas, and so there is at once a rise in pressure in the carotids, but no polyuria, unless the nerves going to the kidney are previously cut, when it at once sets it. Now I assume that in these cases the sluggish bowels, with absence of polyuria, though evidence of high arterial tension accords with vaso-motor contriction and inhibition of the whole splanchnic area, causing resistance to the passage of blood through the portal system, and so causing, increases tension in the systemic system, with compensating dilatation of the systemic arterioles and capillaries, and increased flow into and distension of the systemic venous system, which is the cause of the epistaxis and retinal hæmorrhage; the tension being too great for the capillaries which give way. It must be remembered, too, that an inactive state of the muscular movements of the bowels would tend to increase the stagnation in the portal venous system, and increase the resistance offered.

In short, I consider the constipation, however produced, as the starting point of all the other phenomena in these cases. It may be said surely local hæmorrhages demand a local cause? We are not certain that hæmorrhages do not occur elsewhere, though probably not; for in the mucous membrane of the air passages and meninges of the brain, and in the secreting membranes generally, the capillaries probably relieve themselves, either by serous transudation, or are saved from rupture by some counterposing force, such as is found in the contraction of the intestine on its contents, and similar state of tension in most gland ducts; but in the nose there is no counterposing force; hence epistaxis seems to be the commonest form of hæmorrhage.

In the retina there is a great want of supporting connective tissue, and the retinal arteries and veins can not relieve themselves through any other channels, having no collateral anastamoses, as most vessels do, hence the wonder at first is that rupture does not occur here more often; the explanation is to be found in the tension of the ocular contents, vitreous, &c., supporting the vessels, and so in spite of their unfavourable conditions, we find hæmorrhage from the retinal vessels comparatively rare, while epistaxis is very common: however, the retina is undoubtedly one of the commonest seats of hæmorrhage in high arterial tension from all causes.

The occurrence of the hæmorrhage in three of these cases on the left side, and in the 4th worst on the left side, is I think, more than mere accident, and I cannot help thinking that the left carotid artery coming off direct from the aortic arch, and the greater length and more indirect course of the left innominate vein, which joins the others almost at right angles, may cause a slightly higher tension in the capillaries on this side, and so account for the greater frequency of hæmorrhage on this side. Possibly too, the fact of the right arm being supplied by the innominate artery, through the subclavian, and being in constant use, tends to lessen the tension in the carotid: because when muscles are used their capillaries are dilated, and there is local diminution of tension.

I do not propose to discuss here the occurrence of glaucoma in case 1. though very interesting, and I believe unique in so young a lad: but the fact that this case is the worst, and is suffering from mitral regurgitation, is strongly in favour of the overloaded state of the venous system being a factor in these cases telling back on the already over distended capillaries.

What is the original cause of the sluggish bowels I cannot say. It is interesting that all of these cases have been in lads. Probably females are saved from retinal hæmorrhage by their menstruation.

Case V is introduced as a contrast. Here the patient was older, the bowels are habitually loose, there was polyuria, and all the history and evidence of chronic alcoholism, with probably slight increase of arterial tension (shewn by accentuation of the aortic second sound) and gastro-intestinal catarrh. Here I imagine in spite of a general vaso-motor dilatation in the alimentary, and all other areas, the tension is raised by the stimulant to the heart, and possibly by the blood being altered in some way, that makes its passage through the capillaries more difficult; as would appear to be likely in these cases. Of course it is possible that some blood changes may be a factor in the other cases also. It is curious too that in this case the hæmorrhage was limited to the right eye and not the left. Possibly some unknown local peculiarity in the arrangements of the vessels might explain it. Possibly a transposition of the innominate artery to the left side. I would particularly draw attention to the fact that the epistaxis in this case, and in case I. was usually from the same side as that on which the retinal hæmorrhage occurred, as this appears to me to be strong presumptive evidence of both being due to the same cause, and would point to this cause being the general state of the vessels on one side, and not to a local retinal disease, or to accident.

The treatment in all cases consisted for the most part in mag. sulph., or some other purgative, or laxative, taken daily in the morning, and in a mixture containing digitalis and belladonna, with some bitter tonic, and sometimes pot. iodide.

REPORTS OF CASES.

GENERAL HOSPITAL.

LEAD POISONING; SUBSEQUENT CONTRACTION OF LEFT HAND; RESULTS OF THE APPLICATION OF GOLD; SUCCESSFULLY TREATED BY FARADISM. (*Under the care of Dr. Saundby.*)

Joseph Watson, 30, house painter, applied as an out-patient, on May 25th, 1880, complaining of pain in the chest and between the shoulders. His tongue was furred; bowels confined; strong blue line on gums; no albumen in urine. Diagnosis; plumbism. Treatment:—R. Mag. sulphatis, ℥j; Pot. Iodidi., gr. v.; Tr. Opii, mj. aq. ad. ℥j.; t.d.s. Ordered warm baths twice a week, and to discontinue employment.

June 1.—No better.

June 5th.—Patient came to shew his left hand, which was firmly clenched, and looked cyanosed. He stated that on Wednesday evening (three days ago) as he was taking his supper, both hands were spasmodically flexed so that he could not let go his knife and fork. This went off in about half an hour, but on Thursday morning, about eleven o'clock, the left hand "went altogether." At present, the fingers of the left hand are firmly flexed on the palm, the thumb lying over the fingers. The fingers are slightly cyanosed, and the hand feels a little colder than the other. There is slight numbness on the palmar aspect, but no definite anæsthesia. No anæsthesia in right arm. The movements of pronation and supination are free, but the wrist can be flexed and extended very imperfectly. It gives pain to attempt to force the hand open. After the application of gold (a sovereign and a half-sovereign) for twenty minutes, loss of sensibility in the opposite forearm and hand, without any remission of the previous symptoms. The gold was then applied to the right arm for twenty minutes, after which sensation completely disappeared in the left hand and lower part of forearm, but returned com-

pletely in the corresponding parts on the right side. Silver had no effect. Both poles of constant current, and unipolar excitation on an insulated stool, were quite ineffective

June 8.—Gold (two half sovereigns) applied to left arm at 9.25 a.m.; after twenty minutes no change. Gold re-applied 9.50; after twenty minutes no change. Re-applied *to right* arm at 10.25 without any result. 11 a.m.—A piece of copper wire to which a piece of zinc was soldered, was dipped in acetic acid and applied to the left arm. Arm faradised for twenty minutes; the muscles reacted, but were unable to overcome the spasm of the flexors.

June 9.—After fifteen minutes' faradism the thumb and index could be passively extended.

June 10.—The second finger could be extended by force after faradising. He began to-day to wear a zinc and copper bangle with a pledget of wet calico put between it and the skin.

June 11.—The remaining fingers were extended, but this could not be effected by stimulating the extensors by the battery.

June 12.—The fingers are semi-flexed, and can be partially extended by the battery.

June 13.—Slight improvement.

June 14.—The extensors respond to battery almost normally, and the patient can voluntarily partially extend his fingers,

June 15.—Partial voluntary flexion and extension. Anæsthesia of left hand and wrist unchanged. No affection of sensation in right hand and wrist. Two sovereigns were applied to the front of each forearm successively for twenty minutes, without producing the least change. Faradic current given for ten minutes, when muscle responded almost normally.

June 17.—Can extend hand now pretty well. Not faradised yesterday owing to battery being out of order. No alteration of sensibility since last note. Faradism given for ten minutes, with same result as on June 15. Bangle discontinued.

June 18—Voluntary extension was not quite so free as yesterday at first, but became better afterwards. Muscles responded normally to faradic current. Anæsthesia unchanged.

June 19.—Same result as yesterday.

June 21.—Extends his finger very well; muscles respond well; sensation unchanged. Yesterday, while patient was asleep, his wife noticed that his right lower extremity twitched, and this morning he complains of pain down the course of the great sciatic nerve.

June 22.—Sensation has returned to the left arm down to the flexure of the wrist, and over about half an inch of the outer part of the thenar eminence. Complains of pain in the course of the sciatic nerve, and says that yesterday afternoon when he was asleep the leg jerked about. On giving the continuous current great pain was caused by applying the pole to the following situations, viz.:—1. Poplital space (middle). 2. First below the patella. 3. Outer side of upper epiphysis of fibula. 4. Close to the internal condyle. 5. Junction of middle and lower third of calf. Ordered constant current 20 c. for 20 minutes to right leg. This was given with no result at that time.

June 23.—Same treatment was given but with no result as regards the lower extremity. The pain is quite as bad as yesterday. *Forearm* movements still improving; anæsthesia gradually diminishing.

June 24.—The area of sensation is passing slowly downwards, and now extends for about 1½ inches on the back of the hand, and over the whole of the thenar eminence and the radial side of the palm. Both batteries given with same result as yesterday.

June 26.—Faradism for 10 min., continuous current for 15 min. Arm slowly improving. Pains in his legs are not so severe, although patient says the legs twitch about in his sleep quite as much.

June 29.—Sensation has returned pretty well all over the left hand. He can open it now quite freely. The blue line has not quite disappeared from his gums.

MEDICAL NEWS.

REPORTS OF SOCIETIES.

Midland Medical Society.

Since our last Report, three meetings have been held.

Meeting, 24th March.

Dr. Saundby read an interesting and exhaustive paper "On the Diagnosis of Granular Kidney." The President (Mr. W. Thomas) read a paper *"On the treatment of Empyema by resection of one or more ribs." In the discussion, Mr. Rhodes gave statistics of twenty cases of Empyema which he had observed during his House-Surgeoncy at the Children's Hospital. Of these, seven were acute cases (with one death) and thirteen chronic. Of the latter, six recovered and seven died. The six recoveries were six of the cases which the President had described in his paper, and in the seven deaths no excision of rib was performed.

Meeting, 7th April.

Mr. Rhodes showed a bad case of hip disease, which had been most satisfactorily treated by Thomas's Splint.

Dr. Malins showed Ovaries removed by Oöphorectomy.

Mr. Furneaux Jordan read a paper on "Operations for the several varieties of Strangulated Hernia." Mr. Jordan urged the importance of early treatment, and the selection of that operation which involved the least interference with the parts: hence he preferred the extra-peritoneal—which he looked upon simply as an aid to taxis—whenever practicable, and considered it should be the rule for femoral hernia where we have only one ring to deal with. In inguinal, where we have a tube with three rings, he considered opening the sac a safer rule. In Umbilical Hernia, which was nearly always irreducible, and

* This paper was published in our last number.

operations for which were so generally fatal, Mr. Jordan recommended making a small incision directly into the sac, just sufficient to admit the finger on which a herniotome could be guided to the seat of constriction. Out of four cases in which he had thus operated, three recovered.

Mr. T. F. Chavasse read a paper on "The treatment of Ulcers of the leg in Hospital Practice." Mr. Chavasse had for some time used Martin's rubber bandages, which he had succeeded in obtaining at a moderate price from the Birmingham India Rubber Co. He dressed the wounds with Lister's Boracic Acid Lotion or ointment, and supplied each patient with printed instructions. The average duration of 200 cases thus treated was one month.

The last Meeting of the Session was held on the 21st April.

Mr. Eales showed a lad, æt. 16, with glaucoma of left eye. Hæmorrhage into the vitreous had preceded the glaucoma, a mitral regurgitant murmur was present, and there had been frequent epistaxis from the left nostril. Mr. Eales thought the occurrence of glaucoma in so young a lad unique. Mr. Eales also alluded to 3 similar cases of hæmorrhage into the left eye in lads, associated with epistaxis and very slow pulse (under 60.) Mr. Eales suggested that the high arterial tension, not uncommon about the age of puberty, might be a very probable cause.

Mr. Gamgee showed a case of severe wound of the forearm which he had dressed with antiseptic wool pads similar to those he had exhibited in February last. The wound had healed very rapidly.

Dr. Warden read a paper on "the Treatment of Congenital Talipes Equino-valgus," and showed the splints and modified Scarpa's shoe which he used at the Orthopædic Hospital.

Dr. Rickard read a paper on "the Treatment of Acute and Chronic Psoriasis by Chrysophanic Acid Ointment." He used an ointment ʒss of the acid to ʒi of vaseline. A very few dressings sufficed for the cure of acute cases, in chronic cases a longer time was required, but in both Dr. Rickards had obtained better results than by any other mode of treatment.

Dr. Savage showed a parovarian cyst which he had removed by enucleation. For the after dressing

Mr. Gamgee's pads had been used with excellent result, there being no pus. Dr. Savage also showed a Hodge's pessary which had been worn continuously for two years, and which had produced a urethro-vaginal fistula.

Mr. Lawson Tait showed a pair of normal ovaries which he had removed by oöphorectomy, from an inmate of the Borough Lunatic Asylum. After recovery from the operation the patient became extremely violent: this, however, subsided, and she is now at large and residing with her friends.

The Medical Benevolent Society.

The 57th Annual Meeting of this Association was held in Birmingham, on May 28th; Dr. Nason of Stratford-on-Avon, President, in the chair. The report shewed that the invested funds of the Society were £9,560, and that £395 had been dispensed in grants during 1879. A legacy of £100 had been received by the bequest of Mr. Pye Chavasse, a former Trustee. Dr. Nason announced Donations amounting to £71. The following Officers were appointed:—President, Mr. W. H. Sproston; President-Elect, Dr. Fitch, Chaddesley; Vice-Presidents, Mr. Batten, Bromsgrove, and Dr. Jordan; Treasurers, Dr. Wade and Mr. Bartleet; Trustees, Dr. Foster, Mr. W. C. Garner, Wednesbury, and Mr. J. F. West; Honorary Secretary, Dr. Sawyer. A vote of thanks was given to Mr. Bartleet, who for five years had assiduously devoted himself to the affairs of the Society as Honorary Secretary, and whose exertions had yielded a large increase of members. After the Meeting, the Annual Dinner took place at the Grand Hotel, the chair being occupied by Dr. Nason, and the vice-chair by Dr. Sawyer.

MEDICINE AND PATHOLOGY.

Malignant Acute Dermatitis.—Dr. Quinquaud describes five cases which presented the following clinical characters:—1. A polymorphic skin eruption, resembling, according to the stages in which it is examined, different cutaneous affections, which suggests the existence of some general condition presiding over all. 2. A com-

bination of severe general symptoms: intense fever, circulatory disturbances without albuminuria or glycosuria. 3. Nervous disturbances: fatigue, pain in the back with even local or general paralysis; these signs indicating the existence of some material lesion of the nervous tissues. The lesions met with were: 1. A diffuse myelitis characterised by numerous granular bodies and multiplication of the nuclei of the neuroglia and the vessels; a parenchymatous neuritis characterised by a reduction of the myeline to miliary globules, and a multiplication of the nuclei.—Le Progrès Médical, No. 22, 1880.

NERVOUS PHENOMENA CONNECTED WITH DISEASES OF THE STOMACH.—M. Leven directs attention to the nervous phenomena which often accompany diseases of the stomach, and which may be a source of error in diagnosis. These phenomena, which are always situated on the left, arise, some from the cord, and some from the brain. Amongst those which originate in the cord may be mentioned the various neuralgiæ, the hyperesthesiæ of muscles and joints, which simulate true muscular rheumatism. Chronic disease of the stomach is also often complicated with hypochondriasis. M. Leven said that this did not constitute a neurosis which would come under the notice of alienists. A hypochondriac is never suicidal. When the stomach disease is the cause of these different affections, the nervous phenomena disappear when it resumes a healthy state. M. Leven concluded by saying that many persons, said to be suffering from nervous affections, are in reality only the subjects of gastric disorders.—Le Progrès Médical.

CEREBRAL TEMPERATURES.—M. Franck has sought to discover whether the variations in the temperature of the surface of the cranium afford any indications of the variations in temperature in the subjacent brain substance, in other words, whether cranial thermometry can be used to diagnose localised cerebral diseases. He has found by experiment that both bone and skin oppose considerable resistance to the passage of heat, and that in a recently killed animal the warmth of the deeper parts of the brain is not transmitted, or imperfectly transmitted, to the surface of the cranium. Therefore the attempts to localise cerebral affections by means of the superficial temperature of the cranium must be admitted only with great reserve.—*Ibid.*

THE ETIOLOGY OF FEVER.—The following are the conclusions arrived at in a very able paper by Drs. G. A. Walton, and Charles B. Witherle, published in the Boston Medical and Surgical Journal, for June 10th, 1880:—

Through irritation of the vaso-motor centre a tetanus of the smaller superficial arteries occurs, which, by diminishing the circulation in the skin, shuts in heat. The onset is accompanied by a chill or not, according as the tetanus occurs suddenly or gradually. In some unknown way an increased production of heat is caused by the shutting in of heat. This increased heat production must be regarded as of much more importance than it was considered to be by Traube. Throughout the periods of rising temperature there is decreased activity of heat elimination relatively to the new and increased rates of heat production. The elimination of heat may or may not be absolutely decreased. Even with tetanus of the arteries, and rising temperature the excessive heat production may be enough to make the absolute amount of heat eliminated greater than normal, but during the rise, incompetency of the heat eliminating system, dependent on tetanus of the superficial arterioles, remains a cause of the rise and of the increased heat production. Exhaustion of the tetanus is followed by a more or less gradual increase of heat elimination and fall of temperature, to be followed in turn, if the fever continues, by a second tetanus and rise of temperature.

In favour of this modified form of Traube's theory it may be said:—

1. That the fact of greatly diminished circulation in the skin has been shown by Hüter in the septic fever of frogs.

2. That this theory only assumes a derangement of a well known physiological function, namely, that of the vaso-motor centre, while no centre for heat production has been demonstrated.

3. That it has been shown that a fever can be produced by a primary shutting in of heat, while it has not been shown that increased heat production can of itself cause fever.

4. That this theory retains all the advantages of Traube's original aim in explaining the clinical and pathological phenomena of fever.

5. That it is free from the objectionable assumption of Traube, that there is in fever patients a tetanus of the arteries, lasting for days and weeks.

6. That it is not inconsistent, as Traube's theory is, with the result of Leyden's calorimetric experiments on fever patients.

7. That shutting in of heat will, as has been shown, account for the great increase in the elimination of urea which is observed in fevers.

With regard to the practical bearing on medicine of the question which has been discussed, a few words will be ventured, though not strictly admissible under the subject of the paper.

If increase of heat production is the primary disturbance in fever, treatment by cold baths is apparently of service only by giving comfort to the patient and occasionally preventing those excessively high temperatures which seem to be in themselves dangerous to life. The baths cannot be supposed, if we take this view, to be of any service in checking the production of heat and destruction of tissue. If, on the other hand, decreased heat elimination is primary to and the cause of the destructive tissue metamorphosis, then cold baths, by increasing heat elimination, directly tend to remove the primary cause of fever.

THERAPEUTICS.

PEPTONES AS FOOD.—Dr. Bergeron has reported excellent results in three cases. The first was a child, aged two years, with chronic diarrhœa. She began with one spoonful of Defreone's Peptone night and morning in soup, and then increased it to four spoonfuls daily. In ten days she gained 500 grammes (about 1lb.), the diarrhœa had stopped; eight days later, the weight was the same, the child had been troubled by cutting two molars and slight diarrhœa; ten days later she had gained another 600 grammes. The second case was that of a lady, who had been confined to bed for two years and treated for cancer of the pylorus. She presented the following symptoms: weakness, constant glairy vomiting, occasional epigastric pain, abdominal retraction, emaciation, obstinate constipation, acid eructations, tongue normal. Having exhausted all other remedies he ordered peptone, three spoonfuls daily by enema, and

the same quantity by the mouth. After the tenth bottle the patient could get up and go about on crutches. The doses were gradually increased, and she abandoned her crutches and could walk in the garden. Dr. Bergeron noticed particularly the return of appetite that occurs under this treatment, and besides the inability of the peptone to satisfy hunger, an inconvenience which may be got over very easily by mixing the peptone with a little soup or Liebig. The latter will probably prove an excellent vehicle, as its pleasant flavour will tend to cover any defects in this respect, from which probably most peptonised articles of diet are not free.

M. Bagros (Repertoire de Pharmacie) gives the following formula as having been ordered by a physician for a patient who refused all nutriment :—

Lean Beef . . .	100 grammes		ʒjjj.
Boudault's acidulated Pepsin	4	—	ʒi.
Pure Glycerine . .	20	—	ʒv.
Warm Water . .	80	—	ʒijss.

Pound the meat to pulp in a marble mortar, then add successively the pepsin, glycerine, and warm water. Put the mixture in a wide necked bottle and place the latter in a water bath at a temperature of 40° to 50° C. At the end of five to six hours, the previous red colour of the mixture is changed to grey. Then strain it under pressure. Only 8 to 10 grammes of residue will remain on the filter. The filtrate is an opaque, greyish, nearly odourless liquid. The addition of glycerine at the commencement of the operation is indispensable, in order to prevent a disagreeable odour, and it does not in any way interfere with the solvent action of the pepsine. Two samples, kept more than four months in partially filled flasks, which have been opened many times, are in the same state as on the first day. The patient, for whom this enema was prepared, could take no kind of nourishment; sometimes she ate one or two figs or raisins in the course of the day, but in spite of this, she went out daily for a walk. For a month she took this enema every morning and only discontinued it when she became able to eat. There is every reason to believe that this patient derived a considerable amount of nourishment from this means, which enabled her during a time of complete inanition, so far as concerns the taking of food by the mouth, was yet able, not only to maintain life but to take daily exercise.—Le Progrès Médical.

BENZOATE OF SODIUM.—So many correspondents have asked regarding this salt in the treatment of phthisis pulmonalis that we give a general answer as follows: Letzerich recommends the following for internal administration:—

℞. Sodæ benzoatæ . . . . gr. 80.
Aq. dest. . . . . .
Aq. menth pip āā . . . ʒiss.
Syr. cort. aurant. . . . ʒijss.

M. Sig. per table-spoonful every hour for adults, a teaspoonful for children less than two years old, and a dessert-spoonful for children three to five years old.

Klebs advises the inhalation of ʒiiss. per day, at two or three sittings, conjointly with the benz. magnes. internally in doses varying from ʒi to ʒij per day. Schüller uses ʒj to ʒjj benz sod. per day, taken by the mouth in doses of ʒss. to ʒi. Kroczak employs inhalations of a 5 per cent. aqueous solution. Others have used and recommended a 2 per cent. watery solution, the sittings lasting at times over an hour. The dose administered by inhalation is ʒss. at starting, with a gradual increase up to and above ʒiss. daily. Two to three inhalations are practised each day, the sittings in some instances lasting two hours (counting pauses for rest). The minimum dose appears to be about ten grains; the maximum ʒss. and even ʒj.—New York Med. Record.

ANTIHYDROPINE AS A DIURETIC.—In Russia, cockroach in powder or infusion has been for a long time a popular remedy for dropsy. The attention of the profession was called to it for the first time by Dr. Kuprianoff in his dissertation for the Degree of Doctor of Medicine, his thesis being that the cockroach in one grain doses is a reliable diuretic. Later on Dr. Bogomoloff (St. Petersburger Medicinische Wochenschrift, 1876, No. 31) made experiments with antihydropine in six patients in Prof. Botkin's clinic, and three patients in Krosnoe Seloe Hospital, all suffering from dropsy induced by various causes. The conclusions to which he arrived were as follows: antihydropine increases the amount of urine, and diminishes the amount of albumen and structural elements, dropsical symptoms disappear, the weight of the body diminishes, perspiration in the majority of cases increases, and the digestion is not affected by it at all.

The article referred to above contained also the report of a case from Prof. Botkin's private practice—a lady suffering from cardiac dropsy, after every diuretic had been tried successively without giving relief, was put finally on this popular remedy, and in a short time all dropsical symptoms disappeared. Dr. Spulsky's case was one of the patients in Prof. Slawjansky's Gynæcological and Obstetric clinic at the St. Petersburg Medico-Surgical Academy. She suffered from a tumour in the peritoneal cavity, probably of a malignant nature, complicated by an ovarian cyst and an extensive ascites. The average daily amount of urine (for eight days) previous to the treatment by antihydropine, was 925c.c. Then she was ordered to take three grains of the cockroach three times a day. For the first six days her average daily amount of urine increased by 172c.c. (1097c.c. per day.) During the next five days she passed daily 954c.c. of urine. At the same time the size of the abdomen and the ascites diminished considerably, and her general condition became improved. For the purpose of a cross test, antihydropine was withdrawn during the following thirteen days. Daily average fell to 640c.c., ascites increased, abdomen became larger, and her general condition became worse. With the return to antihydropine, daily average of urine increased to 1038c.c. per day, and the improvement was noticed again in the general and local symptoms. Dr. Spulsky states that both before and during the treatment the patient took approximately the same amount of fluid, that she did not suffer from diarrhœa, that the perspiration was not increased by the antihydropine, and that there was no increase of salivation. Appetite, digestion, sleep, and other functions were not disturbed. Except for the appearances during the last days of a trace of albumen, no qualitative changes in the urine were observed. St. Petersburg Vrachebn. Vedomosti, reported in New York Med. Record.

ARTIFICIAL CARLSBAD SALTS.—The artificial and natural Carlsbad salts, sold by druggists, are expensive. The following represents the ingredients as given by the Cincinnati Lancet and Clinic :—

℞ Sodii Sulph. . . . . ʒ vi.
Sodii carb. cryst. . . . ʒ vij.
Sodii chlorid. . . . . ʒ i.

—*Ibid.*

TANNATE OF QUININE.—This drug, which is becoming popular for use with children, is less reliable than the sulphate, slow in action, and about half as strong. It is soluble, however, in the stomach, and if pure and carefully given, preferable with a little wine, it will generally act just as well as other preparations.—*Ibid.*

THE VENTILATION OF SICK-ROOMS.—Mr. John Gamgee has halted long enough in Louisville to allow his wonderful genius to develop a marvellous machine for the reduction of temperature in ordinary chambers, and for the ventilation of sick-rooms, by the use of cold as motor. He demonstrates by a beautiful experiment that a small piece of ice will drive a constant current of air through any ordinary room having two openings. He proposes to apply this to the ventilation of the rooms of patients sick with contagious diseases, and, by the interposition of such chemical agents as are known to destroy septic matters, force all the vitiated air through such filters as will render it perfectly innocuous, thus bottling the poisonous effluvia until it can be rendered harmless. This is no vagary of the imagination; we have seen the experimental tests so often made that we are sure Mr. Gamgee's device will drive air through a room in any desired direction. Louisville Med. Herald.

QUEBRACHO IN DYSPNŒA AND DIARRHŒA.—The accounts which we get from foreign observers as to the action of quebracho continue to show that this drug is a valuable addition to the *armamentarium therapeuticum*. Berthold has published in the Berliner Klinische Wochenschrift, No. 52, 1879, an account of several cases of severe convulsive asthma where this remedy seemed to produce a very happy effect. In one, a gentleman of sixty-five was found in a violent attack, pulse 108, respiration 64. A teaspoonful of the tincture was given every hour, and at the end of three hours the respiration was reduced to 30, and the patient rapidly recovered without other medicine. In some fourteen other cases a similar happy result was attained, though not always with the same promptitude. In the case of a lady of sixty, suffering from mitral insufficiency, with stenosis and frequent attacks of frightful dyspnœa, where digitalis had failed, quebracho gave relief. Berthold also recommends the alcoholic extract of quebracho as an excellent remedy in diarrhœa. In the case of children, he gives the extract

in the dose of 1½ grains in pill form, to the number of ten a day. No ill effects have been observed. In the same number of the Wochenschrift, Dr. Picot relates some experiments made upon himself to ascertain if quebracho would prevent dyspnœa from the exertion of climbing, and found that by taking a previous dose of about a tablespoonful of Penzoll's tincture he could climb a considerable acclivity without losing his breath. He has also administered the tincture to two obese and short winded individuals, with the result of markedly diminishing the dyspnœa felt on extra exertion.—Philadelphia Medical Times.

TREATMENT OF NIGHT SWEATS IN PHTHISIS PULMONALIS.—A lady suffering from phthisis pulmonalis had been tormented with profuse night sweats for upwards of a year. All other means having failed to relieve this distressing symptom, Dr. Köhnhom applied the remedy employed in the army for sweaty feet—viz., acid salicyl 3 parts, amyli 10, and talc 87—with the best results. The mixture, in fine powder, was sprinkled over the patient, and the sweating ceased. With a second patient the same result was also obtained.—Berl. Klin. Wochenschr., No. 1, 1880.

GLYCERINE AS A SUBSTITUTE FOR COD LIVER OIL.—Glycerine was introduced some time ago as a substitute for cod liver oil, but failed to gain favour. Dr. Larmande now recommends it again in a form which he calls tonic glycerine. It consists of—glycerine 300 grammes (℥ x); tincture of iodine, 30 drops, and iodide of potassium, 0·3 grammes (gr. v); the dose being ℥ ss. This is claimed to restore the appetite and regulate the bowels. Experiments recently made by Monck shew that glycerine is not a food in the ordinary acceptation of the word. Practical experience, however, may show it to have some medical value.—*Ibid.*

ANÆSTHESIA DURING SLEEP.—The investigations embodied in the paper on the criminal use of chloroform, read by Dr. J. V. Quimby, of Jersey City, before the Section on Medical Jurisprudence and State Medicine of the American Medical Association, would seem definitely to settle a question in regard to which a considerable portion of the profession has hitherto been somewhat in doubt, namely, whether a sleeping individual could be brought under the anæsthetic effect of chloroform without waking. He related three experiments made

with a view of determining this point. He first made arrangements with a gentleman of his acquaintance to enter his room while he was asleep and give him chloroform by inhalation. This he did with entire success, easily transferring from natural to artifical sleep without arousing him. He used for this purpose about three drachms of Squibb's chloroform, and occupied seven minutes in the experiment. The second case was that of a boy thirteen years of age, who had refused to take ether for a minor operation. By Dr. Quimby's advice his mother gave him a light supper and put him to bed. When he was asleep the doctor administered chloroform and performed the operation without awakening him. The third case was similar, the patient being a boy of ten, who was suffering from an abscess, which it was necessary to open, and the same course was pursued here with equal success. Two inferences might be drawn from these cases :—1. Minor surgical operations could thus be done with perfect safety, and much more agreeably than in the ordinary way ; and, 2. An individual somewhat skilled in the use of chloroform might enter a sleeping apartment, and administer chloroform with evil intentions to a person while asleep. Boston Med. and Surg. Journal.

New Books, &c., Received.

1. Transactions of the American Gynecological Society. Vol. 4. For the year 1879. Boston : Haughton, Mifflin & Co. 1880.—2. General Paralysis of the Insane. By Wm. Julius Mickle, M.D., M.R.C.P. Lond. London : H. K. Lewis.—3. The Orthopragms of the Spine. By Robert Heather Bigg. London : J. & A. Churchill.—4. The Diagnosis of Diseases of the Spinal Cord. By W. R. Gowers, M.D., F.R.C.P. London : J. & A. Churchill.—5. Aspiration of the Knee Joint. By Henry O. Marcy, A.M., M.D. Cambridge, Mass.—6. The Monthly Review of Dental Surgery. Vol. 1. No. 3. London : Smith, Elder & Co. 7. The Pharmacopeia of the British Hospital for Diseases of the Skin. London : J. & A. Churchill.—8. Hay Fever. By Charles Harrison Blackley, M.D. London : Baillière & Co. 2nd Edition.—9. L'Annee Medicale (Deuxieme Annee). 1879. Paris : E. Plon et Cie. 1880.—10. On the Bile, Jaundice, and Bilious Diseases. By J. Wickham Legg. London : H. K. Lewis.—11. Tables of the Physiological Action of Drugs. By E. A. Morshead. London : H. K. Lewis.—12. Metric Record of Prescription and Medical Observation. London : H. K. Lewis.—13. Antiseptic Surgery. By William MacCormac, F.R.C.S.E., and I. London : Smith, Elder, and Co.—14. A Manual of Diseases of the Throat and Nose. By Morell Mackenzie, M.D. Vol. I. London : J. & A. Churchill.—15. On Deafness, Giddiness, and Noises in the Head. By Edward Woakes, M.D., Lond. Second Edition. London : H. K. Lewis.—16. Royat in Auvergne ; Its Mineral Waters and Climate. By G. H. Brandt, M.D. London : H. K. Lewis.

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